

1 GENERAL INFORMATION

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REGULATION(S) : FCC Part15 Subpart C, Section 15.247

MODEL NUMBER : PCG-441L

SERIAL NUMBER : 013 (Radiated and AC Main Conducted Emissions tests)
001 (Antenna connector Conducted tests)

KIND OF EQUIPMENT : Notebook Computer (Wireless LAN built in PC)

TESTED DATE : November 19-22, 2001

RECEIPT DATE OF SAMPLE : November 19, 2001

REPORT FILE NUMBER : 22DE0015-YW-1

TEST SITE : A-PEX Yokowa No.3 Open Test Sites

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ORiNOCO™ Mini PCI

Mini PCI Form Factor Radios for Wireless Networking OEMs

The ORiNOCO Mini PCI radio card is a full-featured, Wi-Fi-compliant wireless device that uses the Mini PCI form factor. The module functions at 2.4 GHz, with a bandwidth of 11 Mbps, and range of up to 1200 feet. It is fully compatible with the entire ORiNOCO line of infrastructure products for home, office, outdoor and public hot-spot environments. The Mini PCI radio also works with other Wi-Fi-compliant wireless networking systems.

Integration into OEM Devices

Ideally suited for notebooks, Web pads, Internet appliances and other mobile data applications, the Mini PCI card is only 51 x 60mm in size and weighs 15 grams. The Mini PCI gives manufacturers a great deal of freedom in system design and antenna placement. It can be embedded or designed to be an optional dealer-added feature. ORiNOCO Mini PCI is supported by a complete set of drivers and networking tools to support operating systems including Windows ME, 98, 2000 and Linux. The card is available in two versions, one with 64 WEP encryption and one with 128 bit RC4 encryption.

In the automatic mode, the ARS mechanism will select the best possible speed for every data path. This means that the actual speed the mobile clients will use when talking to an Access Point can be different for different stations within one cell.

Integration support

Lucent provides extensive technical documentation on integration issues like optimal antenna design, customized drivers and management software as well as multi language support for manuals and help files.

Echo robustness

The delay spread robustness in the IEEE 11 and 5.5 Mbit/s mode is lower than in the IEEE 2 and 1 Mbit/s modes, because delay spread robustness is traded against more sophisticated modulation techniques.

Privacy

The ORiNOCO Mini PCI Card supports 64 bit WEP as a standard. This means that 64 WEP is used to encrypt the payload data in a message when the end user chooses to run this level of privacy. WEP, which is defined in the IEEE 802.11b standard, uses a 40 bit secret key and a 24 bit Initialization Vector (IV): a 24 bit value unique to



