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CNE 802.11b/g WLAN MiniPCI Card

Product Specifications

Model: WLC-100GC

Version: 1.1

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Contents

1 Introduction

This product is a Mini-PCI Type IIIB 802.11g Wireless LAN card.
This specification is applicable to the models WLC-100GC.

1.1 Scope

The Mini-PCI WLAN card is designed to operate in the 2.4GHz ISM frequency band, channels 1 to 11, as specified by the FCC in the USA. The card will also operate on channel 12 though 14, where permitted by local regulatory authorities. Radio equipment must be certified in a country prior to use. This Mini-PCI WLAN complies with IEEE 802.11b and IEE 802.11g standard.

1.2 Features

- Compatibility: compatible with IEEE 802.11b and IEEE 802.11g high data rate standard to provide wireless speed up to 54Mbps data rate.
- Security: supports 64 or 128 bit WEP encryption, WPA, 802.1x.
- Dynamic data rate: auto fallback switching with 54, 48, 36, 24, 18, 12, 11, 6, 5.5, 2 and 1Mbps
- Drivers supports Windows 2000 (SR1), XP and Linux
- Supports dual diversity antenna
- Intelligent power control, including 802.11 Power Save Mode
- FCC Parts 15 certified (USA)
- WiFi compliant
- RoHS compliant

2 Specification

2.1 Overview

Radio Emission Type	Comply with IEEE 802.11b and 802.11g DSSS (Direct Sequence Spread Spectrum) physical layer.
Operating Frequency	2.4 GHz ~ 2.4835 GHz ISM band 2.4 GHz ~ 2.497 GHz (Japan ISM band)
Data Modulation types	OFDM (Orthogonal Frequency Division Multiplexing) CCK (Complementary Code Keying) DQPSK (Differential Quadrature Phase Shift Keying), DBPSK (Differential Binary Phase Shift Keying)
Channel Number	Channels 1-11 for United States/Canada Channels1-13 for Europe ETSI Channels 1-14 for Japan Channels10-13 for France Channels 1-13 for China
Data Rate (Physical Layer)	54Mbps with fall back rates of 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps
Security	64/128 bits WEP Encryption, 802.1x Authentication, WPA
Media Access Protocol	CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) with ACK architecture, 32 bits MAC-layer
Antenna Connector Type	2 pieces of SMT ultra-miniature coaxial connectors
Operating Voltage	3.3 VDC ± 5%
Bus Interface	Mini PCI
Antenna port impedance	50ohm

2.2 Channel Frequencies

Channel	GHz	FCC/CA	ETSI	Spain	France	China	Japan
1	2.412						
2	2.417						
3	2.422						
4	2.427						
5	2.432						
6	2.437						
7	2.442						
8	2.447						
9	2.452						
10	2.457						
11	2.462						
12	2.467						
13	2.472						
14	2.484						

2.3 Transmit Output Power (Production Specification)

Test Conditions: Supply Voltage (Vcc) = 3.3V, Ambient Temperature = 25ºC

Frequency Range (Bands)	**Modulation Rate**	**Minimum Output Power (dBm)**	**Typical Output Power (dBm)**	**Maximum Output Power (dBm)**
Transmitter Power Output low band (802.11b)	1 Mbps	16	18	22
	2 Mbps	16	18	22
	5.5 Mbps	16	18	22
	11 Mbps	16	18	22
Transmitter Power Output low band (802.11g)	6 Mbps	16	18	21
	9 Mbps	16	18	21
	12 Mbps	16	18	21
	18 Mbps	16	18	21
	24Mbps	15	17	20
	36 Mbps	15	17	20

	48 Mbps	14	15	17
	54 Mbps	14	15	17

* The above data is for reference only.

2.4 Receiver Sensitivity (Production Specification)

Test Conditions: Supply Voltage (Vcc) = 3.3V, Ambient Temperature = 25ºC

Frequency Range (Bands)	**Modulation Rate**	**Minimum Receiver Sensitivity (dBm)**	**Typical Receiver Sensitivity (dBm)**	**Maximum Receiver Sensitivity (dBm)**
Transmitter Power Output low band (802.11b)	1Mbps (8%PER)	-92	-94	/
	2 Mbps (8%PER)	-89	-91	/
	5.5 Mbps (8%PER)	-87	-89	/
	11 Mbps (8%PER)	-84	-86	/
Transmitter Power Output low band (802.11g)	6 Mbps (10%PER)	-88	-90	/
	9 Mbps (10%PER)	-86	-88	/
	12 Mbps (10%PER)	-84	-86	/
	18 Mbps (10%PER)	-82	-84	/
	24 Mbps (10%PER)	-78	-80	/
	36 Mbps (10%PER)	-74	-76	/
	48 Mbps (10%PER)	-69	-71	/
	54 Mbps (10%PER)	-66	-68	/

* The above data is for reference only.

3 Product Information

3.1 Hardware Information

- This product is based on Intersil Reference Solution using Prism GT Javelin Blunt chipset
- Mechanical dimension complies with mini-PCI 1.0 specification. Type III B form factor.

3.2 Software Information

3.2.1 Operating System

The product runs on Microsoft Windows 2000, XP and Linux.

