

**Intersil ISL37704M Indigo  
MiniPCI 5GHz WLAN Card**

**OEM installation Manual**

**Version 0.1**

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## ***0-Introduction***

The Intersil ISL37704M WLAN MiniPCI Card is a complete wireless high speed Network Interface Card (NIC) utilizing the Intersil PRISM® 5 chip set. It provides a complete PRISM 5 reference design evaluation platform of hardware and software to system providers or integrators requiring wireless data communications capability and is ideal for integration into computer platforms.

It supports the IEEE 802.11a specification, providing data rates of 54, 48, 36, 24, 18, 12, 9, and 6 Mbps. Access Points are available from a number of suppliers, enabling a total wireless network solution.

- FCC Certified Under Part 15 to Operate in 5GHz ISM Band
- Support for 54, 48, 36, 24, 18, 12, 9, and 6 Megabit Per Second (Mbps) Data Rates
- Supports the IEEE 802.11a Specification
- Driver Supports Microsoft® Windows® 98/SE, ME, XP, 2000 (SR1)
- Supports Dual Diversity Antennas
- Provides Wireless Data Communications to support live video applications
- Intelligent Power Control, Including 802.11 Power Save Mode

## ***1-OEM Installation procedure***

### ***1.1 Host PC Notebook***

The Intersil ISL37704M WLAN MiniPCI Card is authorized to be installed into the following host PC notebooks:

1—IBM Thinkpad type 2652 series

### ***1.2 Installing the miniPCI card into the host PC Notebook***

a-open miniPCI slot cover of host PC Notebook housing (take the necessary ESD precautions).

b-insert miniPCI card into miniPCI slot

c-connect the host PC notebook antennas to the miniPCI card antenna connectors (Hirose type UFL connector)

d-close miniPCI slot cover of host PC Notebook housing

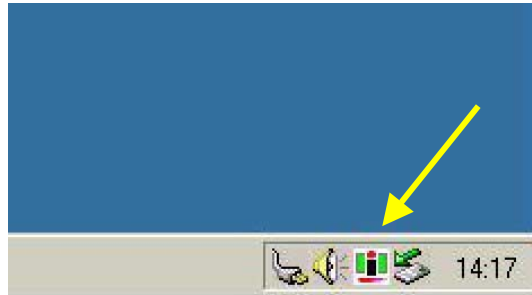
### ***1.3 Installing the software drivers***

a-Start windows

b-When windows detects new hardware and asks for drivers, point to directory where the Intersil device driver is located (for example floppy drive, cdrom , harddisk) to install.

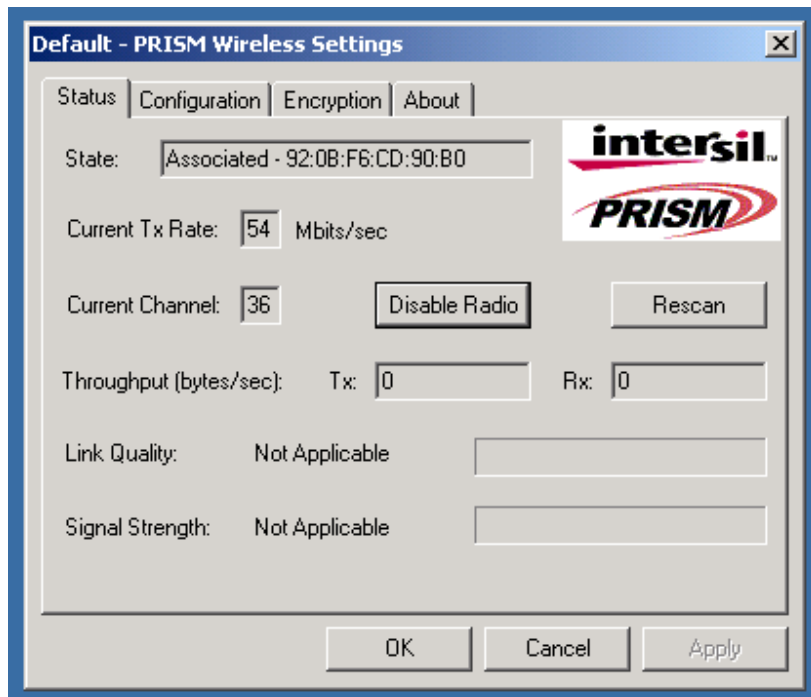
c-after drivers are installed, restart windows.

