

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

In the Matter of)
)
Consumer and Governmental Affairs Bureau)
Seeks Comment on “Need For Speed”) CG Docket No. 09-158
Information for Consumers of Broadband Services)
)
Consumer Information and Disclosure)

COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

CTIA – The Wireless Association® (“CTIA”)¹ respectfully submits these comments in response to the Public Notice issued by the Consumer and Governmental Affairs Bureau (“Bureau”) in the above-captioned proceeding, in which the Bureau seeks comment on the types of speed and performance-related information that would be most useful to consumers choosing between broadband service options.² As detailed below, the Federal Communications Commission (“Commission”) should support voluntary industry practices and third-party efforts to inform consumers about wireless broadband speeds and performance, and refrain from developing new mandates at this time. Wireless carriers’ efforts to attract and retain customers have led to numerous broadband speed and performance innovations. In addition, carriers’ commitments to transparency and the availability of third-party resources ensure that consumers are provided with helpful, accurate information about their services. The unique characteristics of wireless service and many disparities among mobile devices, however, limit carriers’ ability to

¹ CTIA – The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile Radio Service (“CMRS”) providers and manufacturers, including cellular, Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products.

² *Consumer and Governmental Affairs Bureau Seeks Comment on “Need for Speed” Information for Consumers of Broadband Services*, CG Docket No. 09-158, Public Notice, DA 11-661 (rel. Apr. 11, 2011) (“Public Notice”).

provide more detailed speed and performance data, and further disclosures in this complex and dynamic environment would be neither accurate nor helpful to consumers.

I. WIRELESS CARRIERS ARE COMMITTED TO TRANSPARENCY, INCLUDING PROVIDING RELEVANT INFORMATION TO CONSUMERS.

Wireless carriers compete vigorously to meet consumer demand on all service aspects, including speed, performance, and transparency, and this robust marketplace continues to drive significant advances in wireless network technologies. For example, carriers are deploying new fourth-generation (“4G”) services and enhancing existing third-generation (“3G”) services to provide greater speed and capabilities to Americans.

- Clearwire has deployed and currently offers 4G wireless broadband to more than 130 million people in over 70 markets;³ Sprint Nextel now offers 4G service in 71 markets in 28 states;⁴ Verizon Wireless launched its 4G LTE network in December 2010 in 39 major metropolitan areas reaching more than 110 million Americans, with plans to expand to 175 markets by the end of 2011;⁵ and AT&T is deploying its 4G LTE network this year, including rolling out to 15 markets by the end of 2011.⁶
- AT&T and T-Mobile are deploying Evolved High Speed Packet Access (“HSPA+”) technology to increase speeds across their existing networks.⁷

³ Clearwire, <http://www.clearwire.com/company/our-company> (last accessed May 23, 2011).

⁴ Press Release, Sprint, *Sprint Nextel Reports First Quarter 2011 Results* (Apr. 28, 2011), available at http://newsroom.sprint.com/article_display.cfm?article_id=1879 (last accessed May 23, 2011).

⁵ Verizon Wireless, <http://news.vzw.com/LTE/Overview.html> (last accessed May 23, 2011); see also Press Release, *Verizon Wireless Launches Nine New 4G LTE Markets Today and Expands 4G LTE Network in Five Major Cities* (May 19, 2011), available at <http://news.vzw.com/news/2011/05/pr2011-05-18c.html> (last accessed May 23, 2011) (noting that as of May 2011, LTE coverage extended to 55 metropolitan areas).

⁶ AT&T, <http://www.wireless.att.com/learn/why/technology/4g-lte.jsp> (last accessed May 23, 2011); Roger Cheng, *New AT&T Network to Launch*, Wall St. Journal, available at http://online.wsj.com/article/SB10001424052702304066504576345222659227628.html?mod=WSJ_Tech_RightMostPopular (last accessed May 26, 2011).

⁷ Press Release, AT&T, *AT&T Announces Plans to Deliver Nation’s Most Advanced Mobile Broadband Experience* (Jan. 5, 2011), available at <http://www.att.com/gen/press-room?pid=18885&cdvn=news&newsarticleid=31477&mapcode=wireless-networks-general|consumer> (last accessed May 23, 2011). AT&T has completed deployment of HSPA+ to virtually 100 percent of its broadband network, with network speed of up to approximately 6 Mbps in some markets. T-Mobile has launched HSPA+ technology with peak download speeds of 21 Mbps and peak upload speeds of 5.7 Mbps, and it plans to double the speed of its network to achieve download speeds of 42 Mbps. T-Mobile, T-Mobile Network Technology, <http://t-mobile-coverage.t-mobile.com/4g-wireless-technology> (last

- Many rural carriers also are increasing their coverage areas and efficiently using their spectrum to serve more consumers. For instance, Nex-Tech Wireless, a provider of wireless service in central and western Kansas, recently expanded rural coverage with new cell sites equipped with 3G technology,⁸ and Union Telephone, a wireless provider in Wyoming, northwestern Colorado and parts of Utah, added forty-five new cell sites in Wyoming and Colorado in 2010.⁹
- And to bridge the gap between 3G and 4G networks, Qualcomm continues to expand development and production of multimode chipsets that will further increase data rates by supporting HSPA+ technology.¹⁰

