Wireless in America

Innovative • Competitive • World Leader
The U.S. wireless industry is the most innovative and competitive in the world—the gold standard that others aspire to emulate.

The industry is providing American wireless users with the best value proposition on the planet. We use our devices to talk more, pay less and have more wireless broadband subscribers than any other developed country. The industry’s competition and innovation have also created a fantastic array of choices for consumers, who can select from several national service providers, and many regional and local carriers. They have the option of prepaid or postpaid service. More than 630 handsets are available in the U.S. market. Mobile applications barely existed just three years ago, yet today, there are more than 500,000 from which to choose.

Wireless technology is helping us live and work better than ever before, and is having profound impacts in areas such as healthcare, transportation, energy, education and many more. The U.S. wireless industry leads the way in the widespread deployment of high-speed networks... and even in the most challenging of economic times, continues to outpace its counterparts around the world when it comes to investing in infrastructure.

The U.S. wireless industry continues to play a key role in our country’s economic development and enriches all of our lives thanks to our hallmark innovation and competition.
Wireless service is possible because of radiofrequency spectrum (RF) that is harnessed for communication. Spectrum is comprised of a wide variety of frequency bands, ranging from those used for wireless and broadcast radio, to visible light and beyond. RF signals traveling through the air over wireless networks are subject to the laws of physics, which impose unique challenges on mobile communication.

The U.S. wireless industry uses its spectrum more efficiently than any other developed country. Experts agree that the need for more wireless mobile broadband spectrum will increase significantly in the near future, perhaps as much as 50 times in the next five years.

This looming crisis highlights the need for the Federal Communications Commission (FCC) to allocate more spectrum for licensed commercial use. The industry supports the FCC’s National Broadband Plan to make 500 MHz of spectrum available for commercial use within the next ten years, but believes much more will be needed to satisfy Americans’ growing demand and need for wireless broadband services.

An estimated 98% of U.S. mobile web traffic in 2015 will come from smart phone users, and the number of wireless Internet users in that time is expected to increase from 84 million to nearly 160 million. – Coda Research Consultancy

North American wireless data traffic will double almost every year from 2009 through 2014, increasing nearly 50 times during that time. – Cisco Visual Networking Index, 2010

The volume of U.S. wireless data traffic grew by 50% from the end of 2009, to June, 2010. – CTIA-The Wireless Association

Today, the average smart phone user accounts for 11 times more traffic than the average non-smart phone user. Smart phone users in the U.S. are expected to more than double from 90 million in 2010 to more than 211 million in 2015. – Informa Telecoms & Media

Smart transportation = Fleet and asset management are just two areas that can be greatly enhanced with wireless technology, reducing energy consumption and costs for American businesses of all sizes.

Smart energy = Power companies can increase their distribution and monitoring efficiencies with wireless technology, and novel applications such as smart meters can help consumers take more control of their energy consumption.

mHealth = Wireless technology can provide tremendous healthcare benefits and save billions in health costs, including real-time monitoring of chronic disease patients.
The growth of the U.S. wireless industry is an impressive illustration of what happens with sensible and rational public policy. During the Clinton Administration, the 1993 Omnibus Budget Reconciliation Act created a national framework for the wireless industry. This “experiment” in telecommunications policy has helped produce an ultracompetitive industry, driven by consumers and their needs, and one which is an unparalleled American success story.

**CTIA’S SEMI-ANNUAL SURVEY**

**U.S. Wireless Subscriber Statistics**

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<tr>
<td>Wireless Subscribers</td>
<td>292.8M</td>
<td>97M</td>
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<tr>
<td>Wireless Penetration</td>
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<td>% of U.S. Population</td>
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<tr>
<td>E-911 Calls/Day</td>
<td>&gt;296K</td>
<td>139K</td>
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* K=Thousand  M=Million  B=Billion

**SOUND POLICY, TREMENDOUS GROWTH**

Producing an ultracompetitive industry, driven by consumers and their needs, and one which is an unparalleled American success story.

**U.S. WIRELESS – THE WORLD LEADER**

An Independent Review

The U.S. wireless industry is receiving high marks in customer satisfaction, and is providing more value, competition, innovation and investment than any of its counterparts around the world.

**SATISFACTION**

- A June, 2010, FCC consumer survey found “92 percent of cell phone users are very or somewhat satisfied with their cell phone service overall.”

**VALUE**

- American consumers enjoy the lowest wireless rates (average revenue per minute) and the highest average monthly minutes of use of the 26 OECD countries tracked by Bank of America Merrill Lynch.
- The average wireless consumer in Europe uses just 186 minutes a month compared to about 804 minutes a month for the U.S.
- The U.S. has the largest mobile data market and the most mobile Internet users of any country in the developed world.

**INNOVATION**

- The first “app” store was launched in July, 2008, and today there are more than 500,000 apps available from numerous different stores on seven different platforms.
- There are at least 11 independent operating systems for mobile devices. None of the leading systems is owned by a wireless carrier.
- There are more than 264 million data-capable devices in U.S. consumers’ hands today.
- Consumers can choose from more than 630 different handset models and devices in the U.S. (compared to the UK’s 147), and they’re manufactured by three dozen companies and offered by more than 140 wireless operators.