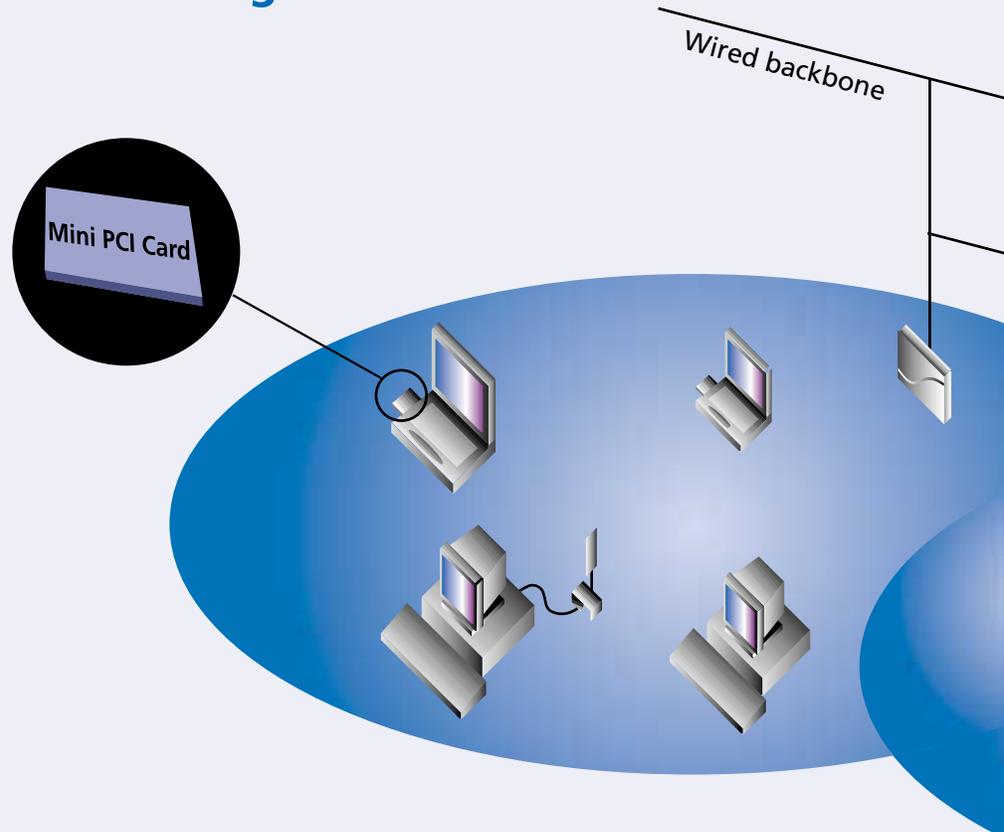
a message, which is included in plain text in that message. The IV is included to make sure that two identical plain text messages result in two different encrypted messages.

The ORiNOCO/ Mini PCI Card is also released with 128 RC4. This product uses the RC4 encryption algorithm with a 104 bit secret key and a 24 bit IV.