d-the Intersil WLAN icon will appear in system tray on the bottom right of the screen (see yellow arrow in fig. 01)



fig, 01: Intersil WLAN icon

e-double click the Intersil WLAN icon to open the WLAN settings, the following window will appear (see fig.02)



fig, 02: Intersil WLAN settings window

f-click on configuration tab and select which type of network is required (access point or Peer-to-peer mode), see fig. 03.

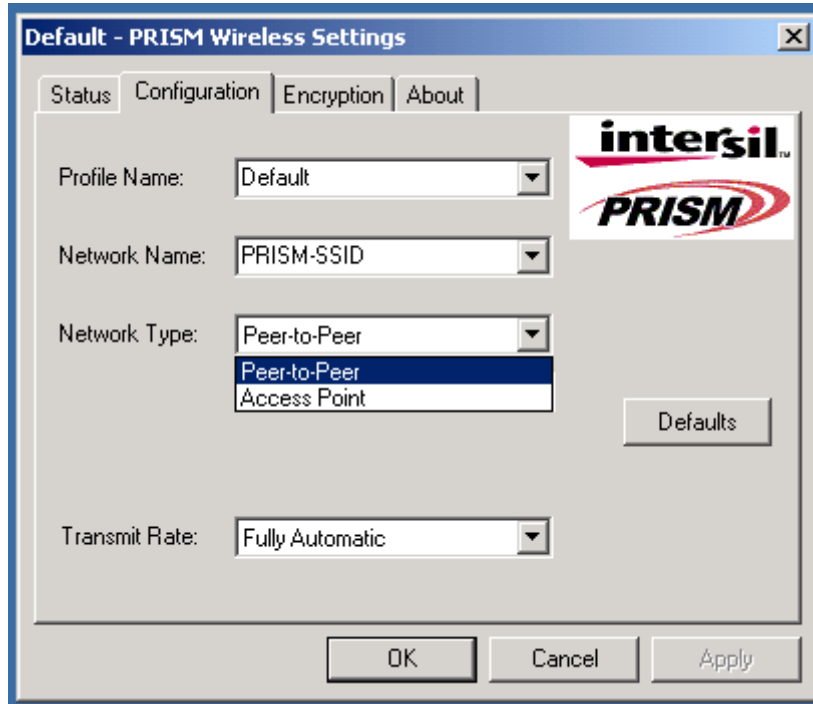


fig. 03: WLAN network type setting window

g-select what TX rate is required (default setting is fully automatic) see fig. 04.