**ECONOMIC IMPACT/INVESTMENT**

- Wireless jobs pay more than 50% higher than the national average of other production workers.
- Estimates of productivity gains from wireless broadband services are more than $860 billion between 2005-2016.
- Wireless economic contributions have grown faster (16%) than the rest of the economy (3%).
- In 2009, U.S. providers reported making capital investments totaling $20.4 billion, compared to $17.0 billion combined in the five largest European countries (France, Germany, Italy, Spain and UK).

**COMPETITION**

- 95% Americans have a choice of 3 or more facilities-based providers.
- The U.S. has the most facilities-based competitors, and is the least concentrated market in the world.

**THE WIRELESS TIMELINE**

Relevant events in the growth of an industry.

1977 Experimental cellular systems licensed in Chicago and the Washington, D.C., Baltimore region

1983

- On October 13, the first commercial cellular system began operating in Chicago. In December 1983, the second system was activated in the Washington, D.C., Baltimore corridor.
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- Motorola introduced the DynaTAC mobile telephone unit, the first truly “mobile” radiotelephone. The phone, dubbed the “brick,” had one hour of talk time, eight hours of standby power and cost almost $4,000.
- The Cellular Telecommunications Industry Association was founded.

1987

With media looking on, Baltimore city council president Clarence “Du” Burns places a ceremonial call on the city’s Bell Atlantic service.
HOW WIRELESS WORKS

A wireless phone is really a radio – a very sophisticated and versatile radio. Much like a walkie-talkie, a cell phone receives and sends radio waves. Those radio waves, travelling through spectrum, are used to transmit voice calls and data to your mobile device anywhere you are, anytime you want them.

WHAT’S INSIDE

Today’s wireless devices are actually miniature computers. This bundle of technologies allows you to make phone calls, access the Internet or exchange data with other phones and computers around the world.

THE NUTS AND BOLTS

Every cell uses a set of radio frequencies or channels to provide service in its specific area. The power of these radios is controlled in order to meet federal safety standards and to allow the same frequencies to be reused in nearby cells. This lets many people have conversations simultaneously in different cells throughout the city or region, even though they are on the same channel.

The number of users in a given area matters. The more people wanting to use their wireless devices, the more capacity is needed to provide service. That’s why more antennas are necessary in densely populated areas than in less populated rural settings.

Also, remember that wireless devices are radios and are ruled by the laws of physics. Trees, tall buildings, hilly terrain or bad weather can cause interference. Some dead spots also exist because cells vary in size and there might be slight gaps in coverage areas. Improving coverage requires adding antennas or relocating existing ones.

CONNECTING TO THE WIRELESS NETWORK

When you turn on your wireless device, it searches for a signal from the closest antenna. It quickly transmits a unique identification number so your service provider knows it’s your device and where it is so you can be served.

Wireless calls are usually transmitted over a landline network. If you’re calling another wireless user, the call will eventually go back through a wireless antenna to the recipient’s wireless device.

So what makes all of this “mobile”? Wireless base stations are “smart” and can sense when your signal can be stronger as you move toward a closer antenna.

That’s how your call stays connected while you’re on the move. Wireless base stations keep track of you, and hand off your signals as you move from one cell to another served by another base station. Using smaller cells, which means more towers or base stations, also enables your device to use less power and keep a clearer signal as you move.

MOBILE GOES DIGITAL

Most wireless phones use digital technology, which converts your voice or wireless data into the binary digits 0 and 1—much like a music CD. These small packets of data are actually broken up and relayed through wireless networks to the receiving device. On the other end, the conversion process is reversed and the person you are calling hears your voice, reads your email or text or sees your multimedia message. Again, all of this happens incredibly quickly because of the sophisticated technology built into the devices and the networks.

AMERICANS NEED SPEED

As the wireless industry converts to packet-based networks using the same technology as the Internet, wireless data services continue to expand.

Today, wireless networks operate at data speeds five to ten times greater than dial-up telephone or earlier wireless networks. Next generation data networks such as LTE, HSPA+ and WiMAX are supporting even greater transmission speeds and high-demand applications such as streaming HD video.

These faster and more efficient networks mean that we are able to manage our professional and personal lives in fantastic new ways.
CTIA—the Wireless Association® and the wireless industry are consistently strong advocates for consumer protection. Our members are also dedicated to providing wireless customers with the highest quality products and services to meet their broad and diverse demands.

As part of our commitment, CTIA and our participating member companies have voluntarily established and adopted guidelines to help consumers make informed choices when selecting wireless services and in accessing content using their wireless devices.

**BEST PRACTICES AND GUIDELINES FOR LOCATION-BASED SERVICES**

These voluntary standards are based on the information privacy best practices promoted by the Federal Trade Commission, featuring Notice, Consent and Safeguards. Updated in March, 2010 to recognize the continued innovation in LBS applications, they are supported by CTIA members and LBS providers to provide consumers with the confidence and assurance that their private location information is protected.

