

CTIA Advocacy

Wireless Glossary of Terms

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

Air Interface: The operating system of a wireless network. Technologies include AMPS, TDMA, CDMA, GSM and iDEN.

AMPS: Advanced Mobile Phone Service (AMPS) is the original analog "cellular" service transmission standard first deployed in the United States, still used as a default standard for cellular systems in the U.S., and in some regions around the world.

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 Analog has largely been replaced by digital technologies, which are more secure, more efficient and provide better quality.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.

Bonded copper: Aggregating DSL circuits together to boost throughput.

BREW: Binary Runtime Environment for Wireless is a service application developer's platform. The BREW platform was introduced by QUALCOMM in 2001 to provide developers with the ability to create a wide variety of applications that users can download wirelessly via any BREW-enabled handset. Thanks to common standards, software applications will automatically work on new device models.

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

services and facilities.

BTA (Basic Trading Area): A geographic area designed by Rand McNally to reflect business centers, and adopted by the FCC for the licensing of Personal Communications Services and some other wireless services. BTAs are composed of several neighboring counties associated by business and commuting patterns. The U.S. is divided into 493 BTAs.

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 (or Cookie): 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.

CDMA2000 1XRTT: The first step in the evolution to 3G is cdma2000 1X, which improves packet data transmission capabilities and speeds in the network, and also boosts voice capacity. (Speed of up to 307 kbps.)

CDMA2000 1XEV-DO (Evolution Data-Only): CDMA2000 1XEV represents the second step in the evolution of CDMA2000. Commercially launched in 2001, offers data speeds of up to 2.4 Mbps.

CDMA2000 1XEV-DV (Evolution Data-Voice): CDMA2000 1XEV represents the next step in the evolution of CDMA2000. Approved by the International Telecommunications Union (ITU), a standards body based in Geneva, as a 3G technology to provide data and voice services together, with data rates of up to 3.09 Mbps.

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 callers.

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.

CSD (Circuit Switched Data): One technological approach used for the exchange of data. A circuit connection is made that is exclusively reserved for the individual's use. This can be inefficient, as many communications do not require a dedicated communications channel, and offers only brief connectivity primarily used for the transmission of short messages.

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/or 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 tele-voting 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 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 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 and supports more applications, as well as 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.

Dual Band: A wireless handset that works on more than one spectrum frequency, e.g., in the 800 MHz frequency and 1900 MHz frequency bands.

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, below).

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. MINs 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 percent of all subscribers). This means the U.S. had 60 percent 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.

Facility-based Wireless Carrier: A provider of wireless services that owns the physical network used to deliver those services. See *contra* MVNO, a provider that leases capacity on a facilities-based provider network.

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.

Femtocell: A small cellular base station or access point that is used in homes or offices to deliver wireless traffic to service providers via pre-existing broadband connections. This allows for improvement of coverage in small (typically indoor) areas without requiring the addition of new full-sized cellular sites.

FDD (Frequency Division Multiplexing): Frequency-division multiplexing is a method in which numerous signals are combined for transmission on a single communications channel. Each signal is assigned a different frequency (subchannel) within the main channel.

Filters: Most wireless carriers provide parents with the ability to filter Internet content accessed on a wireless phone on their network.

GPRS (General Packet Radio Service): A packet technology approach that enables high-speed wireless Internet and other GSM-based data communications. It makes very efficient use of available radio spectrum for transmission of data.

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 also based on dividing 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.

HSCSD (High Speed Circuit Switched Data): In using HSCSD a permanent connection is established between the called and calling parties for the exchange of data. As it is circuit switched, HSCSD is more suited to applications such as videoconferencing and multimedia than 'bursty' type applications such as email, which are more suited to packet switched data.

HSPA (High Speed Packet Access): The third generation of GSM technology. The U.S. had 24 million subscribers out of the 200 million total which means the U.S. had 24 percent 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 and used by AirTel Montana, Nextel Communications, Nextel Partners, and Southern LINC 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.

Machine-to-Machine (M2M): Applications or mobile units that use wireless networks to communicate with other machines. These applications may include telemetry and telematic devices, remote monitoring systems (e.g. smart grid, healthcare, transportation, etc) and other devices that provide status reports to businesses' centers (e.g. operations, traffic management, data management, etc).

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 certain diet, engage in physical activity, check glucose levels, monitor blood pressure and more. It can also be used to monitor patients' health and track and guide self-care beyond the doctors' offices.

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

MIN (Mobile Identification Number): The MIN, more commonly known as a wireless phone number, uniquely identifies a wireless device within a wireless carrier's network. The MIN is dialed from other wireless or wireline networks to direct a signal to a specific wireless device. The number differs from the electronic serial number, which is the unit number assigned by a phone manufacturer. MINs and ESNs can be electronically checked to help prevent fraud.

MSA (Metropolitan Statistical Area): One of the 306 urban-centered cellular service areas based on the largest urban markets-as designated by the U.S. government in 1980. Two "cellular" service operators are licensed in each MSA.

MTA (Major Trading Area): A geographic area designed by Rand McNally to reflect business centers, and adopted by the FCC for the licensing of Personal Communications Services and some other wireless services. MTAs are composed of neighboring basic trading areas (BTAs) associated with major business centers. The U.S. is divided into 51 MTAs, which do not reflect state boundaries.

