WL-194g

(Wireless PCI Express Card)

PEGATRON

CONTENTS

NOTE: Information in this document is subject to change after this document is made available.

INTRODUCTION

SCOPE

The purpose of this specification is to document the requirements for 802.11 b/g, it is PCIe x1 standard Card for use in Desktop computers.

ACRONYMS AND DEFINITIONS

Acronym	Description
BER	Bit Error Rate
BPSK	Binary Phase Shift Keying
CCK	Complementary code keying
DSSS	Direct Sequence Spread Spectrum
OFDM	Orthogonal Frequency Division Multiplexing
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying

GENERAL FEATURES

Network Standard	IEEE 802.11b/g
Chipset	Realtek SoC RTL8187SE
Host interface	PCI Express BUS Management Interface
Data Rate	802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11b: 1, 2, 5.5, 11Mbps
Modulation	CCK(b); OFDM(g)
Operating Frequency	802.11b/g (2412 ~ 2484 MHz)
Operating Channel	Ch1~Ch14
Trans/Receive Mech.	Block diagram (see below)
Antenna Connectors	1 x R/P SMA RF connectors
Security	64-bit/128-bit WEP, TKIP, and AES Wi-Fi alliance WPA, WPA2
Driver Support OS	Windows Vista, XP, 2000, Linux

RF PERFORMANCE

ITEM	802.11b	802.11g
RF Output Power	17dBm+-1dB	14dBm+-1dB
Frequency offset	<+-25ppm	<+-25ppm
EVM	10%	-27dB
Sensitivity	-93dBm@1Mbps -86dBm@11Mbps	-86dBm@6Mbps -72dBm@54Mbps

INTRODUCTION

LED BLINK DEFINITION

2-pin header is added on PCBA and it is capable to drive one LED and provide the radio status. The LED is super yellow-green & radio status is shown below.

Status	LED (Yellow & Green)
OFF	Device is disabled or radio is OFF
ON	Radio is ON

SPECIFICATION

Antenna Length	82.5±2mm
Connector	SMA Plug Reverse
Color	Black
Operating Freguancy	2.4~2.5GHz
Polariation Type	Linear Vertical
Type of Radiation	Omni-directional
Peak Gain	2.0 dBi Typical
Impedance	50 Ohm
V.S.W.R.	2.0:1 Max.
Coaxial Cable	RG-178 Coaxial Cable

ENVIRONMENT

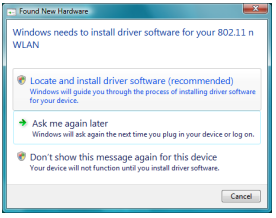
Operating Temperature	-10~50
Operating Humidity	20~90%
Storage Temperature	(Non-Operational) -40~60 (at humidity of 50%)
Storage Humidity	(Non-Operational) 20%~95% (at temperature of 25~60)

PACKING INFORMATION

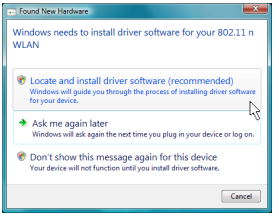
Packaging is customized by customers. Standard packaging is as follows:

- PCIe card x1
- Antenna x1
- Carton (40 in 1)
- Low profile bracket x1 (optional)

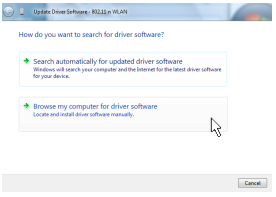
DRIVER INSTALLATION



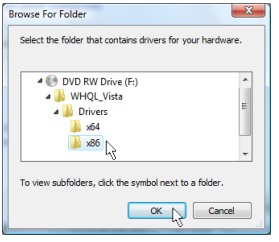
1. Connect the wireless module and Windows will begin the driver installation wizard.



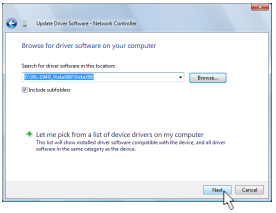
2. Select the first option "Locate and install..."



