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## SonicWALL Long Range Dual Band Wireless Card FAQ

### What is it?

The SonicWALL Long Range Dual Band Wireless Card is a tri-mode, dual band, IEEE 802.11a/b/g-compliant CardBus PC card that complements the high-power wireless capabilities of SonicWALL's secure wireless solutions. When combined with any SonicWALL secure wireless appliance, the Long Range Dual Band Wireless Card delivers superior throughput, range and bulletproof wireless IPsec security. Included with the Long Range Dual Band Wireless Card is SonicWALL's Global VPN Client software, creating a complete secure wireless solution. This combination allows users to achieve total wireless security using bulletproof IPsec AES/3DES encryption. Every SonicWALL Long Range Dual Band Wireless Card comes with a standard warranty, which includes 1-year advanced hardware replacement (return to factory), 90-day email and telephone support, and 90 days of software updates. The Long Range Dual Band Wireless Card will assume the support contract of the SonicWALL secure wireless appliance as long as it is registered on <https://www.mysonicwall.com> under the appliance with which it is associated.

### What type of wireless radio is inside the card?

The card is based upon the Atheros AR5001x chipset. The 802.11a operates at 63mW max output, and 802.11g radio operates at 100mW max output, although the output of both radios can be manually adjusted using the software driver utility provided with the card.

### Why are there two different SKUs for the card available?

The Domestic and International versions of cards are physically the same, but ship with different versions of the 'SonicWALL Client Utility', which is used to manage the settings of the card. The International version of the client utility allows the user to right-click on the taskbar icon and select which country the card will operate in. This allows the card to conform to the 802.11d regulatory requirements of each country for max power output and channel selection.

### So this card is half the strength of the older SonicWALL 802.11b card?

It might seem that 100mW is "half the strength" of 200mW, but the relationship between power output and signaling distance is more complex than that. Actually, it's more important to note the dBm output of the cards: the new card is 20dBm for 802.11b/g and 18dBm for 802.11a, whereas the old SonicWALL wireless card is 23dBm for 802.11b. A good rule of thumb for wireless transmission is that for every 6dBm, effective distance doubles. With this in mind, this means that the older model can reach 40-50% farther than the new model when using 802.11b. If increased coverage distance is more important than throughput (since, of course, the older card does not support 802.11a or 802.11g and can only attain 4.5-5Mbps throughput at best), then it is recommended you use the older SonicWALL card. Also note that most competitors' wireless cards on the market aren't even 100mW – they range anywhere from 33mW to 80mW. The only one that comes close is the Cisco 'Aironet 350' wireless card, and even it's only 100mW. So, even the new card is stronger than most competitors' cards.

### Is the output power on the card selectable, like it is on the SOHO TZW?

Yes, it is. Users can lower the power output by using the client utility. The control for this can be accessed in the profile setup, on the 'Advanced' tab, by using the 'Transmit Power Level' drop-down.

### Does SonicWALL manufacture this wireless card?

No. The wireless cards and their software drivers are manufactured by an OEM partner and are based upon the Atheros AR5001x chipset. However, the software drivers for the wireless card are customized by SonicWALL – because of this we provide direct technical support for the card's hardware and software utility.

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**What are the hardware specifications for the card?**

System Interface: 32-bit CardBus PC Card Standard V7.1 Type II

Dimensions: 4.65(L) in x 2.13(W) in x .30(H) in; 118(L) mm x 54(W) mm x 6.3(H) mm

Weight: 1.4 oz (40g)

Power: 3.3V

Antenna: Integrated, with built-in diversity

LED Indicator: RF Link Activity

Temperature Range: 0 °C to 55 °C – Operating; -40 °C to 70 °C – Storage

Humidity (non-condensing): 5%-95% Typical

Certifications: FCC Part 15/UL; ETSI 300/328/CE

Encryption : AES, TKIP

**What are the software capabilities of the card?**

Using the SonicWALL Client Utility that ships with the card, you can:

- Create multiple “profiles” for each Access Point, so you can switch between access points with a single mouse-click. For each profile, you can specify up to three SSIDs. If you wish to create a profile that associates to the first SSID it finds, simply leave the SSID fields blank.
- Select the 802.11 types and speeds the card will attempt to connect with (802.11a at 108Mbps, 802.11a at 54Mbps, 802.11b at 11Mbps, 802.11g at 108Mbps, and 802.11g at 54Mbps) on a per-profile basis.
- Specify that the card associate using WEP, WPA-PSK, WPA-EAP (TLS/PEAP), or in the clear on a per-profile basis.
- Specify that the card use Ad Hoc or Infrastructure mode on a per-profile basis.
- Use the built-in ‘Site Survey’ utility that allows the user to perform an active scan to discover and attach to available access points.
- Set the card to ‘Auto-preamble’, so that it will automatically switch to the preamble type used by the Access Point (either short preamble, or long preamble) on a per-profile basis. This was a common configuration issue with older wireless cards.
- Manually lower the transmit power of the card on a per-profile basis.
- Set the country that the card operates in for 802.11d compliance (i.e. allowed channels and max power allowed per regulatory rules for each country) when using the International version of the client utility.

