

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
CONSUMER WATCHDOG)	RM: _____
)	
Petition for Rulemaking to Require Mobile)	
Broadband Carriers to Disclose Network)	
Performance)	

**PETITION FOR RULEMAKING TO REQUIRE MOBILE BROADBAND CARRIERS
TO DISCLOSE NETWORK PERFORMANCE**

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I. SUMMARY

This petition proposes a rule that would require wireless carriers in the United States to provide clear and accurate disclosures of mobile broadband performance to the public. Almost all advertisements by the major U.S. wireless carriers for mobile network service are centered on a promise of faster “4G” speeds. Most Americans would be startled to learn that there is no accepted definition of 4G. 4G was originally contemplated as a detailed set of technical specifications developed by the International Telecommunication Union (“ITU”), a United Nations agency focused on global information and communications technology issues. U.S. wireless carriers ignored the ITU’s original specifications for 4G and have successfully turned 4G into a deceptive marketing term used to label and rebrand products and services as “faster,” either without actually making improvements to existing products and services or without disclosing the meaning of “faster.”

In its 2010 National Broadband Plan, the Federal Communications Commission (“FCC” or “the Commission”) was clear about what it considered to be 4G, but has since taken confused and contradictory positions with respect to 4G. The FCC’s website conflates 3G and 4G, which only adds to the confusion.

U.S. consumers are increasingly using smartphones, tablets and other mobile devices to access the Internet and stay connected with each other, making data speed a primary concern for those shopping for cellular service – as is reflected in the carriers’ advertising, which emphasizes speed as the most important term next to price.

When setting forth a national policy for cellular telephones in 1993, Congress decided to avoid price regulation based entirely on the supposition that market forces would provide competition that would keep prices fair. However, absent benchmarks to compare data speeds

between wireless carrier networks, consumers are forced to base purchasing decisions on unclear, and often inaccurate and inflated, data speed claims made by wireless carriers. Failure to provide full disclosure of performance data completely undermines competition and the integrity of the marketplace. Put simply: consumers can't shop around for the best deal if they are not provided with accurate information about the product.

Instead, consumers are induced to buy expensive technologies that do not exhibit the faster, improved data speeds promised. Customers who realize that the phone they purchased does not perform as expected are almost always locked into a two-year contract that requires them to pay an "Early Termination Fee" of hundreds of dollars if they want to switch carriers – or buy an expensive new phone at an unsubsidized price. Both options can cost the consumer hundreds of dollars.

The proposed rule would require wireless carriers to disclose actual data speeds, serving the FCC's stated goals of providing consumers with "clear, complete information to help them make the best choices in communications services"¹ and "[p]romoting competition, innovation, and investment in broadband services and facilities"² by keeping companies honest about the products and services they deliver to consumers. In 2010, the FCC acknowledged that it "should develop broadband performance standards for mobile services" and "encourage industry to create more transparent and standard disclosures of coverage, speeds and performance for mobile networks."³ Because the industry has failed to adopt such standards, it is imperative that the FCC do so.

¹ FCC, *Our Work*, <http://www.fcc.gov/our-work> (last visited Aug. 20, 2012).

² FCC, *What We Do*, <http://www.fcc.gov/what-we-do> (last visited Aug. 20, 2012.)

³ FCC, *Connecting America: The National Broadband Plan*, at 47 (Mar. 16, 2010), <http://download.broadband.gov/plan/national-broadband-plan.pdf>.

PETITION FOR RULEMAKING TO REQUIRE MOBILE BROADBAND CARRIERS TO DISCLOSE NETWORK PERFORMANCE

Consumer Watchdog,⁴ pursuant to Sections 1.401 and 1.1 of the Commission's Rules,⁵ respectfully petitions the Commission to initiate a rulemaking proceeding, under its authority to manage spectrum and establish and modify license and spectrum usage conditions in the public interest granted by Title III of the Communications Act,⁶ to investigate mobile broadband network performance and adopt rules that require wireless carriers to disclose actual data speeds.⁷

II. BACKGROUND

In the past, governments, private entities, and academic institutions around the globe and in the U.S. relied on the ITU for the standards governing each "generation" of mobile broadband technology.⁸ Each generation of mobile broadband technology is marked by one or more

⁴ Consumer Watchdog, established in 1985, is a nationally recognized, non-partisan, non-profit consumer advocacy organization. Consumer Watchdog has protected the rights of consumers in numerous cases holding wireless carriers accountable for illegal sales tactics, billing charges, and network downgrades. Consumer Watchdog, and the public on whose behalf Consumer Watchdog advocates, are vitally interested in ensuring that accurate information about mobile broadband performance be disclosed in a manner that best protects consumers against wireless carriers' presently deceptive advertising practices. Consumer Watchdog is located in Santa Monica, California, and Washington, D.C.

⁵ 47 C.F.R. §§ 1.1, 1.401.

⁶ 47 U.S.C. §§ 301 *et seq.*

⁷ The Commission's August 21, 2012 report on the availability of broadband service does not address the immediate and urgent need for the disclosures requested by this petition. *See* FCC, *Eighth Broadband Progress Report*, GN Docket No. 11-21 (Aug. 21, 2012), http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0821/FCC-12-90A1.pdf.

⁸ *See* ITU, *What Does ITU Do?* <http://www.itu.int/en/about/Pages/whatwedo.aspx> (last visited Aug. 20, 2012).

significant improvements in available cellular services, such as higher quality voice services or Internet access speeds.⁹

A. *IMT-2000 Standards: 3G*

In 2000, the ITU unanimously adopted the International Mobile Telecommunications-2000 (“IMT-2000”) specifications as the standard for 3G, or third-generation mobile broadband services.¹⁰ IMT-2000 states that mobile broadband services that meet the IMT-2000 specifications generally demonstrate, among other characteristics, minimum data speeds of 2 Megabits per second (“Mbps”) “for stationary or walking users, and 348 [Kilobits per second] in a moving vehicle”¹¹ and maximum, or “peak,” data speeds of 10Mbps.¹²

B. *IMT-Advanced Standards: ITU Defines “True 4G”*

In 2008, the ITU established the International Mobile Telecommunications-Advanced (“IMT-Advanced”) specifications as the standard for 4G, or fourth-generation mobile broadband services, which, among other characteristics, include services with peak data speeds between 100Mbps and 1 gigabit per second (“Gbps”)¹³— a major jump from 3G standards. IMT-Advanced provided the original “4G” technical standards, or “true 4G.”

⁹ ITU, *About Mobile Technology and IMT-2000*, <http://www.itu.int/osg/spu/imt-2000/technology.html> (last visited Aug. 20, 2012).

¹⁰ *Id.*

¹¹ *Id.*

¹² ITU, *Spectrum Requirements For International Mobile Telecommunications-2000 (IMT-2000)*, ITU-R Report M.2023 at 12-15 (2000), http://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.2023-2000-PDF-E.pdf.

¹³ ITU, *Requirements Related to Technical Performance for IMT-Advanced Radio Interface(s)*, ITU-R Report M.2134 at 1 (2008), http://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.2134-2008-PDF-E.pdf.

C. *ITU Un-Defines ‘4G’*

Unfortunately, the process of establishing standards has become politicized. Facing pressure from the U.S. telecommunications industry to make it look like U.S. carriers were delivering ever-faster network speed,¹⁴ the ITU in December 2010 issued a press release (“December 2010 Press Release”) broadening the 4G label to include technologies it previously deemed 3G:

As the most advanced technologies currently defined for global wireless mobile broadband communications, IMT-Advanced is considered as “4G”, [sic] *although it is recognized that this term, while undefined, may also be applied to the forerunners of these technologies, LTE and WiMax, and to other evolved 3G technologies providing a substantial level of improvement in performance and capabilities with respect to the initial third generation systems now deployed.*^[15]

Thus the December 2010 Press Release, while acknowledging that the term 4G has no definition, applied the 4G label to two specific technologies considered at the time to be 3G -- LTE and WiMax – as well as to unspecified technologies that “provid[e] a substantial level of improvement” from 3G technologies deployed in December 2010.¹⁶ Notably, the ITU’s

¹⁴ See Chris Ziegler, *ITU Capitulates, Admits that the Term ‘4G’ Could Apply to LTE, WiMAX, and ‘Evolved 3G Technology,’* Engadget.com (Dec. 18, 2010), <http://www.engadget.com/2010/12/18/itu-capitulates-admits-that-the-term-4g-could-apply-to-lte-w/>; Tiferet Weiss, *When 4G Ceases to Be; ITU Mobile Tech Standards Cave to U.S. Advertising,* GoingWiMax.com (Dec. 21, 2010), <http://www.goingwimax.com/when-4g-ceases-to-be-itu-mobile-tech-standards-cave-to-us-advertising-12259/>.

¹⁵ Press Release, ITU, *ITU World Radiocommunication Seminar Highlights Future Communication Technologies* (Dec. 6, 2010) (emphasis added).