MTSO (Mobile Telephone Switching Office): The central computer that connects wireless phone calls to the public telephone network. The MTSO controls the series of operations required to complete wireless calls, including verifying calls, billing and antenna handoffs.

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. **NAM (Number Assignment Module):** The NAM is the electronic memory bank in the wireless phone that stores its specific telephone number and electronic serial number.

Number Pooling: A means by which phone numbers are conserved, and the need to create new area codes is reduced. Unused phone numbers are returned to a central authority which then makes them available to other carriers based on need. Carriers receive numbers in blocks

of 1,000, not 10,000 as was originally the case. Smaller blocks of numbers reduce the carriers' cost and maximize the availability of new numbers to meet public demand.

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, one wireline 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); iOS (Apple); Palm OS (Palm); WebOS (Palm); Windows Mobile (Microsoft); and bada (Samsung).

OFDM (Orthogonal Frequency Division Multiplexing): A system for the transmission of digital message elements spread over multiple channels within a frequency band, in order to achieve greater throughput while minimizing interference and signal degradation through the use of multiple antennas.

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 that 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 to help consumers make informed choices when selecting wireless 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.

PSD (Packet Switched Data): A technological approach in which the communication "pipe" is shared by several users, thus making it very efficient. The data is sent to a specific address with a short delay. This delay depends on how many users are using the pipe at any one time as well as the level of priority requested for your information. PSD is the technology used for data communication across the Internet and makes more efficient use of the network.

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 system to help parents filter content available to children. (See CTIA Wireless Content Guidelines Classification Criteria).

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.

RSA (Rural Service Area): One of the 428 rural markets across the United States, as designated by the FCC for the delivery of cellular service outside of the initial 306 MSAs.

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.

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.

SMS: Short Messaging Service enables users to send and receive short text messages (usually about 140-160 characters) on wireless handsets. Usually referred to as "text messaging" or "texting."

SPAM: Unsolicited and unwanted emails or text messages sent to wireless devices. While carriers are constantly filtering their networks to stop SPAM text messages, spammers are

evolving and changing their methods to try to get through. If you receive a SPAM email on your mobile device, file a complaint with the FCC. The FCC's CAN-SPAM ban only applies to "messages sent to cell phones and pagers, if the message uses an Internet address that includes an Internet domain name (usually the part of the address after the individual or electronic mailbox name and the "@" symbol)". The FCC's ban does not cover "short messages," typically sent from one mobile phone to another, that do not use an Internet address.

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.

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.

SIM (Subscriber Identity Module) Card: A small card that fits inside some cell phones and communicates with a wireless network using a unique code. A SIM card can be removed and transferred to another wireless device.

TCP/IP (Transmission Control Protocol/Internet Protocol): A protocol permitting communications over and between networks, the TCP/IP protocol is the basis for the Internet communications.

TDMA (Time Division Multiple Access): A technological standard that permits the transmission of information by dividing calls into time slots, each one lasting only a fraction of a second. Each call is assigned a specific portion of time on a designated channel. By dividing each call into timed 'packets,' a single channel can carry many calls at once.

Telecommunications Relay Service (TRS): A telephone service that allows persons with hearing or speech disabilities to place and receive telephone calls.

Tower Siting: To expand their service offerings and meet consumer demand for "always-on"

broadband, wireless carriers need to be able to build out their networks, which involves constructing new towers or adding new equipment to already existing structures. It enables mobile services, including voice and broadband, for consumers, businesses and public safety. In November 2009, the FCC provided much-needed certainty to the tower siting process by adopting a declaratory ruling which set a definitive time frame for local zoning authorities to act on tower siting requests. The time limit to address requests for collocation is 90 days and the time for addressing requests for new tower construction is 150 days. Local zoning authorities who do not meet the time frames will have "failed to act," giving tower applicants the right to appeal to the courts for action on their requests. Also, a zoning authority may not deny an application filed by one provider based on the presence of another wireless provider in a given area.

Tri-Band Handset: Phones that work on multiple frequencies, typically in the 1900 MHz, 800 MHz, and 900 MHz frequencies used in the U.S. and elsewhere.

Universal Charger Solution (UCS): Developed by the Open Mobile Terminal Platform industry standards group and adopted by GSMA, the UCS (also known as the "one-charger-fits-all") will provide an estimated 50 percent 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. As of January 1, 2012, most of the new smartphones in the U.S. will have UCS.

UMTS (Universal Mobile Telecommunications Systems): This is third generation technology generally based on W-CDMA (Wideband Code Division Multiple Access). UMTS promises a communications speed between 384 kbps and up to about 2 Mbps.

VoIP (Voice over Internet Protocol): 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.

WAP (Wireless Application Protocol): Wireless Application Protocol is a set of standards that enables wireless devices, such as phones, pagers and palm devices, to browse content from specially-coded Web pages.

W-CDMA: Wideband Code Division Multiple Access, one of two 3G standards that makes use of a wider spectrum than CDMA and therefore can transmit and receive information faster and more efficiently.

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 and mobile 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 (RF) 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.

WLL (Wireless Local Loop): WLL is a system that connects wireless users to the public switched telephone network (PSTN) using wireless technology and other circuitry to complete the "last mile" between the wireless user and the exchange equipment. Wireless systems can often be installed faster and cheaper than traditional wired systems.



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