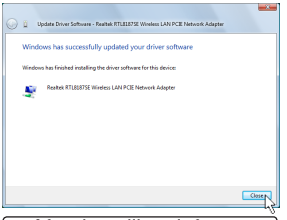
3. Select the second option "Browse my computer..."



4. Find the wireless module driver folder for your system.



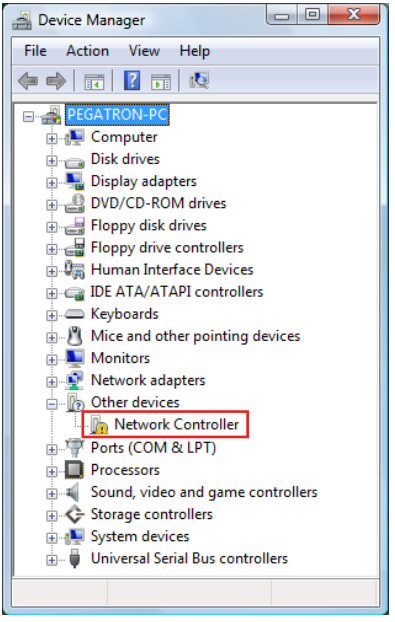
5. Click Next to begin installing the drivers.



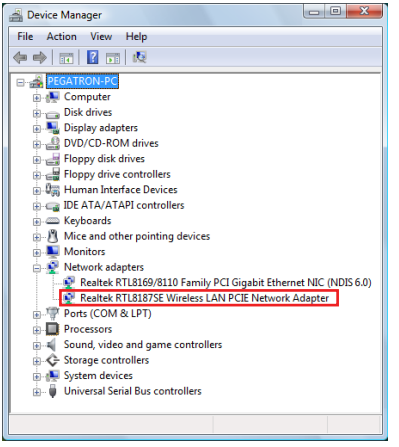
6. After installing, information will be given by Windows.

DRIVER INSTALLATION

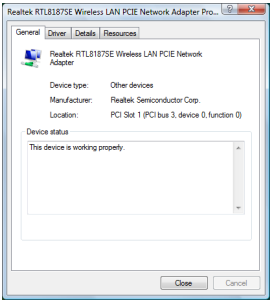
DRIVER INSTALLATION (details)



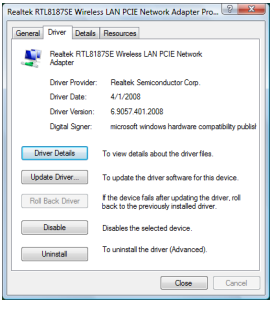
Before driver installation, the wireless module will be shown under “Other devices”.



After driver installation, the wireless module will be shown under “Network adapters”.



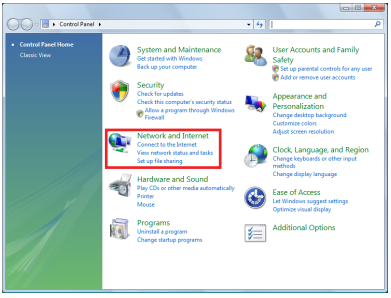
Detailed device info.



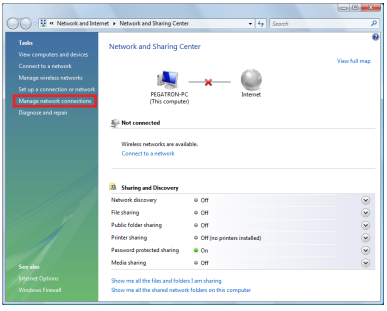
Detailed driver info.

DRIVER INSTALLATION

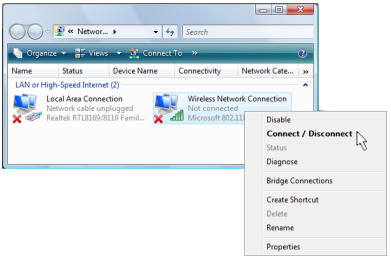
NETWORK CONNECTIONS



Windows Control Panel gives you access to managing "**Network and Internet**" settings.