¹⁶ *Id.*

statement never explains what constitutes “a substantial level of improvement” worthy of the 4G label.¹⁷

The ITU never issued an official determination that LTE, WiMax or any other technologies ostensibly “providing a substantial level of improvement” from 3G meet the “true 4G” IMT-Advanced standards. Only the technologies known as “LTE-Advanced” and “WirelessMAN-Advanced” have been “accorded the official designation of IMT-Advanced” by the ITU.¹⁸ However, in January 2012, the ITU seemingly reversed the position it adopted in December 2010, stating that “IMT-Advanced systems include new capabilities that go beyond IMT-2000, widely deployed since 2000 and referred to as 3G mobile technology.”¹⁹

The ITU’s website currently states:

The term 4G remains undefined but it *is being applied by operators* to the forerunners of IMT-Advanced technologies — LTE, HSPA+ and WiMax and to other evolved 3G technologies, which provide a substantial level of improvement in performance and capabilities with respect to the initial third generation systems now deployed.^[20]

In effect, the label “4G” has been severed from the IMT-Advanced technical standard with which it was formerly associated. But the Director of ITU’s Radiocommunication Bureau has confirmed that when it comes to data speed, “IMT-Advanced” – true 4G – “would be like putting a fibre optic broadband connection on your mobile phone, making your phone *at least 100 times*

¹⁷ See Brian Klug, *Verizon 4G LTE: Two Datacards and a WiFi Hotspot Massively Reviewed*, AnandTech.com (Apr. 27, 2011), <http://www.anandtech.com/show/4289/verizon-4g-lte-two-datacards-wifi-hotspot-massively-reviewed>.

¹⁸ ITU, *supra* note 15.

¹⁹ Press Release, ITU, *New Milestones Reached in Radiocommunications* (Jan. 20, 2012).

²⁰ ITU, *IMT-Advanced*, http://www.itu.int/net/newsroom/wrc/2012/reports/imt_advanced.aspx (last visited Aug. 20, 2012) (emphasis added).

faster than today's 3G smart phones."²¹ There is no doubt about the IMT-Advanced technical standard, but now, thanks to the ITU, plenty of doubt about what 4G really means.²² U.S. technology experts agree that "[t]he fastest phones and networks can't come anywhere close to" the minimum requirements of the IMT-Advanced specification.²³

D. The Commission's Position on '4G' is Confused

The Commission has never taken a position on the ITU's IMT-Advanced "true 4G" standards;²⁴ however, the Commission appears to have adopted the approach espoused by the ITU: that 4G may be applied to LTE and WiMax, originally considered 3G technologies.²⁵ In March 2010, the FCC released its National Broadband Plan, a study of residential Internet wireline access, which identified LTE as "a 4G mobile broadband technology" and WiMax as "a 4G technology."²⁶ Moreover, the Commission's website conflates 3G and 4G technologies:

Third generation (3G) and fourth generation (4G) wireless ("4G") mobile wireless technologies allow consumers to access a variety of different mobile services and functionalities, such as web browsing, e-mail, access to application ("app") stores, video conference or chat, mapping and navigation systems, mobile commerce, and the downloading of content. A range of different mobile devices include built-in 3G or 4G wireless connectivity, including smartphones, tablets, e-readers, and netbook and laptop computers. Several mobile network technologies are generally

²¹ Press Release, ITU, *IMT-Advanced Standards Announced for Next-generation Mobile Technology* (Jan. 18, 2012) (emphasis added).

²² Jesse Ward, *Nielsen: Consumers Confused by Term '4G'*, NTCA (Jan. 10, 2011), <http://www.ntca.org/new-edge/wireless/nielsen-consumers-confused-by-term-4g>.

²³ Patrick Linder, *A RootMetrics Soliloquy on Data Speed: Am I on 4G, or Not 4G, That is the Question*, RootMetrics (Sep. 29, 2011), <http://www.rootmetrics.com/blog/white-papers-and-guides/whatis4g/>.

²⁴ See FCC, *Mobile Wireless Competition Report (15th Annual)*, FCC 11-103 at 72, fn. 312, 243-244 (Jun. 27, 2011), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-103A1.pdf.

²⁵ ITU, *supra* note 15.

²⁶ FCC, *supra* note 3 at 22.

considered to be 3G or 4G, including EV-DO, WCDMA, HSPA, HSPA+, LTE, and mobile WiMAX.^[27]

The lack of clarity on the FCC's website description opens the door to abuse and misuse of the 3G and 4G terminology by the industry, and contributes to consumer confusion.²⁸ Recent public statements made by FCC Chairman Genachowski confirm that the Commission now considers LTE technology to be 4G. He said: "[the U.S. is] leading the world in deploying 4G mobile broadband at scale, with 69% of the world's LTE subscribers, making America the testbed for the development of 4G apps and services."²⁹ Consumers looking to the Commission for an understanding of 4G will not find any information that would help them navigate the mobile broadband marketplace.

E. The Industry's Competing '4G' Technologies

The major wireless carriers in the U.S. employ different and competing technologies that they market as 4G: Verizon employs an "LTE" network;³⁰ T-Mobile and AT&T operate "HSPA+" networks;³¹ AT&T is also rolling out an LTE network;³² and Sprint's network uses "WiMax."³³ Though marketed as "4G," each of these technologies is in fact capable of reaching

²⁷ FCC, *3G and 4G Wireless*, <http://www.fcc.gov/topic/3g-4g-wireless> (last visited Aug. 20, 2012); FCC, *FCC Encyclopedia*, <http://www.fcc.gov/encyclopedia/3g-and-4g-wireless> (last visited Aug. 20, 2012); FCC, *supra* note 23 at 72.

²⁸ See also FCC, *supra* note 24 at 7, fn. 8, 9, fn. 8, 19.

²⁹ FCC, *Remarks of Chairman Genachowski on the Office of Engineering and Technology and the Wireless Telecommunications Bureau Presentation on White Spaces for Wireless Broadband* (Jul. 19, 2012), <http://www.fcc.gov/document/chairmans-remarks-white-spaces-wireless-broadband>.

³⁰ Verizon Wireless, *infra* note 63; FCC, *supra* note 24 at ¶109.

³¹ AT&T, *infra* note 47; T-Mobile, *infra* note 61; FCC, *supra* note 24 at ¶¶110-111, 114.

³² AT&T, *infra* note 58.

³³ Sprint, *infra* note 64; FCC, *supra* note 24 at ¶¶112-113.

different peak data speeds.³⁴ For instance, HSPA+ technology was originally estimated to achieve peak data speeds of 42Mbps.³⁵ WiMax was described as capable of achieving peak data speeds of 70Mbps.³⁶ LTE technology can reach theoretical peak data speeds of 300Mbps.³⁷

This information is far from readily available to the public. In order to identify the peak download speeds of the products marketed by the carriers, consumers would be required to wade through a morass of technical reports and data. A reasonable consumer cannot be expected to know the difference between LTE, HSPA+, and WiMax.

III. NEED FOR RULEMAKING

A. The Industry Compounds, and Capitalizes on, the 4G Confusion

The ITU admits that the confusion over speed “is rapidly getting worse with the increased usage of 4G to describe, in many cases, technologies that are basically just evolutions of 3G technologies.”³⁸ Indeed, wireless carriers have embarked on a multi-million dollar “4G marketing war,” in which each touts its 4G service as the best.³⁹ Verizon claims to have

³⁴ See Marguerite Reardon, CNET, *Has ‘4G’ Lost its Meaning?* (Jan. 18, 2011), http://news.cnet.com/8301-30686_3-20028622-266.html (quoting Dan Warren, senior director of technology for GSM Association, “operators use this term [4G] interchangeably to refer to different technologies that are incompatible. Customers are confused because they think they can compare the networks like for like. But they can’t.”)

³⁵ 3GPP, *HSPA*, <http://www.3gpp.org/HSPA> (last visited Aug. 20, 2012).

³⁶ Aktul Kavas, *Comparative Analysis of WLAN, WiMax and UMTS Technologies*, PIERS Proceedings, Progress in Electromagnetics Research Symposium (Aug. 2007).

³⁷ 3GPP, *LTE*, <http://www.3gpp.org/LTE> (last visited Aug. 20, 2012); UMTS Forum, *Towards Global Mobile Broadband at 2* (Feb. 2008), http://www.umts-forum.org/component/option,com_docman/task,doc_download/gid,1902/Itemid,214/.

³⁸ ITU, *What Really Is a Third Generation Mobile Technology?* at 1 (Jul. 17, 2008), http://www.itu.int/ITU-D/imt-2000/Documents/IMT2000/What_really_3G.pdf.

³⁹ Reardon, *supra* note 34; see FCC, *supra* note 24 at ¶¶133-134.

“America’s Fastest 4G Network.”⁴⁰ AT&T claims it has “The nation’s largest 4G network.”⁴¹ T-Mobile claims its 4G network is faster than AT&T’s and Sprint’s nationwide 4G networks.⁴² Sprint calls itself “America’s Favorite 4G Network.”⁴³ Practically speaking, this superficial advertising has dumbed-down “4G” to a mere synonym for “fast.” More troubling, however, is that wireless carriers are selling products originally considered 3G (by U.S. industry’s standards) as 4G. Perhaps no carrier has muddied the waters more than AT&T.

AT&T used to describe its network as “HSPA.” HSPA standards specify a peak download speed of 14Mbps,⁴⁴ well below “true 4G” speed specifications. After the ITU broadened the 4G label in the December 2010 Press Release to include other technologies, AT&T immediately renamed its HSPA technology “HSPA+” and claimed HSPA+ was capable of 4G speeds.⁴⁵ Based on original ITU standards, the December 2010 Press Release, and the Commission’s⁴⁶ 2010 National Broadband Plan, HSPA+ is an advanced form of 3G, not 4G. Nevertheless, AT&T made healthy use of its “new” 4G HSPA+ technology to market its network performance, describing HSPA+ as “[t]echnology that enables 4G speeds up to 4X faster than

⁴⁰ Verizon Wireless, *4G LTE Network*, <http://network4g.verizonwireless.com/> (last visited Aug. 20, 2012), attached as Exh. A.

⁴¹ AT&T, *Get 4G Speed with AT&T*, <http://www.att.com/network/> (last visited Aug. 20, 2012), attached as Exh. B.