**What operating systems can the card be used with?**

At present, SonicWALL provides and supports the SonicWALL Client Utility for the Windows 98SE, Windows ME, Windows 2000SP4, and Windows XP operating systems.

**What kinds of speeds can I expect to get through this card?**

It’s extremely difficult to guarantee any sort of rate when using any type of 802.11 wireless, due mostly to wildly divergent environmental issues for each deployment. There are also OS and IP-related overhead issues to consider when transferring data across wireless must be factored in. Unfortunately, most wireless manufacturers tend to quote throughput or connectivity numbers that are impossible to attain in real-world scenarios. In ideal conditions, you may be able to achieve 24-25Mbps when using 802.11a, 4.5-5Mbps when using 802.11b, and 24-25Mbps when using 802.11g.

**Does the card support “Turbo G”? And what exactly is it?**

Yes, and the SonicWALL SonicPoint supports it as well. Turbo G is a mechanism for multiplexing channels on an 802.11g wireless connection, effectively doubling the connect speeds (in ideal circumstances) to 108Mbps. Both sides of the connection must have Turbo G activated, and even then it may not be negotiated – as noted, it’s only supported when environmental conditions are suitable enough to negotiate a Turbo G connection. If Turbo G cannot be negotiated both sides will fall back to standard 802.11g speeds. As noted above, actual throughput speeds will be much lower than the stated connection speeds, due to environmental conditions, operating system overhead, and IP-related overhead. In ideal (and we really do mean “ideal” here), you may be able to achieve 50Mbps actual throughput using Turbo G. Please note that when you create a profile, by default TurboG is not enabled.

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**So...what's the best wireless type for me?**

Use 802.11a when: high-speed throughput is critical, indoor distances are fairly short between the Access Point and the wireless users (10-50 feet), more than three Access Points are required in close proximity, and when environmental issues (2.4GHz phones, baby monitors, wireless medical equipment, microwaves, etc.) exist and may interfere with 802.11b/g wireless transmissions.

Use 802.11b when: high-speed throughput is not critical, indoor distances are much longer between the Access Point and the wireless users (50-180 feet), less than three Access Points are not required in close proximity, and where environmental issues are not a factor.

Use 802.11g when: high-speed throughput is critical, indoor distances are a medium-range between the Access Point and the wireless users (30-120 feet), less than three Access Points are not required in close proximity, and where environmental issues are not a factor.

**Does this card support WEP?**

Yes, the card supports WEP using key strengths of 64-bit, 128-bit, or 152-bit using ASCII or Hexidecimal keys, although use of WEP is strongly discouraged by SonicWALL due to weaknesses in the implementation of WEP. We instead recommend that you use WiFiSec when connecting to a SonicWALL SOHO TZW or SonicPoint device, or WPA when connecting to a third-party Access Point.

**Does the card support WPA?**

Yes, the card supports WPA-PSK, WPA-EAP-TLS, and WPA-EAP-PEAP.

**Does the card support the upcoming 802.11i (aka 'WPA2') standard?**

Not at this time. The 802.11i standard has not been ratified, and it will be several months between ratification and delivery of a firmware upgrade that will allow the card and its software driver to connect using 802.11i. The ETA for delivery of a firmware upgrade for the card is late Q3, 2004, although this is subject to change. It's recommended that you periodically check SonicWALL's support site for updated firmware as the year progresses.

**Does the card support LEAP?**

No, it does not, and SonicWALL has no plans to add LEAP support, since it is susceptible to dictionary attacks and is considered insecure, even by Cisco (please read the following the following security advisory for full details: [http://www.cisco.com/en/US/tech/tk722/tk809/technologies\\_security\\_notice09186a00801aa80f.html](http://www.cisco.com/en/US/tech/tk722/tk809/technologies_security_notice09186a00801aa80f.html)). Per the advisory, even Cisco recommends using EAP-PEAP or EAP-TLS instead – both of which the card currently has support for.

**Does the card support 802.11d?**

Yes – the card supports 802.11d compliance, and is done so by including a country selector in International version of the card's software utility. The domestic version of the card sets the country selector permanently to North America and the software utility does not allow the user to change or modify this (in fact, the country selector is not even exposed in the utility).

