WHAT IS 54g™?

54g is the latest wireless LAN technology designed to meet the IEEE 802.11g draft specification. 54g is designed for high performance—with greater speed, improved reach, and added security. Because 54g is 802.11b-compliant, and will work with the largest installed base of wireless networks, it will quickly become the next mainstream wireless LAN technology.

Speed

With data rates up to 54 Mbps, 54g means faster wireless network access and file transfer. As wireless LAN devices are added to the network and file sizes grow, faster performance is essential.

Reach

54g features SmartRadio™ technology, which maintains a strong wireless connection, even as the laptop or other wireless device moves farther away from the access point.

Security

A key requirement for businesses deploying wireless networks is security. To ensure that data is quickly and safely delivered to its destination, Advanced Encryption Standard (AES) security is included in all 54g solutions.

54g means compatibility too. Look for products that have the 54g logo, to ensure that they work together to deliver the highest possible performance.

www.54g.org

54 Mbps high-performance wireless LAN technology— greater speed, improved reach, added security.
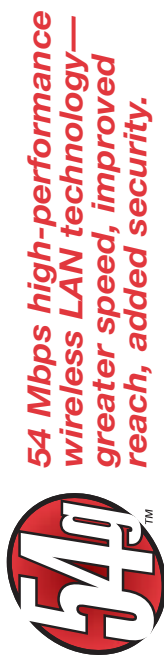
Understanding **wireless local area networks**

for home, business, and public hot spots

WHAT IS A
wireless local area network?
LAN

Wireless LANs allow users in the same building to share files, cable or DSL modems, printers and other peripherals, all without wiring. Imagine working on your notebook PC at the kitchen table, and sending a document to print in the den, without plugging in any cables. Stop by the local coffee house with a laptop and retrieve email without needing a phone jack. Attend a meeting in a conference room at work and review information from the Internet or print a file, without connecting to an Ethernet port. These scenarios are all possible with a wireless LAN.
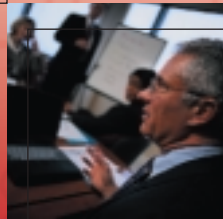
at home

in public places

Wireless networks are convenient, easy to set up, and now, faster than ever. New standards for wireless LANs have boosted speed, increased security, and expanded reach for more reliable connections.
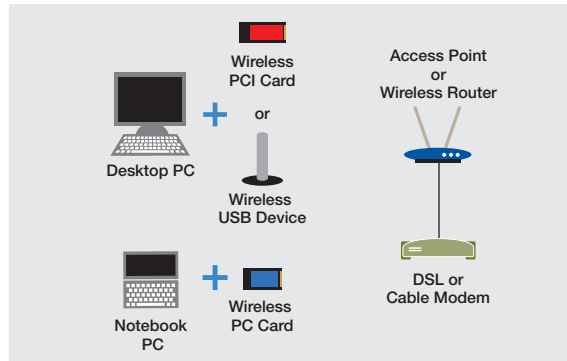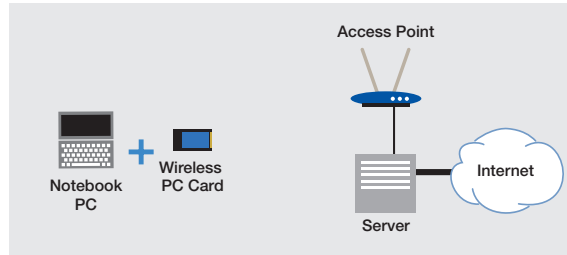
in business

COMPONENTS
of a wireless LAN

The hardware required to set up a typical home wireless network includes: a desktop PC with a wireless network adapter such as a PCI card or USB device, and a wireless access point or router to receive and transmit the wireless signal. The access point can then be connected to a cable or DSL modem for shared Internet access. A notebook computer simply requires a wireless PC Card. Many newer models come equipped with wireless connectivity, eliminating the need for a PC Card.

Assembling a wireless LAN

Wireless PCI Card
Access Point or Wireless Router

Desktop PC

or

Wireless USB Device

DSL or Cable Modem

Notebook PC

Wireless PC Card

Connecting to a Public Hot Spot

Access Point

Notebook PC

Wireless PC Card

Internet

Server

Hot Spots are wireless networks that have been placed in public locations to allow people to connect to the Internet. Internet service at Hot Spots is often provided by wireless Internet Service Providers (ISPs) who charge for the connection. Hot Spots have been established in many airports, coffee shops, hotels, schools and libraries around the world. Anyone who has a wireless LAN-enabled computer can connect to a Hot Spot.

CHOOSING
the right
wireless LAN technology

Around the world, there are two commonly used frequency bands that have been set aside by governments and are free for anyone to use. Wireless LANs take advantage of these free bands: 2.4 Gigahertz (GHz), and 5 GHz.

To ensure compatibility among wireless devices, the Institute of Electrical and Electronics Engineers (IEEE) regulatory body sets standards that manufacturers must follow when designing network products. The Wi-Fi Alliance then tests the finished products, and provides the Wi-Fi label as a certification mark to indicate the product has passed interoperability testing.

802.11b
Current mainstream wireless networking products are based on the IEEE 802.11b standard. 802.11b operates in the 2.4 GHz band, provides data rates up to 11 megabits per second (Mbps) and a typical maximum range of 300 feet. This is the most common wireless LAN technology available today.

802.11a
802.11a operates in the 5 GHz band, provides data rates up to 54 Mbps—five times faster than 802.11b—and a typical maximum range of 180 feet. Because 802.11a products are in a different band, they are incompatible with 802.11b products.

802.11g
Recently, products based on the 802.11g draft standard were introduced. Like 802.11b, 802.11g operates at 2.4 GHz, but is five times faster than 802.11b, with a 300 ft. range. Unlike 802.11a, 802.11g products are compatible with 802.11b products. This technology will quickly become the next mainstream wireless LAN standard.

802.11a/g
New dual-band 802.11a/g products will soon offer the highest capacity wireless LAN solution for business, allowing more simultaneous users, backwards-compatibility, but at a greater cost than 802.11g-only solutions.

	802.11b	802.11a	802.11g	802.11a/g
Maximum Data Rate	11 Mbps	54 Mbps	54 Mbps	54 Mbps
Frequency Band	2.4 GHz	5 GHz	2.4 GHz	5/2.4 GHz
Channels	3	12	3	12/3
Typical Range	Up to 300 ft.	Up to 180 ft.	Up to 300 ft.	Up to 180/300 ft.
802.11b Compatible	Yes	No	Yes	Yes
Comments	Most widely deployed today	Incompatibility causes limited acceptance	Replaces 802.11b	Highest capacity at price premium