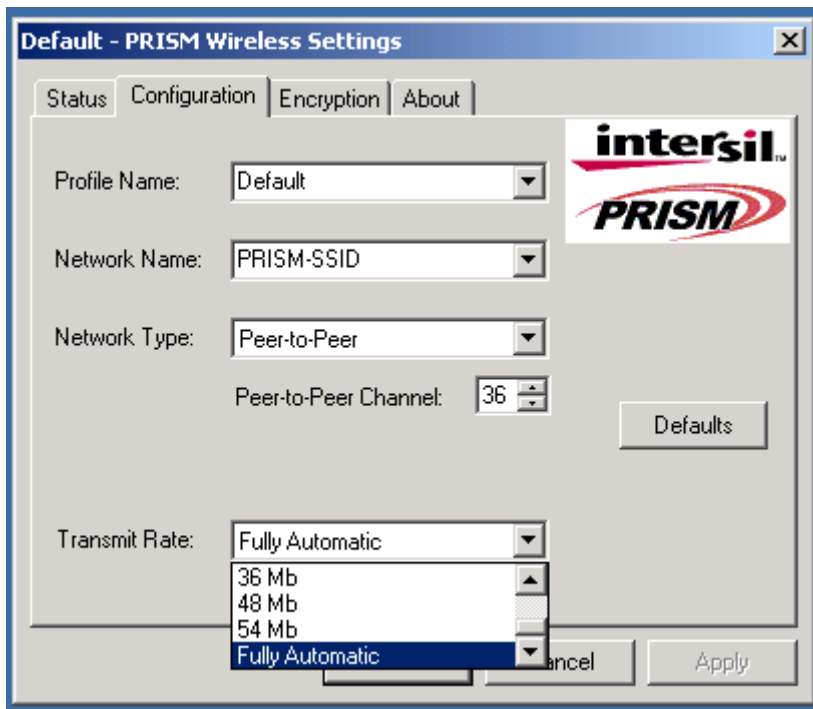
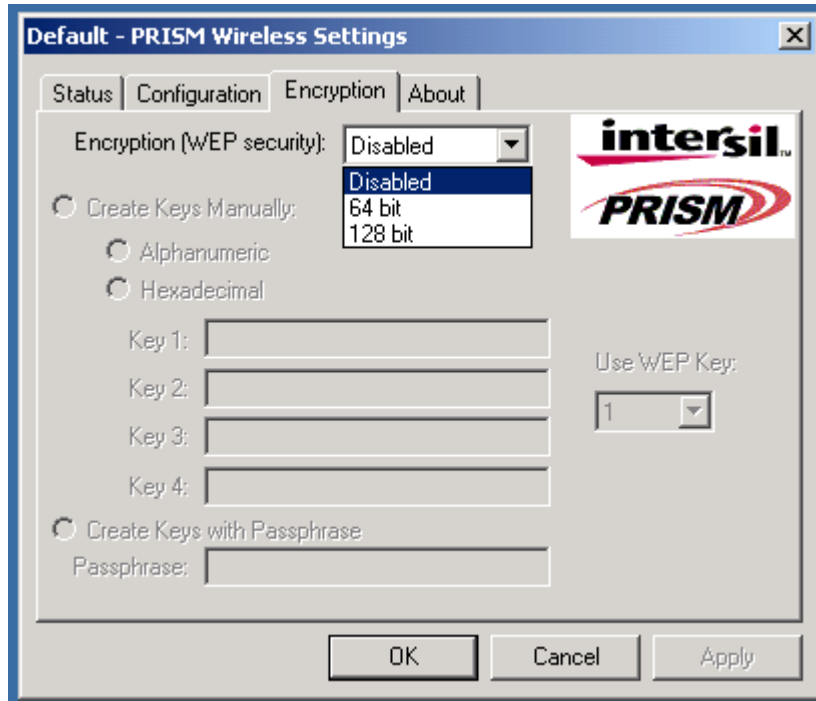