⁴² T-Mobile, *4G Network*, <http://t-mobile-coverage.t-mobile.com/> (last visited Aug. 20, 2012), attached as Exh. C.

⁴³ Sprint, *America’s Favorite 4G Network!*, http://ria.sprint.com/ria/pages/index.jsp?ms=4G&INTNAV=SJS:HE:4G&question_box=4G&id16=4G (last visited Aug. 17, 2012), attached as Exh. D.

⁴⁴ 3GPP, *supra* note 35.

⁴⁵ Roger Cheng, *AT&T Pins 4G Label to Existing Network*, Wall Street Journal (Jan. 5, 2011), <http://online.wsj.com/article/SB10001424052748704405704576063912912052074.html>; Press Release, AT&T, *AT&T Announces Plans to Deliver Nation’s Most Advanced Mobile Broadband Experience* (Jan. 5, 2011).

⁴⁶ FCC, *supra* note 15.

AT&T's already fast mobile broadband network.”⁴⁷ *Nowhere*, however, does AT&T disclose the underlying data supporting these claims.

AT&T has even gone so far as to retroactively apply the 4G label to products previously recognized as 3G, particularly the iPhone 4S, which is not capable of reaching IMT-Advanced “true 4G” speeds anywhere close to between 100Mbps and 1Gbps. Introduced October 4, 2011, the iPhone 4S is considered a 3G device by every wireless carrier that sells the iPhone 4S for use on its network, except for AT&T. Its manufacturer, Apple, has tried to avoid the 4G debate,⁴⁸ but still describes the AT&T version of the iPhone 4S as HSPA, a 3G technology,⁴⁹ while AT&T markets the iPhone 4S as HSPA+ and as 4G.⁵⁰ At the iPhone 4S's launch, Apple issued a press release stating, “iPhone 4S now supports twice the download speed [of the iPhone 4] ... of up to 14.4 Mbps,” with the caveat that “network speeds are dependent on carrier networks.”⁵¹

⁴⁷ AT&T, *Get 4G Speed with AT&T* at slide 4, <http://www.att.com/network/> (last visited Aug. 20, 2012); AT&T, *AT&T 4G Speed*, <http://www.att.com/esupport/article.jsp?sid=KB115944#fbid=xQBfhcb2x4X> (last visited Aug. 20, 2012); AT&T, *What is HSPA+?* <http://www.att.com/esupport/article.jsp?sid=KB115944&cv=820&ct=7700008&pv=3&title=What+is+HSPA%2B%3F#fbid=xQBfhcb2x4X> (last visited Aug. 20, 2012), attached as Exh. E.

⁴⁸ Apple stated at the launch of the iPhone 4S, “We’re not going to get into a debate in the industry about what’s 4G and what isn’t — we’ll leave that for others to talk about.” Nilay Patel, *In a Triumph of Marketing, AT&T Upgrades Apple’s iPhone to ‘4G,’* TheVerge.com (Mar. 8, 2012), <http://www.theverge.com/2012/3/8/2853128/in-a-triumph-of-marketing-at-t-upgrades-apples-iphone-to-4g>.

⁴⁹ See Apple, *iPhone 4S Technical Specifications*, <http://www.apple.com/iphone/specs.html> (last visited Aug. 20, 2012); Brian Klug, *The iPhone 4S, HSPA+, and When HSPA+ is Real 4G*, AnandTech.com (Oct. 9, 2011), <http://www.anandtech.com/show/4943/the-iphone-4s-hspa-when-hspa-is-real-4g>.

⁵⁰ AT&T, *iPhone Comparison*, http://www.att.com/wireless/iphone/assets/iPhone_Comparison.pdf (last visited Aug. 20, 2012); AT&T, *iPhone 4S FAQs*, <http://www.att.com/esupport/iphonefaq.jsp#fbid=i-S71j7FTSL> (last visited Aug. 20, 2012); AT&T, *Smartphones Like iPhone, Samsung, HTC & Motorola from AT&T*, <http://www.att.com/shop/wireless/devices/smartphones.html> (last visited Aug. 20, 2012); AT&T, *Apple iPhone 4S*, <http://www.att.com/> (last visited Feb. 2, 2012); attached as Exh. F.

⁵¹ Press Release, Apple, *Apple Launches iPhone 4S, iOS 5 & iCloud* (Oct. 4, 2011).

In January 2012, AT&T began marketing the iPhone 4S as being a 4G phone, even though Apple⁵² represents it as 3G -- a fact that was reflected on the phone itself: when connected to the AT&T network, a “3G” icon appeared on the screen. Then, in March 2012, the iPhone’s software was suddenly updated so the screen displayed a “4G” icon. Nothing else about the phone or AT&T’s network had changed, yet AT&T immediately began an advertising campaign flaunting the phone’s improved, faster 4G speeds.⁵³

Without providing any detailed information about the iPhone’s data speeds, AT&T’s website repeats nondescript claims such as: “Only AT&T’s network lets your iPhone 4S download 3X faster.”⁵⁴ Another page promises speeds that are “... 3x faster* . . . giving you 4G speeds from day one.”⁵⁵ The asterisk leads to a small disclosure at the bottom of the page stating, “Claim based on national average iPhone 4S data speeds on AT&T’s network vs. other U.S. networks.”⁵⁶ AT&T does not display any data speed values to substantiate its claims.

Widespread anecdotal evidence shows that consumers who purchased the iPhone 4S from AT&T

⁵² The Australian Competition and Consumer Commission (ACCC) filed a petition in Australian federal court against Apple for labeling its iPad device as “iPad with WiFi + 4G” when the device was not capable of connecting to Australia’s 4G network. Apple was fined \$2.25 million by the court for its misleading advertisements. ACCC, Press Release, *Apple Pty Ltd Penalised \$2.25 million for Misleading “iPad with WiFi + 4G” Claims* (Jun. 21, 2012).

⁵³ Brian Klug, *The iOS 5.1 update, “4G”, AT&T and the 3G Toggle*, AnandTech.com (Mar. 7, 2012), <http://www.anandtech.com/show/5659/the-ios-51-update-4g-att-and-the-3g-toggle>; Andrew Dowell, *For Apple iPhone 4S Owners, 4G the Easy Way*, WSJ.com (Mar. 8, 2012), <http://blogs.wsj.com/digits/2012/03/08/for-apple-iphone-4s-owners-4g-the-easy-way/>; Marguerite Reardon, CNET, *Has iOS 5.1 turned the iPhone 4S into a 4G Device Overnight?* (Mar. 9, 2012), http://news.cnet.com/8301-30686_3-57393828-266/has-ios-5.1-turned-the-iphone-4s-into-a-4g-device-overnight/.

⁵⁴ AT&T, *iPhone 4S at AT&T*, <http://www.att.com/wireless/iphone/> (last visited Aug. 20, 2012), attached as Exh. G.

⁵⁵ AT&T, *Media Kit: iPhone 4S*, <http://www.att.com/gen/press-room?pid=1574> (last visited Aug. 20, 2012), attached as Exh. H.

⁵⁶ *Id.*

– whether upgrading from another AT&T device or transferring from a competing network -- have not experienced increased data speeds.⁵⁷

AT&T also promises that its new LTE network it has launched in “53 markets”⁵⁸ will deliver “[s]peeds up to 10x faster than 3G,”⁵⁹ without providing supportive data or understandable disclosures.

T-Mobile’s 4G tagline is “T-Mobile 4G. Now Faster and More Dependable.”⁶⁰ T-Mobile’s website claims that “As the first nationwide 4G network, we have always had a major investment in speed” and that it has “doubled the speed of [its] network each of the last three years. Now it’s running faster than ever—even faster than average home Internet speeds—and the speed keeps increasing.”⁶¹ At the bottom of the webpage in tiny, gray font, is a disclosure that reads, “Speed comparison based on third party testing of nationwide 4G networks average download speeds; comparison does not include AT&T’s LTE network. Our HSPA+ (42 Mbps) network doubles the average download speed of our HSPA+ (21 Mbps) network. T-Mobile’s HSPA+ 4G network, including increased speeds, not available everywhere. Capable device

⁵⁷ See Alex Colon, *Apple iPhone 4S (Verizon Wireless)*, PCMag.com (Feb. 1, 2012); Alex Colon, *Apple iPhone 4S (AT&T)*, PCMag.com (Dec. 14, 2011); Kevin Fitchard, *T-Mobile’s 42 Mbps HSPA+: Fast, But It’s Still No LTE*, Gigaom.com (Nov. 28, 2011); Don Ngo, *iPhone 4S Real-world Data Speeds: What Siri Won’t Tell You*, CNET.com (Nov. 2, 2011); Gotta Be Mobile, *iPhone 4S 3G Speed Test: AT&T vs. Sprint vs. Verizon* (Oct. 19, 2011); Alex Colon, *Apple iPhone 4S (Sprint)*, PCMag.com (Oct. 15, 2011); Chris Beidelman, *The Great iPhone 4S National Network Speed Test*, Gizmodo.com (Oct. 14, 2011); Roger Cheng, *If You Want Blazing Speed, iPhone 4S May Not Be For You*, CNET.com (Oct. 5, 2011); Sascha Segal, *Apple iPhone 4 (AT&T)*, PCMag.com (Jun. 25, 2010) (URLs omitted).

⁵⁸ AT&T, *Get 4G Speed with AT&T* at slide 3, <http://www.att.com/network/> (last visited Aug. 20, 2012).

⁵⁹ *Id.* at slide 2, attached as Exh. I.

⁶⁰ T-Mobile, *T-Mobile vs. Verizon, ATT, Sprint*, <http://explore.t-mobile.com/verizon-att-sprint/> (last visited Aug. 20, 2012).

