

3G Coverage and Performance Information, David Ahlgren, Entrée Wireless (c 2007)

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Speed Test

Many Free Online speed tests are not accurate especially for wireless
Download the speed test client. Use the 'socket' test mode
<http://myspeed.visualware.com>

3G Speed

	Avg. Down/Up - bps
EVDO-A	450-850 K/ 300-400 K, (Max 3.1 M/ 1.8 M)
EVDO-0	300-500 K/ 60 - 90 K, (Max 2.4 M/ 154 K)
1xRTT	60 - 90 K/ 60 - 90 K, (Max 154 K/ 154 K)
HDSPA	500-800 K/ 200-300 K, (Max 1.8 M/ 384 K)
UMTS	220-320 K/ 220-320 K, (Max 384 K/ 384 K)
EDGE	70-90 K/ 50-60 K, (Max 236 K/ 118 K)
GRPS	30-50 K/ 30-50 K, (Max 76 K/ 76 K)

Sprint

Map	http://www.sprint.com/business/products/products/evdoCoverage.jsp
Network	CDMA Data
Compatibilty	All services are backward compatible to lower rate services
Services	
1xRTT	Nationwide PCS Network
EVDO	Sprint Mobile Broadband - EV-DO Rev 0
EVDO-A	Sprint Mobile Broadband EV-DO Rev A
Hardware	
Cards Rev A	Recommended - Novatel S720, order ext antenna adaptor
Ant. Adaptor	See Verizon - V620 below
Router	Primary - Linksys WRT54G3G, Other - Kyocera, Junxion, Top Global

Verizon

Map	http://b2b.vzw.com/broadband/coveragearea.html
Network	CDMA Data
Compatibilty	All services are backward compatible to lower rate services
Services	http://b2b.vzw.com/productsservices/wirelessinternet/index.html
1xRTT	National Access and Enhanced Services
EVDO	Broadband Access
EVDO-A	Broadband Access - EVDO Rev A http://b2b.vzw.com/broadband/RevA.html
Hardware	
Cards Rev A	Verizon Wireless Aircard® 595, PC5750 PC Card, (order ext. antenna adaptor)
Ant. adaptor	http://www.verizonwireless.com/b2c/index.html Select Phone & Accessories, then accessories, then phone, Verizon, select your data card
Router	Primary -Kyrocera KR1, Other - Linksys, Junxion, Top Global

ATT/Cingular

Map	http://www.cingular.com/coverageviewer Click on 3G/Mobilebroadband and the individual city
Network technology	GSM http://www.cingular.com/learn/why/technology/
Services	
Compatibilty	Dependent on 3G card selected
GPRS-E/EDGE)	National high-speed data network (ie National GSM network)
UMTS/HDSPA	3G mobile BroadbandConnect

Hardware

3G Card Option GT MAX, Aircard 860, Merlin U730, (worldwideHSDPA/UMTS/E-GPRS), recent test show that the GT max does not work in the Linksys router. Other cards not tested yet

Ant Adaptor Router same as Verizon PCCAB-5220, Audiovox 3220, Sierra 580 (MC card connector)
Junxion, Top Global,

Cellular South

Service Area Memphis Metropolitan Area, throughout all of Mississippi, along Coastal Alabama including Mobile, Alabama, and the Florida Panhandle through Destin/Seaside.

Network CDMA and utilizes roaming agreements with other national and regional CDMA providers.

Services

CDMA data service 1xRTT or EVDO is unknown, Roaming may be a problem

Acronyms

2 G Cellular phone service, circuit switched, TIA/EIA IS-95 networks

2.5 G Cellular phone service, some packet switched features, ie EDGE networks see below

3 G Cellular phone services provide the ability to simultaneously transfer both voice data (a telephone call) and non-voice data (such as downloading information at high speed

3GPP Third Generation Partnership Project, coordinates 3G activity, GSM

<http://www.3gpp.org>

3GPP2 Third Generation Partnership Project, coordinates 3G activity, CDMA2000

<http://www.3gpp2.org>

CDMA Cellular Network, Code division multiple access (CDMA), Started in the US and is gaining on GSM because of technical merits. It is a form of multiplexing and a method of multiple access that divides up a radio channel not by time (as in time division multiple access), nor by frequency (as in frequency-division multiple access), but instead by using different pseudo-random code sequences for each user.