**CARRIER CONTENT CLASSIFICATION AND INTERNET ACCESS GUIDELINES**

CTIA members recognize the importance of providing consumers information and tools needed to make informed choices when accessing mobile content, and they reaffirm their commitment in this area by voluntarily developing and supporting these guidelines. They include voluntary content classification standards for carrier content, and commitment to an implementation policy.

**MOBILE FINANCIAL SERVICES ACTION GUIDELINES**

Wireless technology is creating vast new opportunities for consumers to manage their finances and purchase goods, and this voluntary set of industry guidelines addresses necessary safety and security measures for mobile banking, commerce and payments for products and services.

For more information, please visit:
http://www.ctia.org/consumer_info/service/index.cfm/AID/10673

CTIA and the wireless industry have either developed or supported numerous consumer-focused initiatives. For example:

**Text4baby**
www.text4baby.org
This free mobile educational service comprises of a broad, public-private partnership, including National Healthy Mothers, Healthy Babies Coalition, The Wireless Foundation and wireless carriers to promote the birth of healthy babies. The initiative provides informative text messages to pregnant women and new moms to promote better health for them and their babies.

**ON THE ROAD**

**OFF THE PHONE**

**On the Road, Off the Phone**
www.onroadoffphone.org
Safe driving is vitally important to all of us, and this campaign is part of the industry's ongoing 13 year effort to promote responsible behavior while behind the wheel. It involves a partnership between CTIA and the National Safety Council, and includes production and distribution of radio and television public service announcements. Those segments and other valuable safety information for all drivers can be seen on www.onroadoffphone.org.

**Wireless AMBER Alerts**
www.wirelessamberalerts.org
The wireless industry, National Center for Missing & Exploited Children and U.S. Department of Justice are collaborating in this important public initiative that transmits free AMBER Alert text messages.
FREQUENTLY ASKED QUESTIONS

Q: Why don’t my wireless calls go through sometimes?
A: Remember, wireless phones are complex radios. Your wireless call travels over airwaves to another person’s phone, similar to music traveling over airwaves into your radio receiver. Just like radios, wireless calls can be obstructed by tall buildings, hills, bad weather or the concrete and steel of underground garages. If you’re moving through rural or mountainous regions, or unpopular areas, you might enter a dead spot where there is no wireless antenna close enough to connect your call or to hand off your call to another antenna. In densely populated areas, you might approach a wireless antenna that is already operating at full capacity.

Q: What is the industry doing to improve wireless services?
A: The wireless industry is the most competitive segment of the telecommunications sector. Wireless companies work hard and invest heavily to serve their customers. In 2009, U.S. providers reported making capital investments totaling $20.4 billion. Wireless providers in the five largest European countries (France, Germany, Italy, Spain and UK) spent a combined $17.9 billion. Unfortunately, some state and federal regulatory and legislative governments are imposing requirements more appropriate to a monopoly service, which transfer investment dollars away from expanding coverage and services, and into paying for regulatory decrees.

Q: What is the wireless industry doing to improve coverage?
A: Wireless carriers have added 71,000 cell sites and invested more than $124 billion over the last five years to improve coverage, to add capacity and to better serve you. They monitor their networks, adding capacity and “filling holes” where it is needed most. However, wireless carriers often struggle to get the required permission from zoning authorities to install new antennas. Federal, local and state authorities often resist adding wireless antennas—even though they can be camouflaged on trees, flagpoles and church steeples, and are necessary to improve coverage in a given area. Resources for improving coverage are often diverted to fulfilling new government rules and regulations that do not address consumers’ public safety’s number one priority—increased quality and coverage.

Q: How do I check my data/text/voice usage?
A: Carriers offer a variety of ways for customers to check their wireless usage. CTIA recommends contacting your carrier or checking its website for its shortcuts and tips.

Q: When do I have to pay an Early Termination Fee (ETF) and are there alternatives if I don’t want to pay it?
A: An ETF only applies if a customer decides to break a contract with a carrier to which they’d previously agreed. Just as the carrier is promising to deliver specific services for a guaranteed price, a customer is agreeing to “do business” with the carrier for a specific period of time. Since you have committed to being a long-term customer, the carrier can offer you the best possible price for wireless products and services, in addition to a heavily subsidized handset on many occasions. However, you do not have to choose a contract plan; instead, you can join the more than 26% of consumers who choose prepaid or pay-as-you-go service. All major wireless service providers and many others now pro-rate ETFs.

Q: Why are there so many taxes and fees on my wireless phone bill?
A: Depending on where you live, government-added taxes and fees may add as much as 23% to your total monthly bill. On average, wireless users are taxed slightly more than 16%, which is unfair from a tax standpoint and is counterproductive in that it could limit the use of wireless by those on fixed incomes who could most benefit from the technology. This is becoming an even more prevalent problem as some state and local policymakers are continuing to look for additional ways to compensate for budgetary shortfalls, while others are committed to ensuring affordable broadband access for all Americans. In general, the wireless industry believes taxes on wireless service should be no higher than the rate placed on other taxable goods and services. Wireless bills also include fees for the federal Universal Service Fund to help provide telecommunications services to rural areas and low-income Americans, as well as Internet access to schools and libraries. Most users also pay a 911 surcharge, which is intended to pay for upgrades to 911 call centers. Unfortunately, some states have raided these 911 funds to pay for other items, such as covering their state’s general fund.