⁶¹ T-Mobile, *Network Speeds*, <http://t-mobile-coverage.t-mobile.com/hspa-mobile-broadband> (last visited Aug. 20, 2012), attached as Exh. J.

required for 4G speeds.”⁶² This disclosure does not make the situation any clearer for consumers; it implies that peak download speeds are the average download speeds, which are always far lower than peak values; no actual, real-world numbers are provided and no regional data is available.

Verizon’s website boasts its 4G LTE service as reaching “speeds 10x faster than 3G”⁶³ without any disclosures or reference to what Verizon considers to be 3G speeds.

Sprint is the one wireless carrier that discloses its 4G network’s data speeds. Sprint’s website displays, under a claim that its “4G speeds are up to 10x faster than 3G,” a comparison between Sprint’s 3G speeds (average download speeds between 600kbps and 1.4Mbps) and what Sprint is marketing as 4G (average download speeds between 3 and 6Mbps).⁶⁴

B. Consumers Need Data on Mobile Broadband Performance to Make Informed Purchasing Decisions

In July 2012, the Commission released the Measuring Broadband America Report, which addressed whether Internet Service Providers (“ISPs”) are actually delivering data speeds advertised for residential wireline Internet broadband service by comparing the actual data speeds experienced by consumers in their homes to advertised data speeds.⁶⁵ At a time when consumers are transitioning to mobile broadband for their Internet use and communications, actual versus advertised mobile broadband performance is increasingly important. The necessity

⁶² *Id.*

⁶³ Verizon Wireless, *Comparison3g: 4G LTE Videos*, <http://network4g.verizonwireless.com/#!/videos> (last visited Aug. 20, 2012), attached as Exh. K.

⁶⁴ Sprint, *4G Coverage and Speeds*, http://shop2.sprint.com/en/stores/popups/4G_coverage_popup.shtml (last visited Aug. 20, 2012), attached as Exh. L.

⁶⁵ FCC, *A Report on Consumer Wireline Broadband Performance in the U.S.* (Jul. 2012), <http://transition.fcc.gov/cgb/measuringbroadbandreport/2012/Measuring-Broadband-America.pdf>.

is just as compelling as the FCC explained it is for residential broadband.⁶⁶ By excluding data on mobile broadband from the report, the Commission has left consumers in the dark, without the information they need to make informed decisions in the mobile broadband marketplace.

IV. PROPOSED RULE

4G has become “a useless definition.”⁶⁷ Therefore, Consumer Watchdog requests that the Commission initiate a rulemaking proceeding to investigate mobile broadband network performance and adopt rules pursuant to its authority under Title III of the Communications Act, which provides the Commission with the authority to manage spectrum and establish and modify license and spectrum usage conditions in the public interest.⁶⁸

The FCC should require wireless carriers to provide, in advertisements making representations about the speed of any mobile broadband network service or device, clear disclosures stating:

- Average data speeds that subscribers experience while using the advertised network or device within the city or area where such advertisement appears; and
- National average data speeds that subscribers experience while using the advertised network or device; and
- Average data speeds supporting any data speed comparison made in the advertisement.

Additionally, the proposed rule should require wireless carriers to provide, at any point of sale, consumers with access to information as follows:

- For every network that a wireless carrier operates, average data speeds that subscribers experience while using the network within each city or area covered by the network; and

⁶⁶ See Joel Gurin, *Broadband Speed: FCC Data is Improving the Market*, Official FCC Blog (Dec. 5, 2011), <http://www.fcc.gov/blog/broadband-speed-fcc-data-improving-market>.

⁶⁷ Linder, *supra* note 23.

⁶⁸ 47 U.S.C. §§ 301 *et seq.*

- For every network that a wireless carrier operates, national average data speeds that subscribers experience while using the network; and
- For every mobile broadband device that a wireless carrier sells, average data speeds that subscribers experience while using the device within each city or area covered by the network; and
- For every mobile broadband device that a wireless carrier sells, national average data speeds that subscribers experience while using the device.

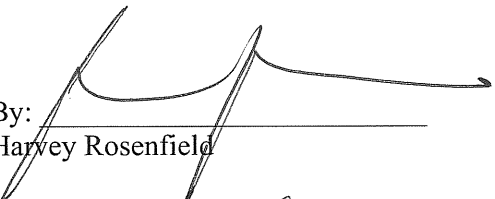
The Commission should require that all data speeds be expressed in Megabits per second (Mbps).

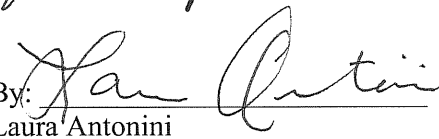
V. CONCLUSION

For all of the foregoing reasons, Consumer Watchdog hereby petitions the Commission to initiate a rulemaking proceeding to investigate mobile broadband network performance and adopt rules that require wireless carriers to disclose actual data speeds.

Respectfully Submitted,

CONSUMER WATCHDOG

By: 
Harvey Rosenfield

By: 
Laura Antonini

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Santa Monica, CA 90405
Telephone: (310) 392-0522
Facsimile: (310) 392-8874

Counsel for Consumer Watchdog

Dated: August 22, 2012

EXHIBIT A

[Explore](#) [Shop](#) [My Verizon](#) [Support](#)

Search



4G LTE

AMERICA'S FASTEST 4G NETWORK.

SEND ME UPDATES

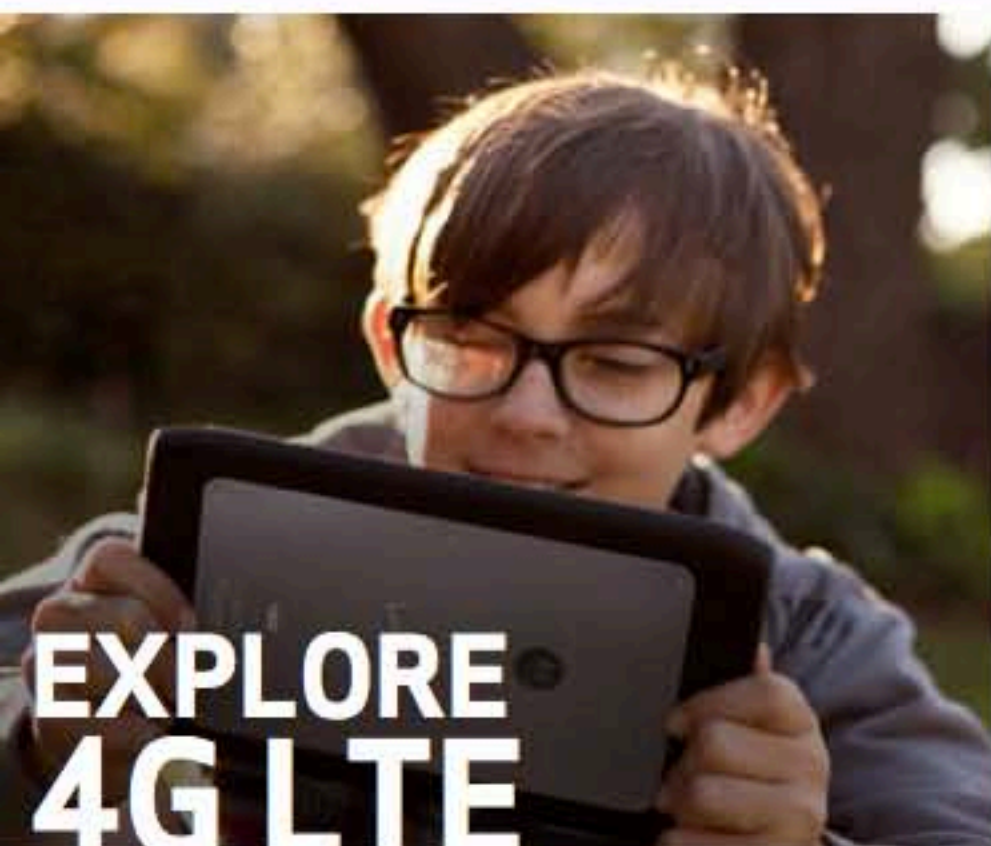
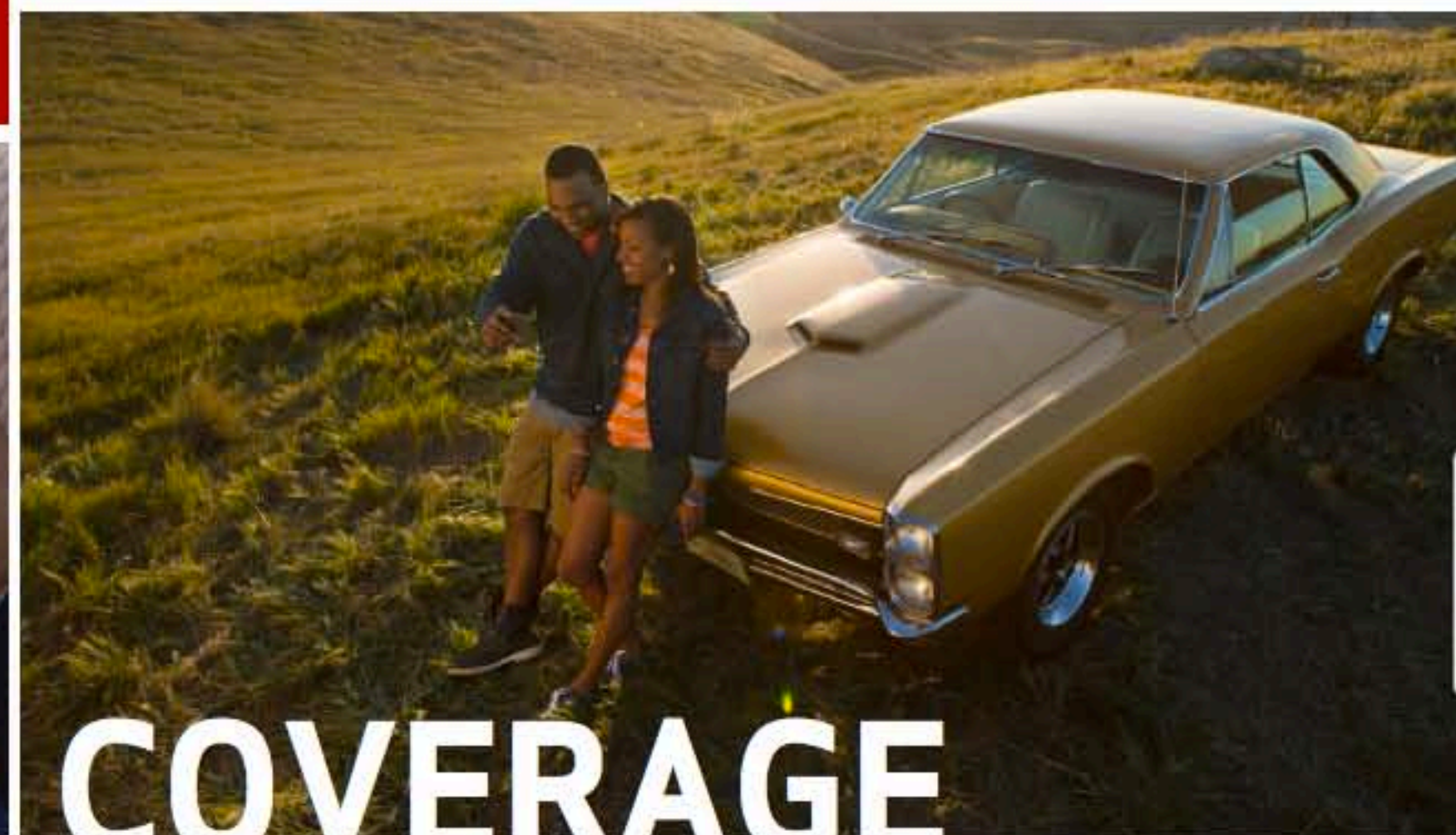
[Sign Up](#)**EXPLORE
4G LTE****DEVICES****COVERAGE****SHARE**EverythingSM
Plan**GET THE WHOLE FAMILY IN ON 4G LTE.****Unlimited TALK. Unlimited TEXT.**And **Shareable** DATA to power up to **10 Devices**.[Learn More](#)**A HIGHER
STANDARD OF
COVERAGE.****370+ CITIES.**
**MORE 4G LTE COVERAGE
THAN ALL OTHER**