CDMA 2000 3G cellular network, evolution of CDMA networks, See CDMA2000 Development Group www.cdg.org

<http://www.cdg.org>

GSM Cellular network - Global System for Mobile Communications, Large worldwide foot print,

WCDMA 3G Cellular Network - evolution of GSM networks to a CDMA based technology

1xRTT 3G CDMA network, speed down/up 153Kbps/153Kbps peak, 60-100Kbps/60-100Kbps average, "1xRTT" (1 times Radio Transmission Technology) is used to identify the version of CDMA2000 radio technology that operates in a pair of 1.25-MHz radio channels (one times 1.25 MHz, as opposed to three times 1.25 MHz in 3xRTT). 1xRTT almost doubles voice capacity over IS-95 networks. Although capable of higher data rates, most deployments have limited the **peak data rate to 144 kbit/s**. While 1xRTT officially qualifies as 3G technology, 1xRTT is considered by some to be a 2.5G (or sometimes 2.75G) technology.

http://www.cdg.org/technology/3g_1X.asp

EVDO Rev 0 3G CDMA Network, speeds down/up 2.4Mbps/153Kbps peak, 300-700Kbps/70-90Kbps average, Evolution-Data Optimized, abbreviated as EV-DO or EVDO and often DO or EV, is a wireless radio broadband data standard adopted by many CDMA mobile phone service providers in United States, Canada, Mexico, Europe, Asia, Russia, Brazil, and Australia. It is standardized by 3GPP2, as part of the CDMA2000 family of standards.

http://www.cdg.org/technology/3g_1xEV-DO.asp#rel0

EVDO Rev A 3G CDMA Network, speeds down/up 3.1Mbps/1.8Mbps peak, 450-800Kbps/300-400Kbps average,

http://www.cdg.org/technology/3g_1xEV-DO.asp#revA

EVDO Rev B 3G CDMA Network, speeds down/up 4.9Mbps/2.8Mbps peak, 3xOption to 14.7Mbps, fast upload speeds

http://www.cdg.org/technology/3g_1xEV-DO.asp#revB

GPRS	2G GSM network, speeds up to 85.6Kbps, General Packet Radio Service (GPRS) is a Mobile Data Service available to users of GSM and IS-136 mobile phones. GPRS data transfer is typically charged per megabyte of transferred data, while data communication via traditional circuit switching is billed per minute of connection time, independent of whether the user has actually transferred data or has been in an idle state. GPRS can be utilized for services such as WAP access, SMS and MMS, but also for Internet communication services such as email and web access.
EDGE/ GPRS-E	2.5G GSM network, speeds up to 247 kbps, Enhanced Data rates for GSM Evolution (EDGE) or Enhanced GPRS (EGPRS), is a digital mobile phone technology that allows to increase data transmission rate and improve data transmission reliability. It is generally classified as a 2.75G network technology. EDGE has been introduced into GSM networks around the world since 2003, initially in North America. EDGE Evolution, an upgrade to EDGE that permits 1 MBit/s peak speeds and latencies down to 100 ms, using the existing network infrastructure. EDGE Evolution is included in Release 7 of the 3GPP standard, and products are expected to arrive in 2008.[2]
UMTS	3G GSM network, speeds up to 384 kbps, Universal Mobile Telecommunications System (UMTS) is one of the third-generation (3G) mobile phone technologies. The currently most common form uses W-CDMA as the air interface and is standardized by the 3GPP, and
HSDPA	3G GSM network, speeds up to 1.8 Mbps., 400-700Kbps average, High Speed Downlink Packet Access
MIMO	Multiple Input Multiple Output, high performance antennas
Diversity	Diversity antennas, High performance, leverage reflections and multipath signals
OFDM	Orthogonal Frequency Division Multiplexing, high performance wireless modulation