In Windows Network and Sharing Center, you can "**Manage network connections**."



Right click Wireless Network Connection to connect to available networks.

SAFETY STATEMENTS

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! The use of a shielded-type power cord is required in order to meet FCC emission limits and to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

(Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.)

FCC Radio Frequency Interference Requirements

This device is restricted to INDOOR USE due to its operation in the 2.412 to 2.484GHz frequency range. FCC requires this product to be used indoors for the frequency range 2.412 to 2.484GHz to reduce the potential for harmful interference to co-channel of the Mobile Satellite Systems. High power radars are allocated as primary user of the 2.412 to 2.484GHz bands. These radar stations can cause interference with and / or damage this device.

IMPORTANT: This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

SAFETY STATEMENTS

FCC Radio Frequency (RF) Exposure Caution Statement

This equipment complies with FCC RF exposure limits set forth for an uncontrolled environment. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instructions in the user's manual. This equipment is for operation within indoor frequency ranges and is restricted to indoor environments only.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. "The manufacturer declares that this device is limited to Channels in the frequency by specified firmware controlled in the USA."

Declaration of Conformity for R&TTE directive 1999/5/EC

Protection requirements for health and safety - Article 3.1a
The protection of the health and the safety of the user and any other person, including the objectives with respect to safety requirements contained in Directive 73/23/EEC, but with no voltage limit applying.

Protection requirements for electromagnetic compatibility (EMC) - Article 3.1b

The protection requirements with respect to electromagnetic compatibility contained in Directive 89/336/EEC.

Effective use of the radio spectrum - Article 3.2

Radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference.

CE Mark Warning

This is a Class B product, in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Hereby the [PEGATRON Corp.], declares that this [Wireless PCI Express Card/ WL-194g] is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

SAFETY STATEMENTS

Wireless Operation Channel for Different Domains

N. America	2.412-2.462 GHz	Ch01 through CH11
Japan	2.412-2.484 GHz	Ch01 through Ch14
Europe ETSI	2.412-2.472 GHz	Ch01 through Ch13

France Restricted Wireless Frequency Bands

Some areas of France have a restricted frequency band. The worst case maximum authorized power indoors are:

- 10mW for the entire 2.4 GHz band (2400 MHz–2483.5 MHz)
- 100mW for frequencies between 2446.5 MHz and 2483.5 MHz

NOTE: Channels 10 through 13 inclusive operate in the band 2446.6 MHz to 2483.5 MHz.

There are few possibilities for outdoor use: On private property or on the private property of public persons, use is subject to a preliminary authorization procedure by the Ministry of Defense, with maximum authorized power of 100mW in the 2446.5–2483.5 MHz band. Use outdoors on public property is not permitted.
In the departments listed below, for the entire 2.4 GHz band:

- Maximum authorized power indoors is 100mW
- Maximum authorized power outdoors is 10mW

Departments in which the use of the 2400–2483.5 MHz band is permitted with an EIRP of less than 100mW indoors and less than 10mW outdoors:

01 Ain Orientales	02 Aisne	03 Allier	05 Hautes Alpes
08 Ardennes	09 Ariège	11 Aude	12 Aveyron
16 Charente	24 Dordogne	25 Doubs	26 Drôme
32 Gers	36 Indre	37 Indre et Loire	41 Loir et Cher
45 Loiret	50 Manche	55 Meuse	58 Nièvre
59 Nord	60 Oise	61 Orne	63 Puy du Dôme
64 Pyrénées Atlantique	66 Pyrénées	67 Bas Rhin	68 Haut Rhin
70 Haute Saône	71 Saône et Loire	75 Paris	82 Tarn et Garonne
84 Vaucluse	88 Vosges	89 Yonne	90 Territoire de Belfort
94 Val de Marne			

This requirement is likely to change over time, allowing you to use your wireless LAN card in more areas within France. Please check with ART for the latest information (www.art-telecom.fr)

SAFETY STATEMENTS

Notes:

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。
低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。