Q: When will the wireless industry provide location information for wireless 911 calls?
A: When a wireless call is made to 911, the signal also includes information regarding the caller’s general location. Many 911 call centers have upgraded their computer equipment so they process the location information to even finer detail. Wireless carriers continue to invest millions of dollars in upgrading equipment so that a wireless caller’s location can be pinpointed. This continual improvement in the accuracy of the location information, however, will be most helpful when all local 911 operators upgrade their equipment process location information.

Q: Can my wireless phone be cloned or my calls intercepted?
A: Almost every wireless phone sold today uses digital technology, meaning it transmits information over the airwaves as a series of 0’s and 1’s. It is extremely difficult to clone such phones or intercept such calls. Wireless phones also have many built-in security features, such as automatic phone authentication and electronic serial numbers. All these features make your digital wireless phone and your digital wireless calls secure.

Q: What should I do if my phone is lost or stolen?
A: There are 3 simple steps that you should do: 1. Immediately contact your carrier and tell them to turn off your phone so you’re not responsible for charges; 2. Contact the police to file a report on the theft; 3. If your device has a GPS tracking service, the police, working with your carrier, might be able to locate it. While losing your wireless device is certainly an important issue for you, other demands on law enforcement resources might limit their ability to assist in the recovery of your device.

Q: How do I prevent my phone from being lost/stolen/malicious viruses/etc?
A: Wireless carriers go through significant efforts to protect their customers by blocking spam, filtering for viruses, testing software that is sold their portals, etc. Many aspects of these systems are proprietary; carriers do not want to provide cues on how bad actors can get around their defenses. It’s sufficient to say that today’s carriers work very hard to protect consumers. Here are the wireless industry’s six tips: 1. Know and use the security features on your device (e.g. password locks); 2. Use the personalization feature and put your name and a different phone number (and/or email address) so if someone finds your device, they can contact you to return it; 3. Keep a back-up of your contacts, calendar, etc somewhere else (e.g. computer); 4. Never leave your device so that it can be easily picked up and don’t give your device to a person you don’t know; 5. Only download items (e.g. ringtones, apps, etc) from trusted sources. You can also download antivirus software for your wireless device from either your carrier or a variety of third party sources. 6. If you are a person who has a tendency to lose things, you may want to consider mobile device insurance. Make sure you know what the insurance plan does and does not cover.

Q: What’s CTIA’s acronym?
A: When our organization was started in 1985, the acronym stood for the Cellular Telecommunications & Internet Association (CTIA). In 2000, CTIA merged with the Wireless Data Forum and became the Cellular Telecommunications & Internet Association. In 2004, we changed our name to CTIA–The Wireless Association® because it better represents our diverse membership of service providers, manufacturers, wireless data and Internet companies, as well as other contributors to the wireless ecosystem.

Q: Where can I find the latest wireless research/information?
A: We recommend visiting our website’s research section: http://www.ctia.org/advocacy/research/. If you don’t find the answer to your question, please send us an email at: ctiamedrel@ctia.org

Q: What’s CTIA’s position on…
A: For details on our position on a variety of issues, please visit: http://www.ctia.org/advocacy policy_topics/. If you don’t find the answer to your question, please send us an email at: ctiamedrel@ctia.org

The average wireless consumer used his or her phone for 804 minutes per month and paid an average local monthly bill of $60.94.

2005

- Spurred by the Hurricane Katrina disaster, the wireless industry, together with the American Red Cross, developed the National Text 2Help Initiative, which allowed customers to donate $5 via text message in the event of a major disaster.

2007

- Palm Software Store (January), Apple of Mobile Marketplace (July) app stores opened.
- iPhone is launched, spurring dramatic handset innovation.
- iTunes Application Store (July) and Android Market (October) opened.

2008

- There were more than 285.6 million U.S. wireless subscriber connections which was nearly 91% of the total U.S. population.
- Wireless subscribers used more than 62 billion minutes per day and sent and received more than 5 billion SMS messages per day.

2009

- 285,600,000
- BlackBerry App World (April).
- Nokia Ovi Store (May), Palm App Catalog (June) and Windows Mobile Marketplace (July) app stores opened.
- Spurred by the Hurricane Katrina disaster, the wireless industry, together with the American Red Cross, developed the National Text 2Help Initiative, which allowed customers to donate $5 via text message in the event of a major disaster.
ABOUT US

CTIA-The Wireless Association® (www.ctia.org) is an international nonprofit membership organization that has represented the wireless communications industry since 1984. Membership in the association includes wireless carriers and their suppliers, as well as providers and manufacturers of wireless data services and products.

The Association advocates on behalf of its members at all levels of government. CTIA also coordinates the industry’s voluntary efforts to provide consumers with a variety of choices and information regarding their wireless products and services. This includes the voluntary industry guidelines; programs that promote environmental responsibility; and wireless accessibility for individuals with disabilities.