**What exactly is 802.11d?**

802.11d compliance is a regulatory domain update wherein physical and MAC layer signaling automatically behaves in accordance with geographic requirements for such settings as channels of operation and power. Access Points and wireless clients implement 802.11d differently; the Access Point can be thought of as the 802.11d provider, wherein it either provides the 802.11d capability or not – the Access Point remains agnostic to the 802.11d capabilities of associated clients. The wireless client is in turn the 802.11d consumer – if the client is not 802.11d capable, it can associate with an Access Point regardless of its 802.11d capabilities. If the client is 802.11d capable, it can generally operate in one of three 802.11d modes:

- **None** – The wireless device will communicate with any other available wireless device, regardless of 802.11d compliance. This is useful for peer-to-peer (IBSS) networking which currently is not supported by the 802.11d standard.
- **Flexible** – The wireless device will communicate with any other available wireless device, and will abide by 802.11d information if it is presented.
- **Strict** – The wireless device will only communicate with devices that support the 802.11d standard.

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### **Does the card support 802.11e?**

The current version of firmware/software does not support 802.11e QoS mechanisms, although a future version may support this. Please check SonicWALL's support sites for updated versions of the card's firmware/software as the year progresses.

### **What about 802.11t?**

No, we don't support that. Mostly because it doesn't actually exist. . .at least not yet. Although at the rate that wireless is evolving, someone probably will invent it, and then we'll have to revise this FAQ and actually provide some sort of explanation as to what "802.11t" actually does. And then you can all point at us and laugh.

### **Can I use the North American version of the card outside the US?**

Use of the North American version of the card is entirely dependent upon the region's regulatory agency guidelines on effective power output. You must check with the governing agency for the rules regarding this for the 2.4GHz ISM wireless spectrum band assigned to 802.11b/g equipment, and for the 5GHz UNII wireless spectrum band assigned to 802.11a equipment.

### **Up to what distances does the card operate?**

Under typical conditions, using 802.11b or 802.11g, the card should be able to transmit and receive 11Mbps signals at a range of up to 180 feet (54 meters) indoors, under free-space conditions, when combined with the SonicWALL SOHO TZW or SonicPoint. When using 802.11a, the card should be able to transmit and receive 54Mbps signals at a range of up to 130 feet (39 meters) indoors, under free-space conditions, when combined with the SonicWALL SonicPoint. Factors that can affect signal performance include interference from other transmitting "stations" (2.4GHz/5GHz phones, baby monitors, wireless medical equipment, microwaves, etc.), environmental obstructions (metal walls, I-beams, concrete, water, people, trees, etc.) and the transmit power/receive sensitivity of the wireless access point itself.

### **Can I use the card, or the SOHO TZW, or the SonicPoint outdoors?**

No -- the SonicWALL wireless products are not rated for outdoor use and should only be operated indoors. Doing so may void the product's warranty.

### **What types of environmental factors can impact the wireless card's signal?**

In addition to distance, obstacles between the wireless card and access point must be considered. Below is a small list of the attenuation characteristics (signal loss) of common indoor materials:

- Glass/Windows – 2dB
- Drywall/Wood Wall – 3dB
- Cinder Block/Brick Wall/Concrete Wall – 4dB
- Metal Door – 6dB
- Metal Door in Brick Wall – 12dB
- ½" chain-link or mesh fence – total block

If there are multiple obstructions between the wireless card and base station, it may prevent connectivity even though the two devices are not that far apart. In most cases, doing an adequate site survey beforehand to locate any potential trouble spots is highly recommended. Please refer to the whitepaper entitled 'Wireless Site Survey and Placement Guide for SOHO TZW' for details on how to conduct a simple site survey before installing your SonicWALL wireless equipment.

### **What form of support is included with the new card?**

Every SonicWALL Long Range Dual Band Wireless Card comes with a standard warranty, which includes 1-year advanced hardware replacement for North America, 2-year advanced hardware replacement for EMEA (except UK), 90-day email and telephone support, and 90 days of software updates. The SonicWALL Long Range Dual Band Wireless Card will assume the support contract of the parent SonicWALL wireless device as long as it is registered on [www.mysonicwall.com](http://www.mysonicwall.com) under the SonicWALL wireless device with which it is associated. For directions on how you can register your Long Range Dual Band Wireless Card under an existing SOHO TZW, please refer to your User's Manual.

### **Is the card WECA certified?**

Not at present, but SonicWALL is investigating doing so.