ORiNOCO Mini PCI Card Specifications

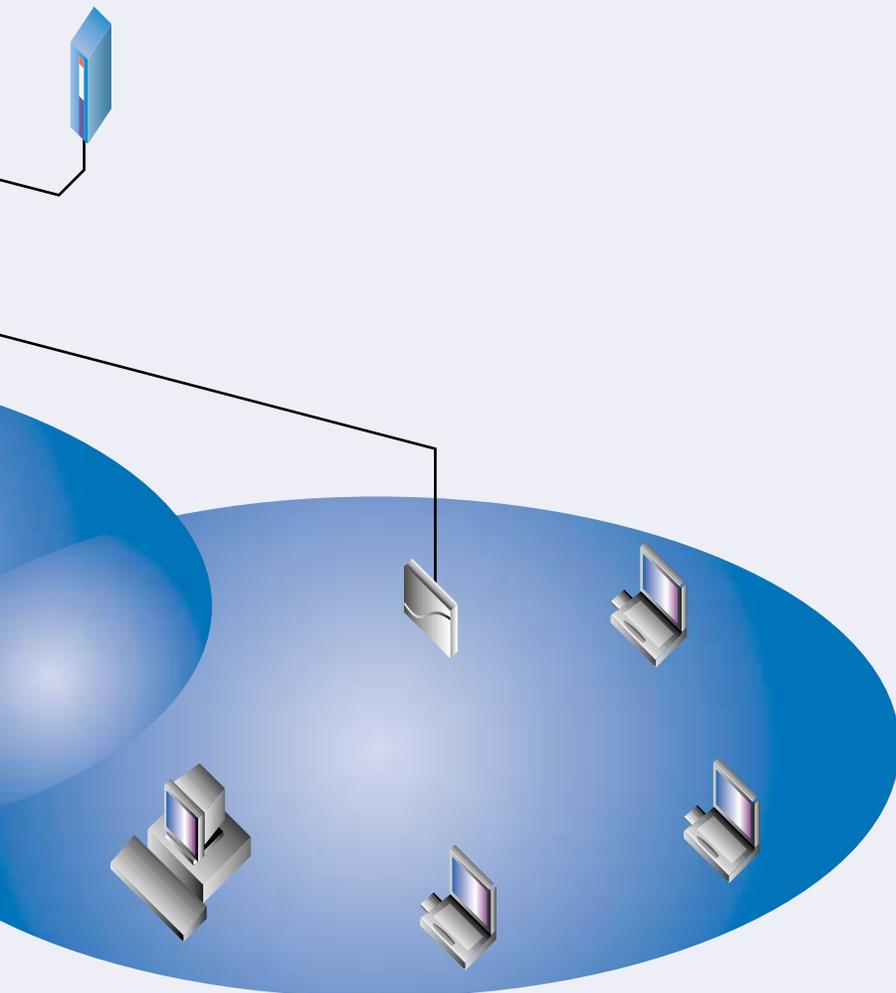
| | | | | |
|--|--|------------------------------|------------------------------|---------------------------|
| Frequency Range | 2400 2462 mHz | | | |
| Number of Selectable Channels | 11 | | | |
| Modulation Technique | Direct Sequence Spread Spectrum (CCK, DQPSK, DBPSK) | | | |
| Standard | IEEE 802.11b, Mini PCI V1.0 | | | |
| Security | 64 WEP or 128 RC4 | | | |
| Spreading | 11 chip Barker sequence | | | |
| Bit Error rate | Better than 10^{-5} | | | |
| Media Access Protocol | CSMA/CA (Collision Avoidance) with ACK | | | |
| Interface | MiniPCI V1.0 | | | |
| PCB Dimension | Length:59.75 mm Width: 50.95mm | | | |
| Range (meter/feet) | Standard Low Speed (1 Mbit/s) | Standard Speed (2 Mbit/s) | Medium Speed (5.5 Mbit/s) | High Speed (11 Mbit/s) |
| Open environment | 550 m (1750 ft) | 400 m (1300 ft) | 270 m (855 ft) | 160 m (525 ft) |
| Semi-Open environment | 115 m (375 ft) | 90 m (300 ft) | 70 m (230 ft) | 50 m (165 ft) |
| Closed environment | 50 m (165 ft) | 40 m (130 ft) | 35 m (115 ft) | 25 m (80 ft) |
| Transmitter output power | 15 dBm | 15 dBm | 15 dBm | 15 dBm |
| Min. receive level @BER 10^{-5} | -94 dBm | -91 dBm | -87 dBm | -82 dBm |
| Delay spread robustness in nanoseconds | 500 ns | 400 ns | 225 ns | 65 ns |
| Max. Power Consumption | Doze Mode 16 mA Receive Mode 250mA Transmit Mode 350 mA | | | |
| Environmental | The ORiNOCO Mini PCI Card passes the environmental tests as specified in "Mini PCI Specification, October 1999, Section 5.6 Thermal Guidelines". | | | |
| Operating temperature | 0 to 60°C ambient temperature | | | |
| Storage temperature | -20 to 75°C ambient temperature | | | |
| Operating humidity | 95% maximum (non condensing) | | | |
| Storage humidity | 95% maximum (non condensing) | | | |

Basic ORiNOCO Mini PCI Configuration



ORiNOCO Mini PCI Card Specifications (continued)