CTIA also supports important industry initiatives such as Wireless AMBER Alerts; “On the Road, Off the Phone,” a teen-focused safe driving public service announcement campaign; text4baby, a free mobile educational service to promote the birth of healthy babies; and the “Be Smart. Be Fair. Be Safe. Responsible Wireless Use” program to help parents, educators and policymakers teach kids about responsible mobile behavior, driving and eco-friendly initiatives.

The Association also operates the industry’s leading trade shows, as well as equipment testing and certification programs to ensure a high standard of quality for consumers.

FOR MORE INFORMATION:
CTIA-The Wireless Association offers a variety of resources for you to learn more about our industry.

WONDER OF WIRELESS
CTIA develops a monthly series of videos on new products, services and initiatives that benefit consumers. Wireless is constantly and dramatically changing the way we live, work and play. While each month’s theme changes, these “Wonder of Wireless” features highlight:

- Wireless at Work – Focuses on innovative products and services.
- Industry Insider – Interviews with policymakers and influencers on various issues.
- Policy Point – Explains CTIA’s position on a variety of policy topics.
- Wireless Lifesaver – Identifies individuals who have used their mobile devices and services to save a life or stop a crime.

To view the WOW webcasts, please visit: http://www.ctia.org/consumer_info/wow/

For more information about CTIA-The Wireless Association, please visit:

- Positions on Policy Matters: http://www.ctia.org/advocacy/policy_topics/
- FCC filings: http://www.ctia.org/advocacy/filings/
- Blog: http://www.ctia.org/blog/
- Facebook: http://on.fb.me/CTIAFacebook
- Twitter: @ctia
- YouTube: http://www.youtube.com/user/CTIATheWirelessAssoc
- To sign up for the press release distribution: http://www.ctia.org/media/press_contacts/

WIRELESS POLICY MILESTONES

1912 Radio Act of 1912 – Served as the first federal statute to establish a structure for spectrum management and authorized the Department of Commerce Secretary to issue radio licenses.

1927 Radio Act of 1927 – Congress transferred radio licensing authority from the Department of Commerce to the Federal Radio Commission (FRC), which issued and revoked licenses, assigned radio frequencies and regulated transmission power levels.

1934 Communications Act of 1934 – Replaced the FRC with the Federal Communications Commission (FCC) to regulate interstate communication by wire and radio.

1981 Cellular Communications Systems Order – FCC determined that the cellular industry should have two carriers per market and creates cellular “A” and “B” licenses for each area of the country.

1982 Communications Amendments Act of 1982 – Congress gave the FCC authority to issue licenses by lottery and required applicants to meet certain minimal conditions.


1993 Omnibus Budget Reconciliation Act – Congress authorized the FCC to auction spectrum licenses, granted the FCC broad authority to forbear from applying unnecessary regulation and preempted state regulation of wireless rates and entry.

1996 Telecommunications Act – Congress established a national framework for wireless tower siting.

1997 Balanced Budget Act – Congress directed the FCC to reallocate spectrum in the 700 MHz band to commercial and public safety from its previous use for television broadcasting, resulting in the auctioning of recaptured spectrum.

1999 Wireless Communications and Public Safety Act of 1999 – The FCC designated 911 as the universal emergency number for wireline and wireless service and promoted the use of technologies that help public safety service providers locate wireless 911 callers.

2003 Secondary Markets Order – The FCC created a “secondary market” which permitted licensees to lease any amount of their spectrum.

2004 Commercial Spectrum Enhancement Act – Congress created the Spectrum Relocation Fund, financed by auction proceeds, to recover the costs associated with relocating radio communication systems from certain bands.

2005 Deficit Reduction Act – Congress required television broadcasters to terminate their analog broadcasts on February 18, 2009 and extended the FCC’s auction authority through the end of fiscal year 2011.
GLOSSARY OF WIRELESS TERMS

3G / 4G: A general term that refers to new wireless technologies which offer increased capacity and capabilities delivered over digital wireless networks.

Analog: The traditional method of adapting radio signals so they can carry information. AM (Amplitude Modulation) and FM (Frequency Modulation) are the two most common analog systems. Analog has largely been replaced by digital technologies, which are more secure, more efficient and provide better quality.

Antenna: A device for transmitting and receiving radiofrequency (RF) signals. Often camouflaged on existing buildings, trees, water towers or other tall structures, the size and shape of antennas are generally determined by the frequency of the signal they manage.

App (Application): Downloadable tools, resources, games, social networks or almost anything that adds a function or feature to a wireless handset which are available for free or a fee.

Base Station: The central radio transmitter/receiver that communicates with mobile telephones within a given range (typically a cell site).

Bluetooth: The name for a technological standard (a communications protocol) that enables mobile devices equipped with a special chip to send and receive information wirelessly. Using Bluetooth, electronic devices such as desktop computers, wireless phones, electronic organizers and printers can communicate over short-ranges using the 2.4 GHz spectrum band.

Broadband: A transmission facility having a bandwidth (capacity) sufficient to carry multiple voice, video or data channels simultaneously. Broadband is generally equipped with the delivery of increased speeds and advanced capabilities, including access to the Internet and related services and facilities.

Carrier: Also known as a service provider or network operator, a carrier is the communications company that provides service to end user customers or other carriers. Wireless carriers provide their customers with service (including air time) for their wireless phones.