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**Can I use the card in Apple Macintosh systems?**

At present, SonicWALL does not provide software drivers or support for any of the Apple operating systems.

**Can I use the card in Linux systems?**

At present, SonicWALL does not provide software drivers or support for any distributions of Linux.

**Can I use the card in Microsoft Windows Mobile 2003/Windows CE-based PDA?**

At present, SonicWALL does not provide software drivers or support for any distributions of Microsoft Windows Mobile 2003/CE.

**Does a wireless connection offer the same capabilities as a wired connection?**

This will depend entirely upon the environment. It must be noted that signaling and packet overhead for 802.11 effectively limit the maximum transmission speed, so this may limit the type of applications that run across the wireless connection. It may also affect applications that are latency sensitive, as the 802.11b connection is a shared medium, and not switched. Given that most wired LAN connections now operate at 100Mbps switched speed, wireless users making the initial transition from wired to wireless are likely to note a deterioration in user experience. However, the freedom that a wireless connection grants the end-user is likely to offset the lower connection speed.

**Are there any physical safety issues when using your wireless card? Can wireless affect a pacemaker? A cell phone?**

Wireless LAN systems meet stringent government and industry regulations for safety. The power output of wireless LAN systems is very low -- much less than that of a cellular phone. As a comparison, a typical cell phone has a power output of around 600mW, whereas the maximum power output of the SonicWALL Long Range Dual Band Wireless Card (North American version) is 100mW. No adverse health effects have ever been attributed to the SonicWALL Long Range Dual Band Wireless Card. There have been no reported cases of the card adversely affecting the operation of cellular phones or pacemakers.

**What is the power consumption on a laptop with the card installed? Is this something I need to be concerned about?**

If your laptop is operating on battery power, it's highly recommended that you activate power-saving mode on the SonicWALL driver in order to conserve as much battery as possible. Most wireless cards have a significant impact on battery time, and can reduce the lifetime as much as 50%. Activating power-saving mode can reclaim much of that loss, if the wireless connection is transmitting only intermittently. If the wireless card is constantly transmitting, then activating power-save mode isn't really going to save that much battery life.

**Do I need special software or drivers to connect?**

Yes -- you must install the SonicWALL Client Utility provided on the installation CD **before** inserting the card into the laptop running Windows 98SE/ME/2000/XP. If you attempt to insert the card before installing the driver, a number of extremely strange things may happen, and it is likely the card will not function correctly. If the card installs itself as an 'Atheros AR5001x', then it's definitely been installed incorrectly. You must uninstall the card completely (via the computer's 'Device Manager'), reboot, install the SonicWALL driver first, and then insert the card into the system.

**Where can I download drivers for my card?**

You can obtain the software driver package for Windows 98SE/ME/2000/XP on SonicWALL's customer portal site at: <https://www.mysonicwall.com>. You need a customer login to access the software. Newly registered products are eligible for 90 days of free software upgrades, after which point a software support contract must be purchased in order to obtain more recent software upgrades. Please note that the cards cannot be registered by themselves -- only as a subordinate device to a registered SonicWALL SOHO TZW. If you have purchased the card as a standalone device and do not have a SOHO TZW, you can obtain the software driver package at this location/page: <http://help.mysonicwall.com/products/wirelesscard/index.html>.

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**I'm using Windows XP, and the SonicWALL's driver seems to be missing most of the configuration tabs – why?**

By default, Windows XP attempts to manage the wireless card. To return full control of the wireless card to the SonicWALL Client Utility, do the following: access the settings by clicking on the wireless card's icon in the system tray, or by right-clicking on the 'My Network Places' icon on the desktop and double-clicking on the wireless card's icon. When the initial wireless configuration screen appears, it lists all of the wireless networks that it sees. Click on the 'Advanced...' button on the lower left side of this screen. Uncheck the box next to 'Use Windows to configure my wireless network settings' box and apply/save the changes.

**So, can I let Windows XP manage the card or do I have to use the SonicWALL driver?**

While it is possible for XP to manage the card natively, SonicWALL strongly recommends installing and using the SonicWALL Client Utility to manage the card's settings. Also, if you let Windows XP manage the card, you cannot use the 'Site Survey' tool built into the SonicWALL software driver (the tab will disappear from the driver).

**I'm installing the SonicWALL Client Utility on a Microsoft XP system, and I get a warning message saying that the "SonicWALL Long Range Dual Band Wireless Network Adapter has not passed Windows Logo testing to verify its compatibility with Windows XP – what should I do?**

You can safely ignore this warning message and click on the 'Continue Anyways' button to continue installation, and it will install with no issues.