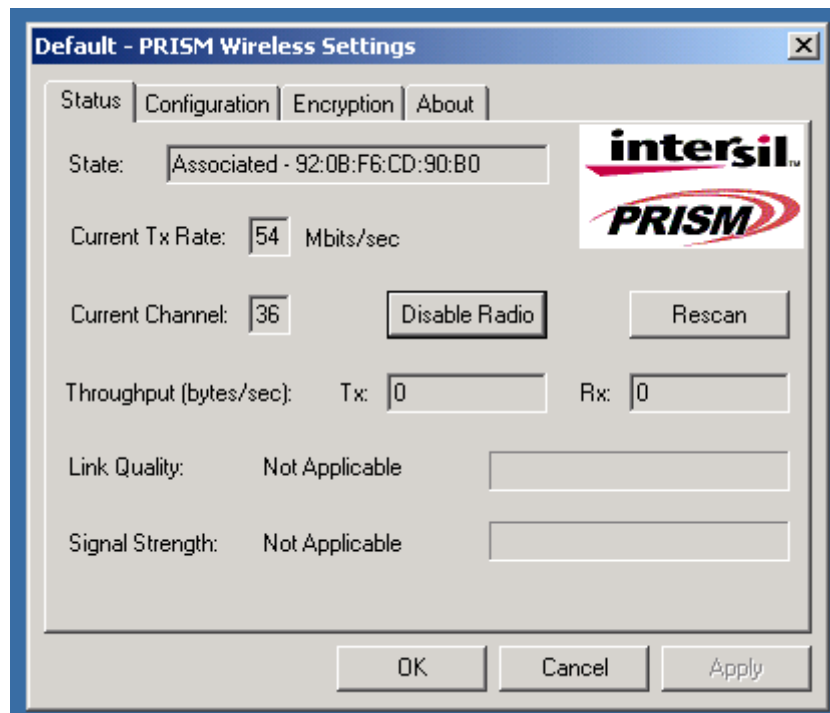
fig. 04: WLAN tx rate setting window

h-select what encryption type is required, 64 or 128 bit WEP (default setting is disabled) see fig. 05.



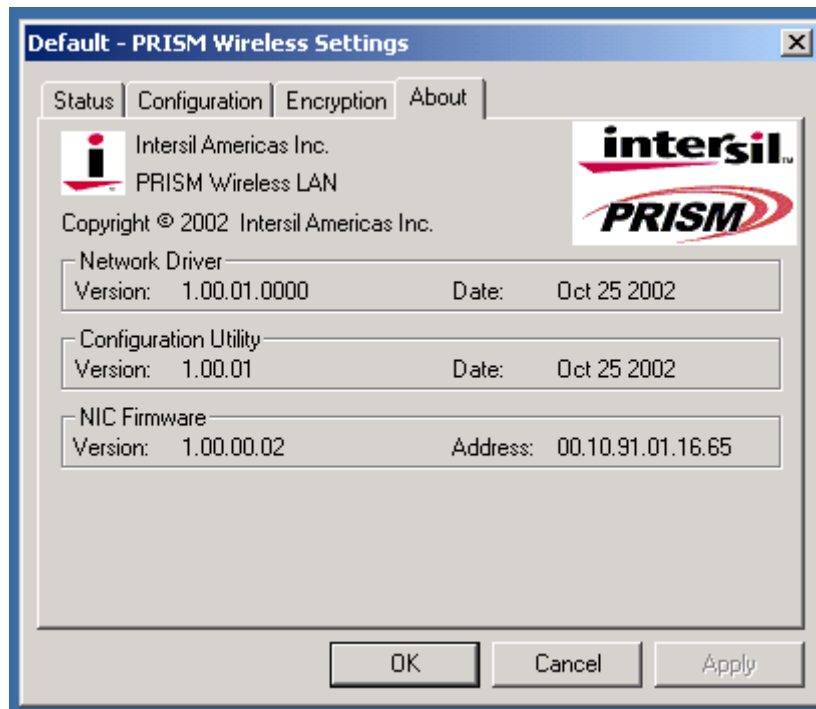
fig, 05: WLAN encryption rate setting window

i-click on the status tab to see the connection status (fig.06).



fig, 06: WLAN network status

j-click on the about tab to see the software drivers versions and MAC address (fig.07).



fig, 07: WLAN driver and MAC address information

#### ***1.4 Wireless LAN installation guide lines and Authorization for use***

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by Intersil may void the user's authority to operate the equipment. Intersil is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Intersil and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

The use of Wireless LAN devices may be restricted in some situations or environments for example:

- \* On board of airplanes, or
- \* In an explosive environment, or
- \* In case the interference risk to other devices or services is perceived or identified as harmful.

In case the policy regarding the use of Wireless LAN devices in specific organizations or environments (e.g. airports, hospitals, chemical/oil/gas industrial plants, private buildings etc.) is not clear, please first verify authorization to use these devices prior to operating the equipment.