EXHIBIT B



Personal

Business ▾

About AT&T

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Language ▾

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myAT&T

Support

Search



Wireless

Bundles

Digital TV

Internet

Home Phone

U-verse

Special Offers

Shopping Help

HOME

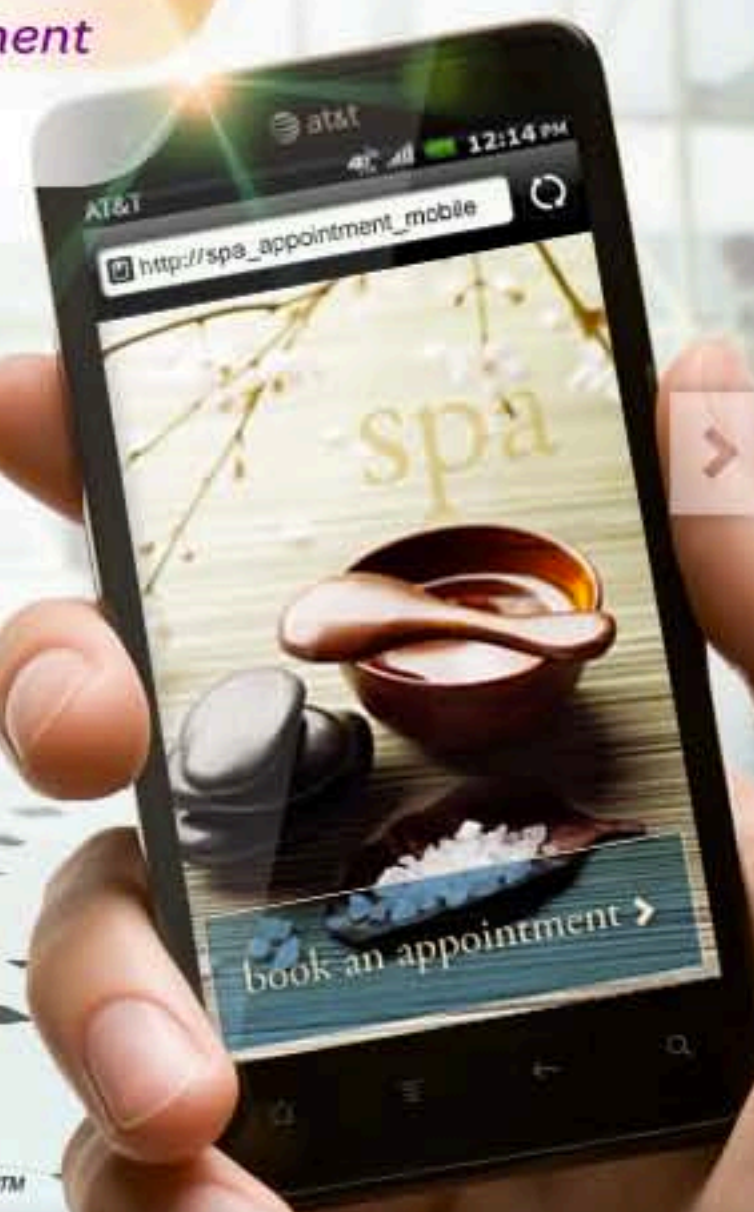
1 minute
to board*Book appointment
at hotel spa*

AT&T.
The nation's largest
4G network.

Stay a step ahead.
On the nation's largest 4G network.



HTC Vivid™



4G LTE Speeds



Coverage



Technology



4G Devices



Talk & Surf



Commercials

EXHIBIT C



Shop

Explore

Coverage

Support

Business

Search T-Mobile

Search

Network Speed

Wi-Fi Calling



Test drive T-Mobile's superfast 4G network

It's faster than AT&T's nationwide 4G network. It's faster than Sprint's nationwide network. And more people use it than Verizon's 4G network. **Period.**

Amazing 4G experiences

Our blazing-fast 4G network means amazing 4G experiences. Apps download faster. Movies stream with less interruption. Attachments open almost instantly. What are you waiting for?

[Test Drive our network](#) | ▶

Innovation and speed

We're committed to giving you the best nationwide 4G network possible. Ours was the first. And the billions we're investing and continue to invest will make it faster than ever.

[Learn more](#) | ▶

T-Mobile covers **96%** of all Americans.

We've got you covered where you live, work and play—so it's easy to stay connected where it counts.

[Check coverage](#)

Industry experts are raving about T-Mobile's 4G network:

"...big, powerful devices with **truly impressive internet speeds.**"

—PC Magazine
10/05/2011



"...large footprint and **continuous upgrades...**"

—LAPTOP Magazine
08/11/2011



"...**blown away** that T-Mobile 42 Mbps devices are easily beating my home cable network connection..."

—ZD Net
10/10/2011



EXHIBIT D

Personal

Business

[Coverage maps](#) | [Discover Sprint](#) | [Find a store](#) | [Shopping Cart](#)

Google™ Custom Search

[My Sprint](#)[Shop](#)[Digital Lounge](#)[Community](#)[Support](#)[Sign in/Register](#)

4G Home



Our 4G Advantage



4G Devices



4G for Business

[Share](#)

Welcome to



Sprint 4G: A Generational Leap

Where you can find 4G and 4G LTE



Sprint 4G service is available in markets across the U.S. and 4G LTE is coming soon.

[See the coverage map](#)

Innovative 4G and 4G LTE devices



From phones to mobile broadband cards, laptops, tablets and everything in between.

[Check out devices](#)

4G LTE coming to Sprint



Get the details on the continuing evolution of the Sprint 4G network.

[Learn more](#)

Power your business with 4G



Sprint ranks #1 with small and medium business customers.

[Read more](#)

Welcome to 4G from Sprint - America's favorite 4G network!

+ http://ria.sprint.com/ria/pages/index.jsp?ms=4G&INTNAV=SJS:HE:4G&question_box=4G&id16=4G



Personal

Business

Coverage maps

Discover Sprint

Find a store

Shopping Cart

Google™ Custom Search



My Sprint

Shop

Digital Lounge

Community

Support

Sign in/Register



4G Home



Our 4G Advantage



4G Devices



4G for Business

+ Share

EXHIBIT E

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Network evolution

Evolve smarter with the only network that uses both LTE and HSPA+

AT&T has nationwide 4G coverage, bringing faster speeds to more than 200 million Americans.

With the introduction of 4G LTE, AT&T is also the only carrier that offers two layers of network technology that deliver 4G speeds: LTE and HSPA+.

Why does that matter? You'll enjoy fast 4G speeds on both the HSPA+ network and on the LTE network where available. That means a smoother, more consistent 4G experience overall.