Cache: Many websites store the initial visit so that when the mobile device user visits again, the data from the same website can appear faster.

CDMA (Code Division Multiple Access): A technology used to transmit wireless calls by assigning them codes. Calls are spread out over the widest range of available channels. Then codes allow many calls to travel on the same frequency and also guide those calls to the correct receiving phone. In the U.S., CDMA carriers include: Alaska Communications System, Carolina West, CellCom/nSight, Bluegrass Cellular, Leap Wireless, Sprint, U.S. Cellular and Verizon Wireless.

Cell: The basic geographic unit of wireless coverage. Also, shorthand for generic industry term “cellular.” A region is divided into smaller “cells,” each equipped with a low-powered radio transmitter/receiver. The radio frequencies assigned to one cell can be limited to the boundaries of that cell. As a wireless call moves from one cell to another, a computer at the Mobile Telephone Switching Office (MTSO) monitors the call and at the proper time, transfers the phone call to the new cell and new radio frequency. The handoff is performed so quickly that it’s not noticeable to the users.

Cell Site: The location where a wireless antenna and network communications equipment is placed in order to provide wireless service in a geographic area.

Cell Splitting: A means of increasing the capacity of a wireless system by subdividing one cell into two or more smaller cells.

Channel/Circuit: A communications pathway that may take the form of a connection established over wireless, wired or fiber optic facilities.

CMRS (Commercial Mobile Radio Service) Provider: An FCC designation for any wireless carrier or license owner whose wireless service is connected to the public switched telephone network and is operated for profit. Wireless services that are offered to the public are classified as CMRS, unlike private systems which are classified as “Private Mobile Services.”

Co-Location: Placement of multiple antennas at a common site. Some companies act as brokers or cell site managers, arranging cell sites and coordinating many carriers’ antennas at a single cell site.

Common Short Codes (CSC): Five- or six-digit numbers which allow wireless devices to send text messages for value-added services such as telemarketing campaigns, mobile coupons, charitable donations and other programs.

Contract Plan (Post-Paid): The most popular cell phone plan in which a subscriber agrees to a contract for a certain period of time, usually a year or two and in exchange, the carrier provides the customer with a lower monthly rate and subsidized handset. There may be a fee if you want to cancel the contract before it expires. Also known as an “early termination fee.” CTIA developed a voluntary “Consumer Code for Wireless Service” to help consumers make informed choices when selecting their wireless service.

Digital: Technological approach that converts signals (including voice) into the binary digits “0” and “1.” This data is compressed, and then transformed into electronic pulses for a wired network, optical light waves for fiber optic networks or radio waves for wireless networks. Digital wireless technology has largely superseded analog technology, because digital delivers more capacity, supports more applications, offers better sound quality and more secure signals.

DSL (Digital Subscriber Line): A digital line connecting the subscriber’s terminal to the serving company’s central office, providing multiple communications channels able to carry both voice and data communications simultaneously.

EDGE: Enhanced Data Rate for Global Evolution is an evolutionary step in the GSM-development path for faster delivery of data, delivered at rates up to 384 Kbps. The standard is based on the GSM technology platform and uses the TDMA approach (see TDMA).

ESN (Electronic Serial Number): The unique serial identification number programmed into a wireless phone by the manufacturer. Each time a call is placed, the ESN is transmitted to a nearby base station so the wireless carrier can validate the call. The ESN differs from the Mobile Identification Number, which identifies a customer’s wireless phone number. MIDs and ESNs are electronically monitored to help prevent fraud.

Evolution-Data Optimized (EVDO): The third generation CDMA technology. The U.S. had 74.6 million subscribers in 4Q 2009 out of 124.6 million or 23% of all subscribers. This meant the U.S. had 60% of all EVDO subscribers in the world.

Federal Communications Commission (FCC): An independent U.S. government agency responsible with regulating interstate and international communications by radio, television, wire, satellite and cable. This includes all aspects of the wireless industry such as devices, policies, programs and outreach initiatives.

Federal Regulatory Fee: Annual communications regulatory fees as mandated by Congress. The fees require the FCC to recover the regulatory costs associated with its enforcement, policy and rulemaking, user information and international initiatives.

Federal Trade Commission (FTC): The only federal U.S. agency with both consumer protection and competition jurisdiction in broad sectors of the economy. The FTC pursues vigorous and effective law enforcement; advances consumers’ interests by sharing its expertise with federal and state legislatures and U.S. and international government agencies; develops policy and research tools through hearings, workshops and conferences; and creates practical and plain-language educational programs for consumers and businesses in a global marketplace with constantly changing technologies.

Filters: Most wireless carriers provide parents with the ability to filter Internet content accessed on a wireless phone on their network.
GPS (Global Positioning System): A worldwide satellite navigational system, made up of a constellation of satellites orbiting the earth and their receivers on the earth’s surface. The GPS satellites continuously transmit digital radio signals, with information used in location tracking, navigation and other location or mapping technologies.