3.2.2 Minimum System Requirement

Requires minimum Pentium 166MHz with MMX technology

3.3 Mechanical Information

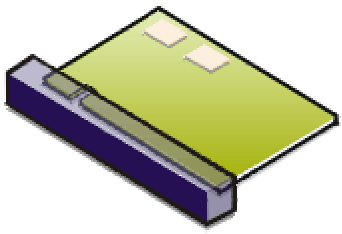
3.3.1 Dimensions

This product is based on the Mini-PCI dimension:
PCB size: 59.59mm (L) x 44.60mm (W) x 1mm (H)
Product size: 59.59mm (L) x 44.60mm (W) x 5mm (H)
Weight: ~ 15gram

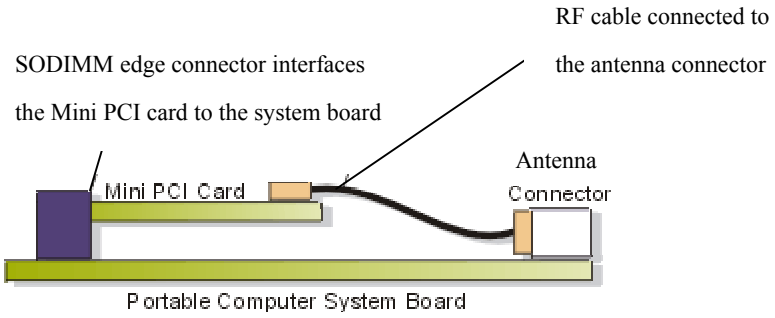
3.3.2 MiniPCI Standard

Since it first appeared on PCs in 1993, the **Peripheral Component Interconnect (PCI)** bus has become the industry-standard, high-speed input/output (I/O) bus for many types of personal computers.

In 1998, the Mini PCI Roundtable was formed to develop standard form factors for internal PCI boards (or *Mini PCI cards*) for space-constrained systems. The PCI special interest group (SIG) has advanced the specification to deliver higher clock rates, wider buses, 3-volt cards, hot-plug capability, and many other features. Today the industry is addressing the special requirements of portable computers with the proposed Mini PCI specification for integrated communications devices. Mini PCI defines a very small internal card functionally. Its open architecture based on standard PCI technology offers more flexible communications configurations.



Type III cards have a card-edge connector similar to that used by small outline, dual in-line memory modules (SODIMMs). Type III cards can use a cable to connect to I/O connectors at the edge of the chassis or they can route the I/O through the card-edge connector, in which case the signals are routed through the system board to the I/O jacks.

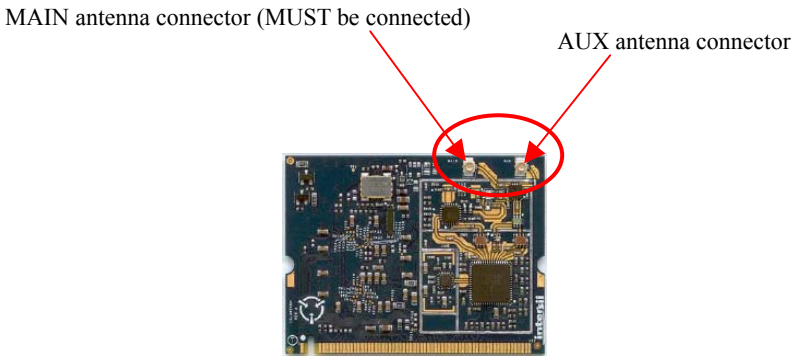


I/O Connectors for Type III Mini PCI Cards

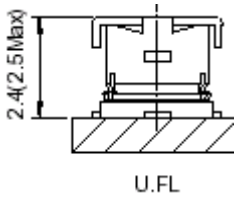
The Type III card-edge connector has 124 pins and is 3 mm in height. The additional 24 pins provide the extra signals required to route I/O back through the system connector. Type III cards have a lower profile than Types I and II, allowing portable computer makers to design a smaller chassis. As a result, Type III cards are expected to be the most commonly implemented.

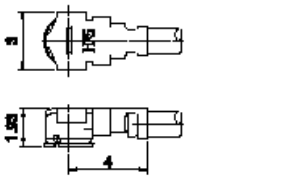
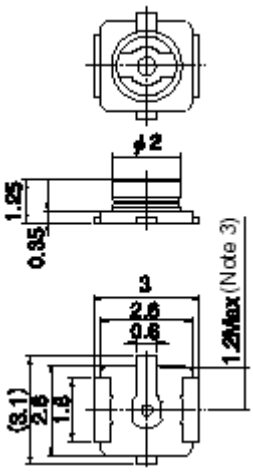
3.4 Antenna Information

This product contains 2 antenna connectors on the right top corner of the card.



(Photo for reference only)

Connector type	SMT Ultra-Miniature Coaxial Connector (U.FL)
Connector diagram	 U.FL
Nominal characteristic impedance **Rated voltage** **Rated frequency**	50 Ohm 60V AC (rms) DC to 6 GHz
Contact resistance	Center: 20 mOhm max. Outside: 10 mOhm max.
Insulation resistance	500 MOhm min. @100V DC

Antenna cable plug	  iPEX 90degrees plug (right-angle receptacle) with cable diameter at 1.32mm
Receptacle diagram	

4 Environment

4.1 Temperature

4.1.1 Operating Temperature Conditions

The product is capable of continuous reliable operation when operating in ambient temperature of 0ºC to +70ºC.

4.1.2 Non-Operating Temperature Conditions (including warehouse)

The product is not damaged or degraded when keep in the temperature in the range of -20ºC to +85ºC.

4.2 Humidity

4.2.1 Operating Humidity Conditions

The product is capable of continuous reliable operation when subjected to relative humidity in the range of 10% and 80% (non-condensing).

4.2.2 Non-Operating Humidity Conditions (including warehouse)

The product is not damaged or degraded when kept in the relative humidity range from 5% to 95%.