LTE

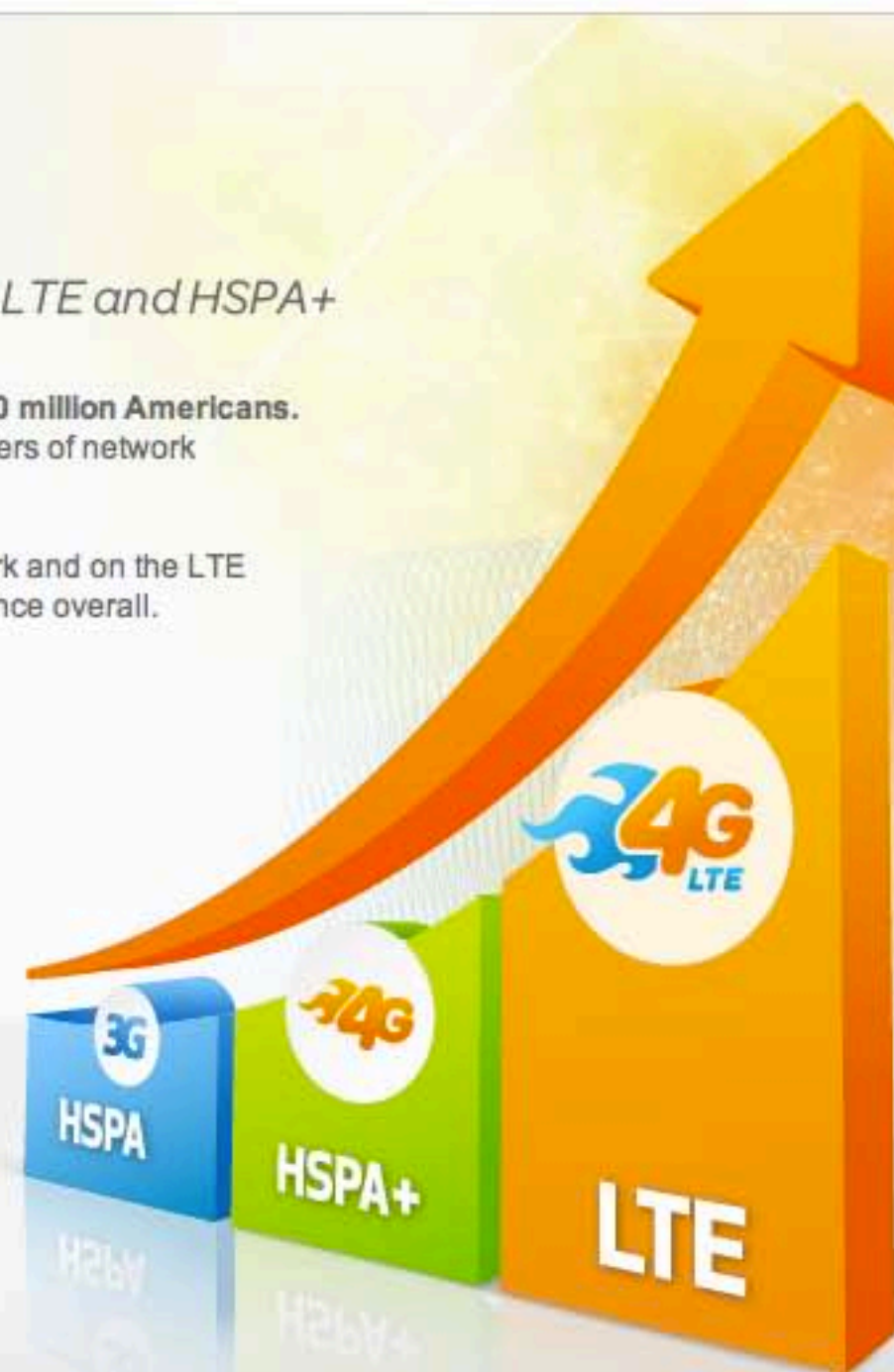
Long Term Evolution. Speeds up to 10x faster than 3G. That's what we have in mind as we continue to boost speed and performance in more and more places.

HSPA+

Technology that enables 4G speeds up to 4x faster than AT&T's already fast mobile broadband network.*

HSPA

The 3G technology that powers our fast mobile broadband network today.



Personal

Business ▾

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myAT&T

Support

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Wireless

Digital TV

Internet

Home Phone

Billing & Account

Additional Services

Orders & Repairs

Communities

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[Wireless Support](#) > AT&T 4G Speed

Wireless

[Support for GoPhone Prepaid](#) >
[Personalize your support](#) >

Select your device

SELECT
▾

Ask a Question

Search FAQs



Text size: A A A

Print

Browse Support Topics

- + [Account Management - myAT&T](#)
- + [Billing & payments](#)
- + [Features](#)
- + [iPhone](#)
- + [Network & Wi-Fi](#)
- + [Phones & devices](#)
- + [Plans & services](#)
- + [Ringtones & Apps](#)

AT&T 4G Speed

Limited 4G LTE availability in select markets. 4G speeds delivered by LTE, or HSPA+ with enhanced backhaul, where available. Deployment ongoing. Compatible device and data plan required. LTE is a trademark of ETSI. Learn more at [AT&T 4G](#) >.

AT&T's 4G strategy, including [HSPA+ with enhanced backhaul](#) and LTE, delivers super fast broadband speeds. 4G HSPA+ with enhanced backhaul delivers speeds up to 4X faster than AT&T's already fast mobile broadband network. And as it is deployed, 4G LTE will deliver even faster speeds than 4G HSPA+. The combination of the two technologies provides the best option for your wireless work or entertainment.

Related Solutions

- [4G Information](#)

Solution Feedback

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Wireless

[Support for GoPhone Prepaid](#) >[Personalize your support](#) >

Select your device

SELECT
▾

Ask a Question

Search FAQs

Text size: [A](#) [A](#) [A](#)[Print](#) [Email](#) [Facebook](#) [Twitter](#)

HSPA+ Information

4G speeds delivered by HSPA+ (with enhanced backhaul). Not available everywhere with deployment ongoing. Compatible device and data plan required.

AT&T recently upgraded the software of its nationwide mobile broadband network to HSPA+. HSPA stands for "High Speed Packet Access." HSPA+ provides extended and improved network speeds. When HSPA+ is combined with [enhanced backhaul](#), AT&T's already fast mobile broadband network delivers even faster 4G speeds.

Related Solutions

- [4G Information](#)

Browse Support Topics

- + [Account Management - myAT&T](#)
- + [Billing & payments](#)
- + [Features](#)
- + [iPhone](#)
- [Network & Wi-Fi](#)
 - [4G & networks](#)
 - [Wi-Fi](#)
- + [Phones & devices](#)
- + [Plans & services](#)
- + [Ringtones & Apps](#)

Solution Feedback

Was this solution easy to find?

Need more help?

EXHIBIT F

iPhone® 4S
















iPhone® 4



iPhone® 3GS



Capacity	16GB 32GB 64GB	8GB	8GB
Network	World phone Operates on AT&T's 4G Network UMTS/HSDPA/HSUPA Wi-Fi: 802.11b/g/n Bluetooth: 4.0	- - - - - - - - UMTS/HSDPA/HSUPA Wi-Fi: 802.11b/g/n Bluetooth: 2.1+ EDR	- - - - - - - - UMTS/HSDPA Wi-Fi: 802.11b/g Bluetooth: 2.1+ EDR
Apple Chip	Dual-core A5	A4	- - - -
Display	High-resolution Retina display 960-by-640 resolution 326 ppi	High-resolution Retina display 960-by-640 resolution 326 ppi	480-by-320 resolution 163 ppi
Video calling	 FaceTime (over Wi-Fi to other FaceTime capable devices)	 FaceTime (over Wi-Fi to other FaceTime capable devices)	- - - -
Camera	 8 megapixels LED flash Autofocus Tap to focus Backside illumination sensor Five-element lens Face detection  Front camera with VGA resolution	 5 megapixels LED flash Autofocus Tap to focus Backside illumination sensor Four-element lens  Front camera with VGA resolution	 3 megapixels Autofocus Tap to focus
Video recording	 1080p 30fps HD video recording Tap to focus while recording LED light Video stabilization	 720p 30fps HD video recording Tap to focus while recording LED light	 VGA video recording
Built-In Assistant	Siri Use your voice to send messages, set reminders, and more	- - - -	- - - -
Colors			
Battery Life²	Talk time: up to 8 hours on 3G; up to 14 hours on 2G Standby time: Up to 200 hours Internet use: Up to 6 hours on 3G Up to 9 hours on Wi-Fi Audio playback: Up to 40 hours Video playback: Up to 10 hours	Talk time: up to 7 hours on 3G; up to 14 hours on 2G Standby time: Up to 300 hours Internet use: Up to 6 hours on 3G Up to 10 hours on Wi-Fi Audio playback: Up to 40 hours Video playback: Up to 10 hours	Talk time: Up to 5 hours on 3G; up to 12 hours on 2G Standby time: Up to 300 hours Internet use: Up to 5 hours on 3G Up to 9 hours on Wi-Fi Audio playback: Up to 30 hours Video playback: Up to 10 hours

[Support](#) > [Wireless](#) > iPhone 4S

iPhone® 4S is here

And we have answers for you.

Learn how to upgrade or order, and find more information and advice. Choose one of the topics below to view top questions and get the help you need.

If you're already a customer and ready to upgrade right now:

[Go to AT&T Upgrader](#) >



Upgrading to iPhone 4S



Placing Your Order



Tracking Your Order



Services & Advice



Getting More Answers



Fast, Faster, Fastest

AT&T's 4G network offers you faster speeds and more coverage — and no one else lets you talk and surf at the same time.

See why your new iPhone 4S and AT&T's 4G network are a winning combination.