### 1.5 IEEE 802.11 frequency assignments

This Indigo device is shipped with FCC-compliant firmware. In order to ensure regulatory-compliant channel usage in a particular country, special geographic-specific firmware is available for customer production assemblies which restricts channel usage. Examples include ETSI-compliant firmware, Japan -compliant firmware etc. Since the end user does not have the ability to alter this firmware, regulatory compliance is ensured.

| UNII band         | RF channel | Frequency | FCC USA | ETSI EU | MKK Japan | Singapore | Taiwan |
|-------------------|------------|-----------|---------|---------|-----------|-----------|--------|
| 1<br>5150<br>5250 | 34         | 5170      |         |         | X         |           |        |
|                   | 36         | 5180      | X       | X       |           | X         |        |
|                   | 38         | 5190      |         |         | X         |           |        |
|                   | 40         | 5200      | X       | X       |           | X         |        |
|                   | 42         | 5210      |         |         | X         |           |        |
|                   | 44         | 5220      | X       | X       |           | X         |        |
|                   | 46         | 5230      |         |         | X         |           |        |
| 2<br>5250<br>5350 | 52         | 5260      | X       | X       |           | X         | X      |
|                   | 56         | 5280      | X       | X       |           | X         | X      |
|                   | 60         | 5300      | X       | X       |           | X         | X      |
|                   | 64         | 5320      | X       | X       |           | X         | X      |
| 3<br>5725<br>5850 | 149        | 5745      | X       |         |           | X         | X      |
|                   | 153        | 5765      | X       |         |           | X         | X      |
|                   | 157        | 5785      | X       |         |           | X         | X      |
|                   | 161        | 5805      | X       |         |           | X         | X      |

Table 01: IEEE802.11a channels

**Caution:**

1--Within 5.15 to 5.25 MHz bands, UNII devices are restricted to indoor operations to reduce any potential harmful interference to co-channel Mobile Satellite Systems (MSS) operations.

2--High power radars are allocated as primary users in the 5.25 to 5.35GHz and 5.65 to 5.85GHz bands. These high power radar stations can cause interference with and/or damage to this device.



## 2-Regulatory information

### 2.1 FCC Information to User

This product does not contain any user serviceable components and is to be used with approved antennas only. Any product changes or modifications will invalidate all applicable regulatory certifications and approvals

### 2.2 Agency and Regulatory Body Approvals

This Indigo device complies with the standards as shown in table below:

| country        | Approval specification  | notes   |
|----------------|---|---|
| USA            | FCC part 15, sections 15.107, 15.109, 15.207, 15.209, 15.407  | Tested at accredited laboratories and filed for FCC certification.                            |
| European Union | EN 301 893 V1.1.1 (2001-01)<br>ETSI EN 301 489-1 V1.3.1 (2001-07)<br>ETSI EN 301 489-17 V1.1.1 (2000-09)<br>EN60950 incl A1, A2, A3, A4 | Tested at accredited laboratories and Notified according to article 6.4 of the RTTE directive |
| Japan          | ARIB STD T71 v.1.0, 14 december 2000  | Tested at TELEC laboratories and filed for MPT Japan certification.                           |
|                |   |   |

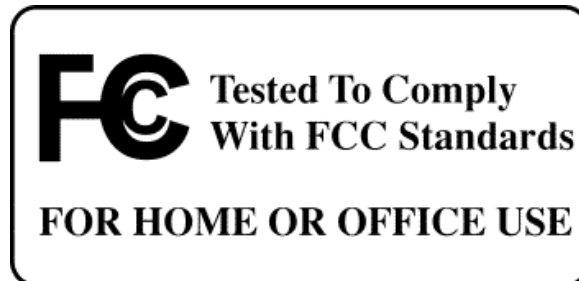
Table 02: Compliance specifications

### 2.3 USA-FCC (Federal Communications Commission) statement

This device complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. this device must accept any interference, including interference that may cause undesired operation of this device.