GSM (Global System for Mobile Communications): A technological approach based on the idea of adding wireless calls into time slots. GSM is most common in Europe, Australia and much of Asia and Africa. Generally, GSM phones from the United States are not compatible with international GSM networks because the U.S. and many other nations use different frequencies for mobile communications. However, some phones are equipped with a multi-band capability to operate on such other frequencies. In the U.S., GSM carriers include: AT&T, DoCoMo Pacific, GCI Communications, TerreStar, Westlink and T-Mobile.

Handoff: The process when a wireless network automatically switches a mobile call to an adjacent cell site.

HSPA (High Speed Packet Access): Is the third generation GSMA technology. The U.S. had 24 million subscribers out of the 200 million total which means the U.S. had 24% of all HSPA subscribers in the world for 2Q 2009.

iDEN (Integrated Digital Enhanced Network): A specialized mobile technology that combines two-way radio, telephone, text messaging and data transmission into one digital network. iDEN is designed to give users quick access to information on a single device. Introduced by Motorola, it is used by AirTel Montana, Nextel Communications, Nextel Partners and SouthernLINC Wireless, among others.

Interconnection: Connecting one network to another, such as a wireless network to a local telephone company’s wireline network.

Interoperability: The ability of a network to coordinate and communicate with other networks, such as two systems based on different protocols or technologies.

LAN (Local Area Network): Is a small data network covering a limited area, such as a building or group of buildings. Most LANs connect workstations or personal computers. This allows many users to share devices, such as laser printers, as well as data. The LAN also allows easy communication, by facilitating e-mail or supporting chat sessions.

Location-Based Services (LBS): An information, advertising or entertainment service that uses the geographical position of a cell phone. CTIA developed voluntary “Best Practices and Guidelines for Location-Based Services” to promote and protect user privacy.

LTE (Long Term Evolution): The next-generation network beyond 3G. In addition to enabling fixed to mobile migrations of Internet applications such as Voice over IP (VoIP), video streaming, music downloading, mobile TV and many others, LTE networks will also provide the capacity to support an explosion in demand for connectivity from a new generation of consumer devices tailored to those new mobile applications.

Megahertz (MHz): Is a unit of frequency equal to one million hertz or cycles per second. Wireless mobile communications within the United States generally occur in the 800 MHz, 900MHz and 1900MHz spectrum frequency bands.

mHealth (Mobile Health): The use of mobile devices and technology in health care. This includes text message reminders to prompt them to take medication, follow a diet, engage in physical activity, check blood pressure and more. It can also be used to monitor patients’ health and track and guide self-care beyond the doctors’ offices.

MIN (Mobile Identification Number): A mobile number. There are 10 wireless operating system platforms. They are: Android (Open Handset Alliance); BlackBerry OS (Research In Motion); BREW (Qualcomm); Java (Sun Microsystems); LiMo (Open Source Linux for Mobile); OS X (iPhone Apple); Palm OS (Palm); WebOS (Palm); Windows Mobile (Microsoft); and bada (Samsung).

Interoperability: The ability of a network to coordinate and communicate with other networks, such as two systems based on different protocols or technologies.

mLearning (Mobile Learning): Education that takes advantage of the opportunities mobile devices provides, such as not being prohibited by location. This includes sending text messages for in-class participation or voting, accessing the mobile Internet for inform or conducting homework assignments.

MVNO (Mobile Virtual Network Operator): A company that buys network capacity from a network operator in order to offer its own branded mobile subscriptions and value-added services to customers.

Number Portability: A means by which phone numbers are conserved. With mandatory Number Porting, carriers must release their unused phone numbers for use by other carriers. This expands the life of area codes and reduces the need to create new ones. Carriers who need additional telephone numbers now receive 1,000 new numbers at a time; this is a significant improvement over the 10,000 numbers they used to receive, even when only one new number was needed.

Number Portability: The ability of a customer to retain their telephone number when changing service providers in a specific area, whether changing from one wireless company to another or between wireless and wireline companies.

Operating System (OS): As of August 2010, there are 10 wireless operating system platforms. They are: Android (Open Handset Alliance); BlackBerry OS (Research in Motion); BREW (Qualcomm); Java (Sun Microsystems); LiMo (Open Source Linux for Mobile); OS X (iPhone Apple); Palm OS (Palm); WebOS (Palm); Windows Mobile (Microsoft); and bada (Samsung).

Packet: A piece of data sent over a packet-switching network, such as the Internet. A packet includes not just the data comprising the message but also address information about its origination and destination.

Packet Data: Information that is reduced into digital pieces or “packets,” so it can travel more efficiently across networks, including radio airwaves and wireless networks.

Parental Control Tools: Services offered by wireless carriers or third parties or built-in to a wireless device to allow parents to limit or monitor their child’s cell phone use. CTIA developed voluntary “Guidelines for Carrier Content Classification and Internet Access.”

PCS (Personal Communications Services): Defined by the FCC as a broad family of wireless services, commonly viewed as including two-way digital voice, messaging and data services. One set of “PCS” licenses established by the FCC operates in the 1900 MHz band.

PDA (Personal Digital Assistant): A portable computing device capable of transmitting data. These devices offer services such as paging, data messaging, e-mail, computing, faxes, date books and other information management capabilities.