4G speeds not available everywhere.
[Learn more at att.com/network](#) >

[Find the AT&T store closest to you](#) >

[Check Coverage Viewer for coverage details in your area](#) >

SHARE



Filter by Pricing

- ☒ All
- ☐ Free
- ☐ \$0.01-\$49.99
- ☐ \$50-\$99.99
- ☐ \$100-\$199.99
- ☐ \$200 +

Filter by Condition

- ☒ All
- ☐ New
- ☐ Refurbished

Filter by Operating System

- ☒ All
- ☐ Android
- ☐ Apple®
- ☐ BlackBerry®
- ☐ HP webOS
- ☐ Windows phone

Filter by Style

☐ Compare

View

MOTOROLA ATRIX™ HD

★★★★★ (21)

**\$99.99**

2-year contract & new activation required

Qualifying monthly data plan required.

[View packages](#)

Available colors:

☐ Compare

View

☐ Compare

View

Apple iPhone 4S

**\$199.99 to \$399.99**

16 to 64 GB

2-year contract & new activation required

Qualifying monthly data plan required.

[View packages](#)☐ Compare

View

☐ Compare

View

Apple iPhone 4S Refurb

**\$149.99 to \$349.99**

16 to 64 GB

2-year contract & new activation required

Qualifying monthly data plan required.

[View packages](#)☐ Compare

View

Apple iPhone 3GS - 8 GB

**\$0.99**

2-year contract & new activation required

☐ Compare

View

Samsung Captivate™ Glide (Refurbished)

★★★★★ (3)

**\$0.01**

2-year contract & new activation required

☐ Compare

View

Pantech Burst™ (Refurbished)

★★★★★ (4)

**\$0.01**

2-year contract & new activation required

☐ Compare

View



Shop

myAT&T

Support

Search



Wireless

Apple iPhone 4S - 16 GB - Black Details

Close X

DETAILS

SPECIFICATION

ACCESSORIES

CONTRACT INFO

**Battery**

Talk time	Up to 8 hours on 3G, up to 14 hours on 2G
Standby time	Up to 200 hours

Dimensions

Weight	4.9 ounces
Size (Inches)	4.5 x 2.31 x 0.37 Inches

Memory

Internal memory storage	16 GB
-------------------------	-------

Wireless Technology

GSM/GPRS	850/900/1800/1900 MHz
3G - UMTS/HSDPA/HSUPA	850/900/1900/2100 MHz
BLUETOOTH® technology	4.0
Wi-Fi Connectivity	802.11b/g/n Wi-Fi (802.11n 2.4GHz only)
4G*	HSPA+ with enhanced backhaul

[Back to List](#)[My Shopping Cart](#)

Apple iPhone 4S-32GB

\$199.99

- \$0.00

Price of Shipping* \$199.99

[Add to Cart](#)

ment with qualifying monthly
d. Limit 5 iPhone devices per
when ordering online.
[early termination fees](#)

[AT&T Customers](#)[Upgrade](#)[Add A Line](#)**More about the device**[Details](#)☐ Apple iPhone 4S - 16 GB - White ▾

Included in package

Your choice of individual plan

Choose the plan that works best for you. If you want to share minutes with more than one phone, [view FamilyTalk plan options](#).

☒ Nation Unlimited ▾

\$69.99/month

☐ Nation 900 w/Rollover® Minutes ▾**Recently Viewed**

Apple iPhone 4S - 64 GB
\$399.99

EXHIBIT G

Dual-core A5 chip. All-new 8MP camera and optics.
iOS 5 and iCloud. And introducing Siri.
It's the most amazing iPhone yet.



*Only AT&T's network
lets your iPhone 4S
download 3x faster*

iPhone 4S

16G | 32G | 64G

starting at \$199.99*

[Shop Now](#)



iPhone 4 8GB
starting at \$99*

[Shop Now >](#)



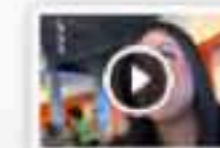
iPhone 3GS 8GB
starting at 99¢*

[Shop Now >](#)

Built for speed

See what others are saying about
iPhone 4S on AT&T.

[Gizmodo >](#)



Customers talk about
why they chose AT&T
[Watch the video >](#)

iPhone Resources



[iPhone 4S FAQs >](#)

[iPhone Comparison](#)

[Check order status >](#)

DataPlus

300MB of data for \$20/month

- Surf the Web
- Send email
- Social networking
- Overage rate of \$20 for each additional 300MB

DataPro Personal

3GB of data for \$30/month

- Download or stream music
- Watch videos
- Overage rate of \$10 for each additional 1GB

DataPro 5GB Personal

5GB of data for \$50/month

- Share your connection with up to four additional devices using your Smartphone as a Mobile Hotspot**
- Overage rate of \$10 for each additional 1GB

Discount Program



Exclusive savings for
employees, students,
and military.

[Learn more about data services >](#)

EXHIBIT H

[Speed Tests](#)[Plans and Pricing](#)

Speed Tests

Only AT&T's network lets your iPhone 4S download three times faster* ... giving you 4G speeds from day one. Take a look at what others are saying about their own speed experience with iPhone 4S on AT&T's network. And join in on the conversation on our [Facebook wall](#) to share your experience.

- Bloomberg Business Week: [AT&T May Be 'Big Winner' With New iPhone](#)
 - **"The big winner on this phone is AT&T,"** said Roger Entner, a wireless strategist with Boston-based Recon Analytics.
- NewsFactor.com: [Analyst: Free iPhone 3GS Could Spell Trouble for Rivals](#)
 - "The key competitive takeaway that I got is this: **If your free phone isn't better than the iPhone 3GS, you are in trouble.** If you are at pretty much any carrier, if your \$99 mid-tier phone isn't better than the iPhone 4, you are in trouble," said Avi Greengart, Current Analysis.
 - **"Free phones are not as good as an iPhone 3GS. Consumers who opt for an iPhone 3GS may not have the latest and greatest iPhone. But they nonetheless have an iPhone.** And with an iPhone 3GS, consumers have access to most of the apps and iTunes content and the Apple user interface," said Avi Greengart, Current Analysis.

[View More](#)

*Claim based on national average iPhone 4S data speeds on AT&T's network vs. other U.S. networks.

Tags

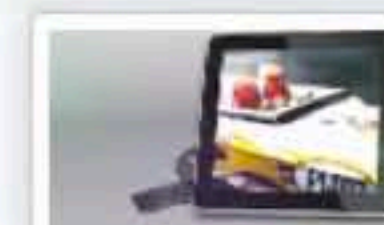
[consumer](#),[wireless](#),[mobile phones](#),[media kits](#),[iPhone](#)

EXHIBIT I

HOME 

*Speeds up to
10x faster than 3G*

AT&T 4G LTE lets you do more of the things you love, **only faster**. Upload a photo in six seconds. Download a song in four seconds. Stream clear, crisp video faster than ever before. With AT&T 4G LTE*, download movies in minutes and apps almost instantly.



*How fast is
AT&T 4G LTE?*

Play video >



4G LTE Speeds



Coverage



Technology



4G Devices



Talk & Surf



Commercials

EXHIBIT J



Español

Coverage

Store Locator

Enter Location

Your Account: Log in / Sign up

Cart

Shop

Explore

Coverage

Support

Business

Search T-Mobile

Search

Network Speed

Wi-Fi Calling

Coverage › Network Speed

4G T-Mobile has you covered

With more 4G speed and more 4G coverage, you get the amazing 4G experience you're looking for, when and where you want it.

Faster 4G speed

As the first nationwide 4G network, we have always had a major investment in speed. In fact, we've doubled the speed of our network each of the last three years. Now it's running faster than ever—even faster than average home Internet speeds—and the speed keeps increasing.

[Test Drive our network for yourself](#) | ▶

Greater 4G coverage

We take the speed of the T-Mobile 4G network seriously, but we don't take it for granted. We keep improving. We've increased the breadth of our network 30% during the last six years. We provide blazing-fast 4G coverage to over 220 million Americans in 229 markets—and we're expanding and upgrading our network all the time.

Superior 4G experiences

T-Mobile covers **96%** of all Americans.

We've got you covered where you live, work and play—so it's easy to stay connected where it counts.

[Check coverage](#)

Industry experts are raving about T-Mobile's 4G network:

"...**faster than both** Sprint's WiMAX and AT&T's HSPA+"

—PC Magazine
10/05/2011

(reviewing the Galaxy S II on our network)



"...**impressive speeds...**"

—LAPTOP Magazine

LAPTOP

Faster than average home internet speeds based on average download speeds on T-Mobile's HSPA+ 42 Mbps network in four major markets versus average home internet speeds as determined by independent third party testing. A 42 Mbps-capable device is required.

Speed comparison based on third party testing of nationwide 4G networks average download speeds; comparison does not include AT&T's LTE network. Our HSPA+ (42 Mbps) network doubles the average download speed of our HSPA+ (21 Mbps) network. T-Mobile's HSPA+ 4G network, including increased speeds, not available everywhere. Capable device required for 4G speeds.

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EXHIBIT K

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LIFE IS BETTER IN REAL-TIME.



4G^{LTE}
SPEEDTEST APP



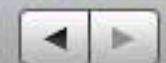
3G
SPEEDTEST APP

SPEED LIKE YOU'VE NEVER EXPERIENCED

Verizon 4G LTE is the fastest 4G network in America. At 10x faster than 3G, there's simply no comparison. Do all the things you love - only faster. That's the power of 4G LTE.