**What is my SSID?**

In order to associate to a SOHO TZW, a SonicPoint, or any other third-party Access Point with the SonicWALL Long Range Dual Band Wireless Card, you must know the SSID. Unless the SOHO TZW or SonicPoint has been set to suppress the SSID in the broadcast beacon (and this is likely if your administrator has set up the SOHO TZW for maximum security), you can use the card's Site Survey tool to listen to the airwaves and grab the SSID out of the beacons. Or, you can simply enter in the SSID manually and associate that way. If this is the case, simply ask your network administrator what the SSID is.

**How do I protect my wireless network from snooping?**

Once your SonicWALL Long Range Dual Band Wireless Card has associated to the SonicWALL SOHO TZW or SonicPoint launch the SonicWALL Global VPN Client. The SOHO TZW or SonicPoint prompts you to enter a username and password in. Once you've successfully authenticated, all traffic to and from the wireless station will be encrypted, which means that even if someone does capture your traffic, all they'll see is a bunch of encrypted, garbled nonsense. Since the SOHO TZW or SonicPoint prompts the wireless user to authenticate, it also means that intruders are unable to hijack your network unless they are in possession of a valid username and matching password.

**Does the card work with other manufacturers' 802.11a/b/g access points?**

The SonicWALL Long Range Dual Band Wireless Cards should be able to connect to all WECA-certified 802.11a, 802.11b, and 802.11g wireless access points. The 802.11b+ specification is proprietary and not supported by this card, although the card should be able to connect to access points supporting 802.11b+ using 802.11b instead to associate. Also note that since older 802.11g products were based upon draft specifications of the protocol and not the final ratified version, SonicWALL cannot guarantee that the card will work properly with another manufacturer's pre-specification 802.11g access point. These manufacturers may provide a firmware update for these early 802.11g products that make them compliant with the final specification; you will need to check the manufacturer's support site for firmware and software updates to see if this is possible.

**Is there anything unusual in the SonicWALL software driver I need to be aware of?**

Yes. When entering WEP keys, the field may appear to be greyed out and unavailable, but clicking on the grey area will allow you to then enter in key values in the field.

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**What are the SonicWALL product numbers and prices for the Long Range Dual Band Wireless Card?**

- SonicWALL Long Range Dual Band Wireless Card (N. America) is 01-SSC-5515 for US\$149

**Is SonicWALL offering volume discounts for the cards?**

No, we are not currently offering any volume discounts for the cards.

**What firmware should I use on the SOHO TZW or SonicPoint when using these cards?**

SonicWALL recommends using SonicOS 2.1 Standard firmware on the SOHO TZW. When using SonicPoints with a SonicWALL device, you will need to run SonicOS 2.5 enhanced or newer on the SonicWALL device controlling the SonicPoint(s). You do not need to manually update firmware on SonicPoint devices, as the central SonicWALL device they're controlled by automatically updates the firmware, provisioning, and settings on the SonicPoint(s).

**Will SonicWALL release wireless adapters in other hardware formats (USB, compact flash, PCI)?**

SonicWALL has no official plans at present, but may do so at a future date.

**Does the SonicWALL card include SonicWALL Global VPN Client software so that users can encrypt and secure their wireless connections?**

Yes. The SonicWALL Long Range Dual Band Wireless Card ships with a copy of SonicWALL's Global VPN Client 2.x software on the installation CD, so that your wireless workers can securely connect from the wireless LAN (WLAN). Please note that this software is separate and not integrated into the card, although it is extremely easy to install and use. The client can also be downloaded from the <https://www.mysonicwall.com> customer portal. It can also be downloaded here: <http://help.mysonicwall.com/applications/vpnclient/sohotzw/>

**Does the card include a VPN Client license so that remote users can securely connect to the LAN from the public Internet?**

No, it does not. Remote user VPN connections for secure access to the LAN from the public Internet must be purchased separately. Please contact your local SonicWALL reseller for more information on purchasing SonicWALL Global VPN Client licenses.

**Can I use the card with NetStumbler?**

Yes, the card has been successfully tested with NetStumbler v0.4, which added support for Atheros-based wireless cards. The utility is available at <http://www.stumbler.net>. The card will not work with earlier versions of NetStumbler. Please note that you will need to select 'SonicWALL Long Range Dual Band Wireless Card NDIS 5.1' from NetStumbler's 'Device' menu to get it working properly (by default, it may attempt to use the 'Atheros' entry). You can use NetStumbler and the SonicWALL Long Range Dual Band Wireless Card together to perform site surveys and measurements of your wireless environment. SonicWALL does not condone the use of NetStumbler and its wireless cards for any illegal or improper use.

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