PIN (Personal Identification Number): An additional security feature for wireless phones, much like a password. Programming a PIN into the Subscriber Information Module (SIM) on a wireless phone requires the user to enter that access code each time the phone is turned on.

POPs: For wireless, POPs generally refers to the number of people in a specific area where wireless services are available (the population). For traditional landline communications, a “Point of Presence” defines the interconnection point between the two networks.

Prepaid Plan: This plan allows customers to purchase a pre-determined amount of minutes for a set price and then “re-fill” the minutes at the customer’s choice. Some prepaid plans include text messaging and other wireless data services. CTIA developed the voluntary “Consumer Code for Wireless Service” to help consumers make informed choices when selecting their mobile service.

Premium Text: Text to or from a commercial entity that delivers news, information, images, ringtones or entertainment for a fee above standard messaging rates.

Privacy Settings: Ability to determine how much personally identifiable information (PII) is shared digitally. Many wireless services and apps allow users to determine the PII available to third parties including friends, advertisers and the general public.
Protocol: A standard set of definitions governing how communications are formatted in order to permit their transmission across networks and between devices.

Smart Phone: Wireless phones with advanced data features and often keyboards. What makes the phone “smart” is its ability to better manage data and Internet access.

Spread Spectrum: A method of transmitting a radio signal by spreading it over a wide range of frequencies. This reduces interference and can increase the number of simultaneous users on one radio frequency band.

Public Service/Utility Commission (PSC/PUC): A state government’s agency responsible for regulating intrastate communications. Although many states preempt a PSC/PUC’s authority to regulate wireless, federal law permits non-preempted states to regulate a wireless carriers’ terms and conditions but not rates.

Rating System: A system for classifying and providing information about specific content such as games, music, TV, movies and apps. Wireless carriers and manufacturers may rate content or utilize existing rating systems to help parents filter content available to children. (See CTIA Carrier Content Classification and Internet Access.)

Repeater: Devices that receive a radio signal, amplify it and re-transmit it in a new direction. Used in wireless networks to extend the range of base station signals and to expand coverage. Repeaters are typically used in buildings, tunnels or difficult terrain.

Roaming: When traveling outside their carrier’s local service area, roaming allows users to continue to make and receive calls when operating in another carrier’s service coverage area.

Smart Antenna: A wireless antenna with technology that focuses its signal in a specific direction. Wireless networks use smart antennas to reduce the number of dropped calls, and to improve call quality and channel capacity.

Spectrum: The radio frequencies that are designated for specific uses, such as personal communications services and public safety.

Spectrum Allocation: Process whereby the federal government designates frequencies for specific uses, such as personal communications services and public safety. Allocation is typically accomplished through lengthy FCC proceedings, which attempt to adapt allocations to accommodate changes in spectrum demand and usage.

Spectrum Assignment: Federal government authorization for the use of specific frequencies within a given spectrum allocation, usually in a specific geographic location. Mobile communications assignments are granted to both private users such as businesses, and commercial providers such as wireless and paging operators. Spectrum auctions and/or frequency coordination processes, which consider potential interference to existing users, may apply.

Universal Charger Solution (UCS): Developed by the Open Mobile Terminal Platform industry standards group and adopted by GSMA, the UCS is also known as the “one-charger-fits-all”) will provide an estimated 50% reduction in standby energy consumption. The UCS will use the Micro-USB format as the common universal charging interface and use energy efficient chargers in compliance with the U.S. “Energy Star” requirements for external power adapters. The U.S. wireless industry has committed to supporting the UCS for new wireless devices as of January 1, 2012.

Voice over Internet Protocol (VoIP): VoIP is a two-way communication service that can allow users to communicate via voice or video. Based on IP technology, VoIP is used to transfer a wide range of different type traffic.

Voice Recognition: The capability for wireless phones, computers and other devices to be activated and controlled by voice commands.

WAN (Wide Area Network): A general term referring to a large network spanning a country or around the world. The Internet is a WAN. A public mobile communication system such as a cellular or PCS network is a WAN.

Wi-Fi (Wireless Fidelity): Wi-Fi provides wireless connectivity over unlicensed spectrum (using the IEEE 802.11a or 802.11b standards), generally in the 2.4 and 5 GHz radio bands. Wi-Fi provides wireless Internet access to the immediate local area and is used in homes, businesses and other similar settings to allow people to go online without using a cord or wire. Wi-Fi offers local area connectivity to Wi-Fi enabled computers and devices, typically smart phones.
Wi-Max (Worldwide Interoperability for Microwave Access): A wireless technology based on the IEEE 802.16 standard providing metropolitan area network connectivity for fixed wireless access at broadband speeds.

Wireless Internet: A general term for using wireless services to access the Internet, e-mail and/or the World Wide Web.

Wireless Local Area Network (WLAN): Using radio frequency technology, WLANs transmit and receive data wirelessly in a certain area. This allows users in a small zone to transmit data and share resources, such as printers, without physically connecting each computer with cords or wires.

Wireless Private Branch Exchange (PBX): Equipment that allows employees or customers within a building or limited area to use wireless devices in place of traditional landline phones.

To see the full list of frequently used wireless industry terms, please visit: www.ctia.org/consumer_info/service/index.cfm/AID/10320