### 2.4 FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the 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. If not installed and used in accordance with the instructions, it 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 and correct the interference by one or more of the following measures:

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

### 2.5 Export restrictions:

This product or software contains encryption code which may not be exported or transferred from the US or Canada without an approved US Department of Commerce export license.

### 2.6 FCC Guidelines for Human Exposure

SAR (Specific Absorption Rate) for this device was measured in accordance with FCC OET Bulletin 65 (Supplement C) and guidelines established in IEEE C95.1-1991. Based on these measurements, this device fulfills the SAR limits for general population / uncontrolled exposure

**Caution:**

In order to comply with RF exposure limits established in the ANSI C95.1 standards, the user is advised to maintain a distance of at least 1.0 cm from the antenna of this device while it is in use. If the antenna is positioned less than 1.0 cm from the user, it is recommended that the user limits the exposure time.


### 2.7 Europe - EU R&TTE Declaration of Conformity

This Wireless LAN Radio device is tested to and conforms with the essential radio test suites included in following standards:

| Standard   | Description and Explanation   |
|--|---|
| LVD specification<br>EN 60950  | <b>EN 60950,ed. (1992), incl. A1(1993), A2(1993), A3(1995) and A4(1997)</b><br>Safety of information technology equipment, including electrical business equipment.<br><br>Meets R&TTE directive art. 3.1.a of essential requirements on protection of the health and safety of the user. |
| ETSI EMC specification<br>ETSI EN 301 489<br><br>Part 1 V1.2.1 (2000-08)<br><br>Part 17 V1.1.1 (2000-09) | Electromagnetic compatibility and Radio spectrum Matters (ERM);<br>Electromagnetic Compatibility (EMC) standard for radio equipment and services;<br><br>Part 1: Common technical requirements<br><br>Part 17: Specific conditions for Wideband data and HIPERLAN equipment               |
| ETSI RF specification<br>EN 301 893<br>V1.1.1 (2001-01)  | Broadband Radio Access Networks (BRAN), HIPERLAN Type 2<br>Harmonised EN covering essential requirements of article 3.2 of the R&TTE Directive  |

Table 03: EU RTTE Compliance specifications

and therefore complies with the essential requirements and provisions of the **Directive 1999/5/EC** of the European Parliament and of the council of 9 march 1999 on Radio equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity and Annex IV (Conformity Assessment procedure referred to in article 10(4)).

|   |  |
|---|--|
|  | <p style="text-align: center;"><b><u>Important Notice :</u></b></p> <p>This device is a 5 GHz low power RF device intended for home and office use in EU and EFTA member states. In some EU / EFTA member states some restrictions may apply. Please contact local spectrum management authorities for further details before putting this device into operation</p> |
|---|--|

EU versions of this Indigo WLAN device only have 4 channels in 5150-5250MHz band with RF output power limited to 50 mW. This device is intended for indoor use only.

**3-Technical Specifications**

|                                    |  |
|------------------------------------|--|
| <b>Radio Technology</b>            | IEEE 802.11a (OFDM)  |
| <b>Operating Frequency</b>         | 5150MHz – 5350 MHz   |
| <b>Modulation Schemes</b>          | DQPSK, DBPSK, CCK, 16 QAM, 64 QAM  |
| <b>Data Rate</b>                   | Support for 54, 48, 36, 24, 18, 12, 9, and 6 Mbps data rates   |
| <b>Media Access Protocol</b>       | CSMA/CA with ACK   |
| <b>Transmitter RF Output Power</b> | 5150-5250 MHz: < 17.0 dBm EIRP (typical) including antenna gain<br>5250-5350 MHz: < 20.0 dBm EIRP (typical) including antenna gain |
| <b>Antenna Type</b>                | PC notebook host integrated antennas with 1 dBi rated gain   |
| <b>Operating Voltage</b>           | 3.3 VDC via PC host miniPCI slot   |
| <b>Interface</b>                   | MiniPCI formfactor III B   |
| <b>Device driver Support</b>       | Microsoft® Windows® NT, 2000, ME, and XP   |