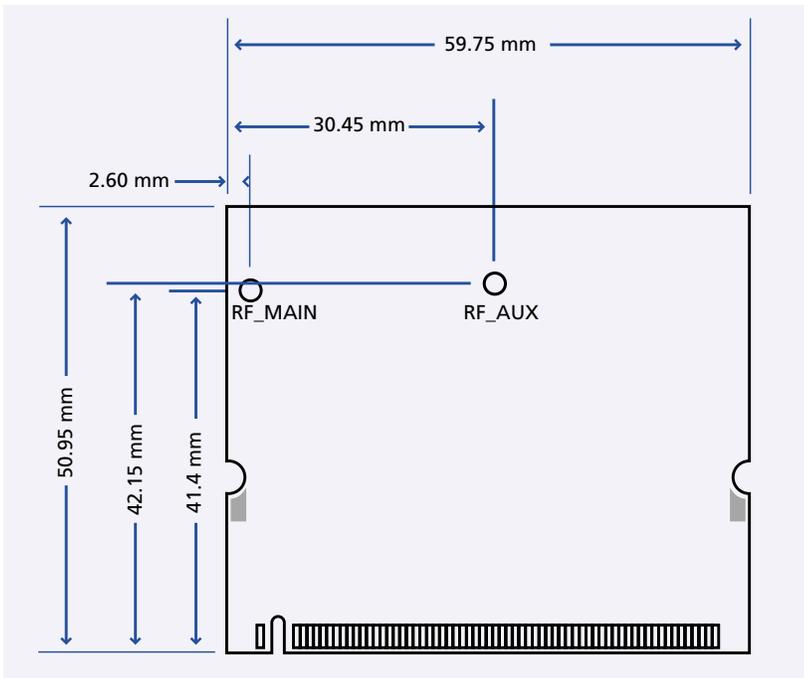
| | | | | | | | | | | | |
|--|--|--------------------------------|--------------------------------|------|------|------|------|------|------|------|------|
| Barometric pressure (storage and operating) | 740 to 1050 hPa | | | | | | | | | | |
| Operating System Compatibility | Windows 98, ME and 2000.(NDIS5 Miniport Driver), Linux | | | | | | | | | | |
| WHQL | Device WHQL system to be certified in co-operation with the OEM manufacturer | | | | | | | | | | |
| Regulations | Europe: R&TTE Dir. 1999/5/EC USA: FCC 47 CFR, Part15.247 Canada:ISC RSS139 | | | | | | | | | | |
| Environment | | | | | | | | | | | |
| Delay Spread | | | | | | | | | | | |
| Office (one room) | 30 nsec | | | | | | | | | | |
| Office | 40 – 150 nsec | | | | | | | | | | |
| Airport | 120 nsec | | | | | | | | | | |
| Warehouse | 130 nsec | | | | | | | | | | |
| Shopping mall | 90 – 200 nsec | | | | | | | | | | |
| Factory | 300 – 500 nsec | | | | | | | | | | |
| Net Throughput (payload, excluding headers etc) | | | | | | | | | | | |
| | 11Mb High Speed (11 Mbit/s) | 11Mb Medium Speed (5.5 Mbit/s) | 11Mb Standard Speed (2 Mbit/s) | | | | | | | | |
| Station-to-station (TCP/IP) | | | | | | | | | | | |
| Peer to Peer | 5.04 Mbit/s | 3.44 Mbit/s | 1.59 Mbit/s | | | | | | | | |
| Peer to Peer (+WEP128) | 4.51 Mbit/s | 3.44 Mbit/s | 1.59 Mbit/s | | | | | | | | |
| via AP (both wireless) | 2.85 Mbit/s | | | | | | | | | | |
| via AP (both wireless) (+WEP128) | 2.62 Mbit/s | | | | | | | | | | |
| via AP (one on Ethernet) | 4.66 Mbit/s | | | | | | | | | | |
| via AP (one on Ethernet) (+WEP128) | 4.11 Mbit/s | | | | | | | | | | |
| Frequency Channels | | | | | | | | | | | |
| Channel Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Channel Frequencies (MHz) | 2412 | 2417 | 2422 | 2427 | 2432 | 2437 | 2442 | 2447 | 2452 | 2457 | 2462 |



Key Advantages of the Mini PCI Card

- Card allows full integration into OEM device
- Antennae can be positioned on optimal spot in the OEM device
- No protruding antennae or other parts
- Provides Ethernet –equivalent network throughput
- Small size and low weight – ideal for mobile and handheld devices

Mechanical Specifications



Designed for



Microsoft®
Windows® Me
Windows® 2000
Professional
Windows® 98

For additional information, please contact your Lucent Technologies Sales Representative.

You can also visit our web site at <http://www.lucent.com> or call 1-800-928-3526.

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