[Feedback](#)

EXHIBIT L



4G Coverage

We're rolling out 4G coverage as quickly as we can. Pick a state and then a city to view coverage in that area. Don't see your city on the list? [Sign up to be notified](#) when Sprint 4G comes to your area.

Select a state...



4G speeds

4G speeds are up to 10x faster than 3G. That's like swapping out DSL for a high-speed cable modem.

So what's the difference?	4G	3G
Average download speeds	3-6 Mbps	600Kbps - 1.4 Mbps
Peak download speeds ¹	More than 10 Mbps	Up to 3.1 Mbps
Monthly limit	All you can stream, browse, email, chat, watch and game.	5GB ¹

¹ Peak speeds may not apply to all markets. Actual speeds may vary.

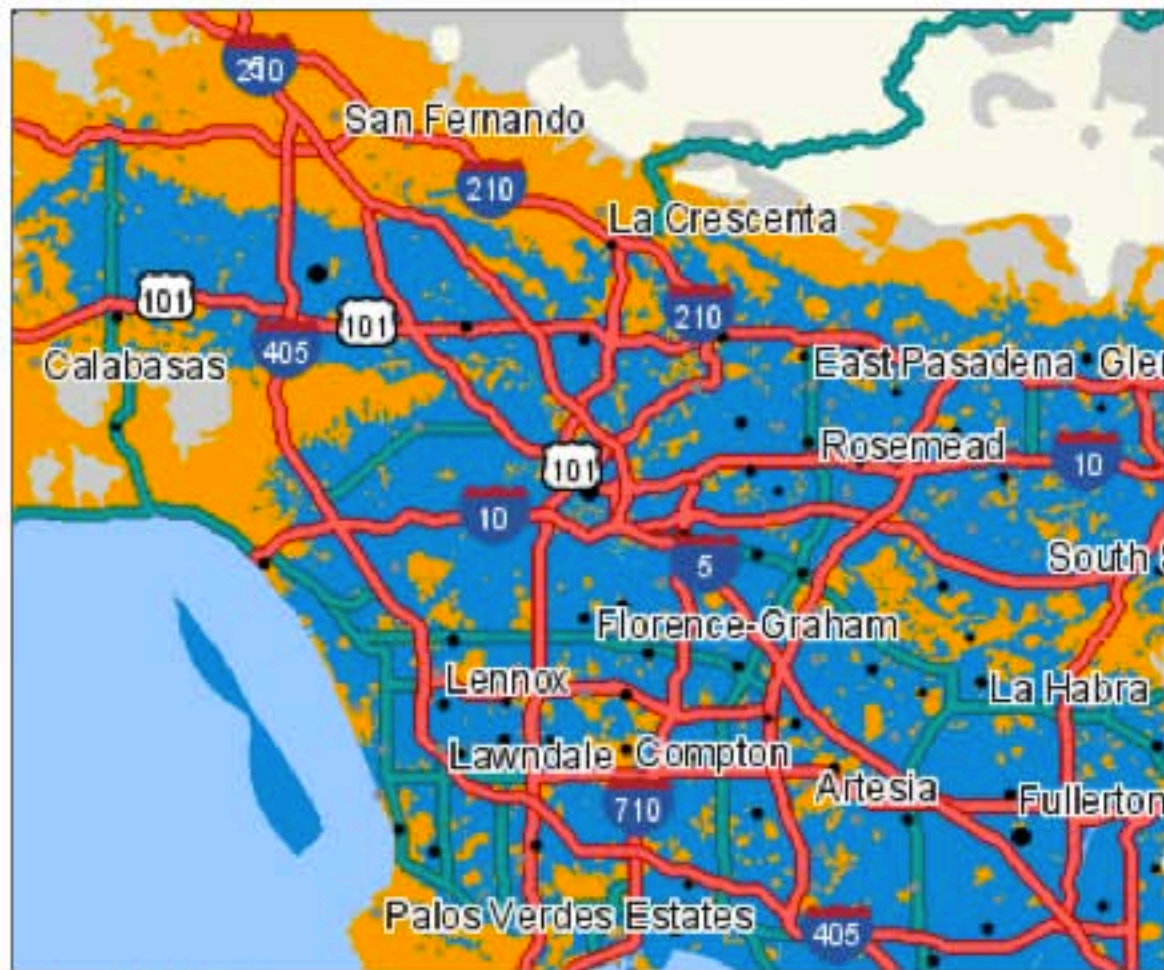


4G Coverage

We're rolling out 4G coverage as quickly as we can. Pick a state and then a city to view coverage in that area. Don't see your city on the list? [Sign up to be notified](#) when Sprint 4G comes to your area.

California

Los Angeles



■ indicates 4G coverage

[» See coverage details](#)

4G speeds

4G speeds are up to 10x faster than 3G. That's like swapping out DSL for a high-speed cable modem.

So what's the difference?	4G	3G
Average download speeds	3-6 Mbps	600Kbps - 1.4 Mbps
Peak download speeds ¹	More than 10 Mbps	Up to 3.1 Mbps
Monthly limit	All you can stream, browse, email, chat, watch and game.	5GB ¹

¹ Peak speeds may not apply to all markets. Actual speeds may vary.



You are seeing coverage specific to the iPhone 4S 64GB



Change device

Coverage details for



LOS ANGELES, CA

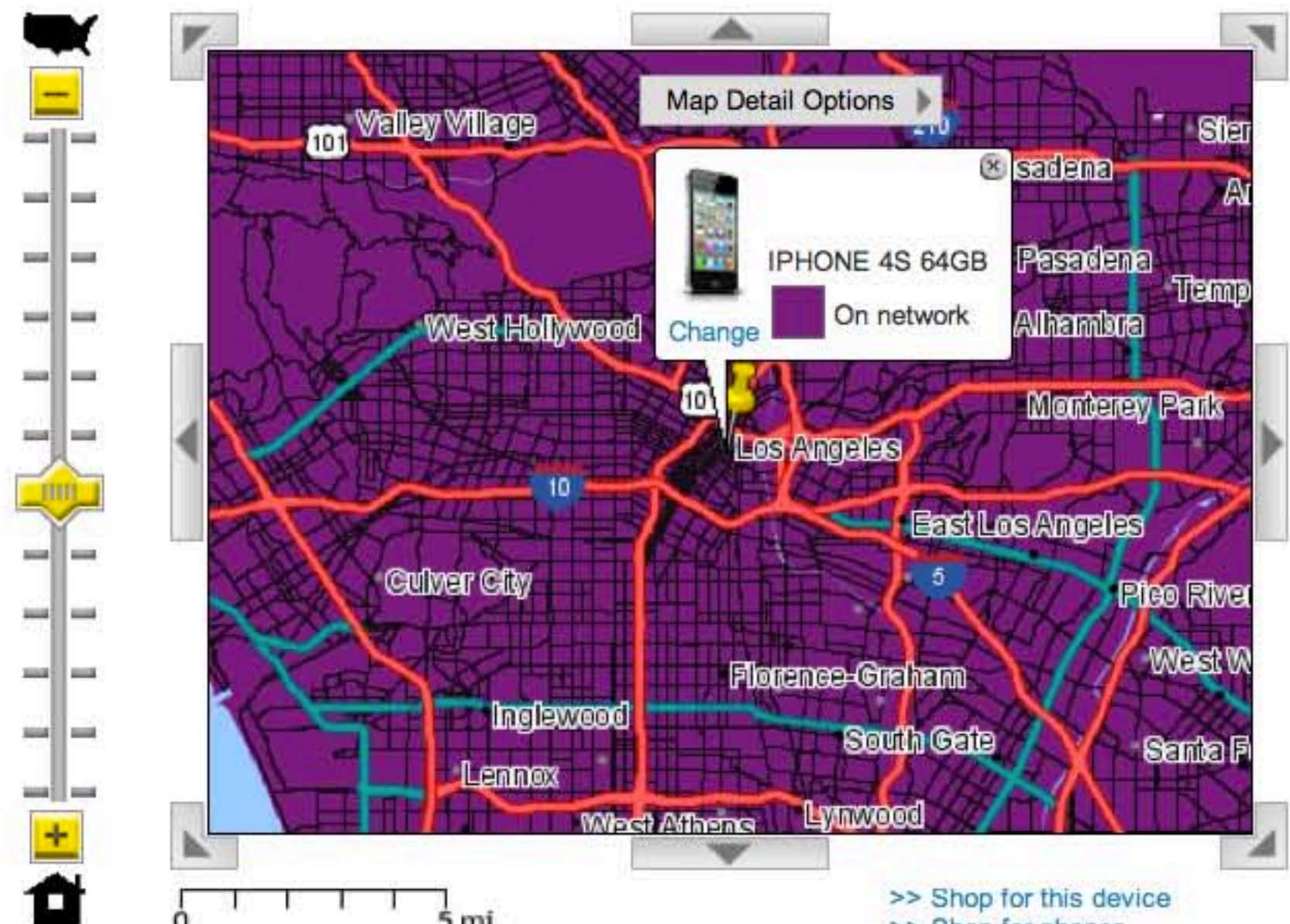
Map new locations

Recent searches

[Los Angeles, CA](#)

Voice

Data



Coverage updated on: 8/16/12

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[>> Shop for phones](#)
[>> International roaming coverage](#)
[>> Print map](#)

Data coverage

Sprint 3G network



On network



Off-network roaming

Similar level of service as on network, but Sprint Family Locator, Sprint Navigation and TeleNav will not work

Nationwide Sprint Network



On network



Off-network roaming

Similar level of service as on network, but Sprint Family Locator, Sprint Navigation and TeleNav will not work



No coverage

See detailed info about download and upload [speeds](#). Review detailed [service availability](#).