The wireless industry has embraced transparency. Just as competition spurs carriers to innovate and deploy faster and more advanced networks, it also incentivizes them to disclose accurate information to consumers on their websites, in advertisements, and at points-of-sale. Carriers currently provide consumers with meaningful speed and data usage information, along with other relevant data such as service availability and coverage maps.¹¹ For example:

- Sprint Nextel lists the maximum and typical download and upload speeds for its EV-DO Rev 0 and other 3G services. It also provides a comparison chart for the average download and upload speeds of its networks and for each of its plans, with references to what capabilities (*i.e.*, number of e-mails, photos, songs, or movies) a consumer would have with a 500 MB, 1 GB, 2 GB, 3 GB, 5 GB, or 10 GB plan.¹²

accessed May 23, 2011); Press Release, T-Mobile, *T-Mobile Expands America's Largest 4G Network* (Apr. 4, 2011), available at <http://newsroom.t-mobile.com/articles/ten-new-4g-markets> (last accessed May 23, 2011).

⁸ Press Release, Nex-Tech Wireless, *Nex-Tech Wireless Enhances Service in Smith County* (February 2011), available at <http://www.nex-techwireless.com/news.aspx> (last accessed May 23, 2011); Press Release, Nex-Tech Wireless, *Wireless Users in Sheridan County to Experience Improved Coverage* (February 2011), available at <http://www.nex-techwireless.com/news.aspx> (last accessed May 23, 2011).

⁹ Union Telephone, *Wireless-New Cell Site*, <http://www.unionwireless.com/Cellular.aspx?page=Cellular&subpage=New-Cell-Site&SiteID=130> (last accessed May 23, 2011).

¹⁰ Press Release, Qualcomm, *Qualcomm Announces Chipset with Support for Next-generation Release 9 HSPA+* (Feb. 14, 2011), available at <http://www.qualcomm.com/news/releases/2011/02/14/qualcomm-announces-chipset-support-next-generation-release-9-hspa> (last accessed May 24, 2011).

¹¹ See Public Notice at 3 (seeking comment on the most effective ways to inform consumers about broadband performance).

¹² Sprint, *Sprint 3G Networks*, http://shop2.sprint.com/en/coverage/support/mobile_broadband_network_popup.shtml (last accessed May 23, 2011); Sprint, *Compare Data Speeds*, http://shop2.sprint.com/en/stores/popups/compare_data_speeds_popup.shtml (last accessed May 23, 2011); Sprint, *Plans-Mobile Broadband*, http://shop.sprint.com/mysprint/shop/plan/plan_wall.jsp?tabId=pt_data_plans_tab&flow=AAL&planFamilyType=null (last accessed May 24, 2011).

- Verizon Wireless provides an interactive data usage calculator that allows consumers to determine how many GBs they need each month based on the number of e-mails sent, webpages visited, music and videos streamed, and photos uploaded. It also provides maximum and average upload and download speeds for its networks.¹³
- Clearwire provides data on average speeds and burst speeds, and notes that its service allows consumers to stream movies, play online games, and engage in video chat.¹⁴
- Cricket Wireless provides a glossary of relevant broadband terms to assist consumers in selecting a broadband plan. It also provides a tool that illustrates the difference in download speed for an average song over a 3G versus a 2G network.¹⁵
- AT&T provides granular, street-level coverage maps for its data, voice, GoPhone, and Smart Limits services, provides the typical speeds in AT&T's network, and explains what services are usable at those speeds.¹⁶
- T-Mobile provides data on average and maximum uplink and downlink speeds for its different products and notes that its network "allows many users to experience a mobile broadband experience comparable to the high-speed connections of a home or work computer." It also provides granular, street-level coverage maps.¹⁷
- Alaska Communications Systems lists the typical download and upload speeds of its mobile broadband services. It also provides consumers the typical amount of data needed to complete various tasks like e-mail.¹⁸

¹³ Verizon Wireless, Data Usage Calculator, http://www.verizonwireless.com/splash_includes/datacalculator.html (last accessed May 24, 2011); Verizon Wireless, Mobile Broadband-Coverage & Speed, <http://www.verizonwireless.com/b2c/mobilebroadband/?page=coverage> (last accessed May 23, 2011).

¹⁴ CLEAR, Coverage Map, <http://www.clear.com/coverage> (last accessed May 23, 2011). It also provides street-level coverage maps for 4G and 3G services with layered readings of service quality. *Id.*

¹⁵ Cricket, Broadband Glossary, <http://www.mycricket.com/broadband/glossary> (last accessed May 24, 2011); Cricket Wireless, 3G High Speed Internet, <http://www.mycricket.com/broadband/what-is-3g> (last accessed May 23, 2011).

¹⁶ AT&T Wireless, AT&T Coverage Viewer, <http://www.wireless.att.com/coverageviewer/#?type=data&lat=37.23686018434336&lon=-95.6851186618805&sci=4> (map) and http://www.wireless.att.com/coverageviewer/popUp_legend.jsp (data coverage legend) (last accessed May 23, 2011).

¹⁷ T-Mobile, T-Mobile Network Technology, <http://t-mobile-coverage.t-mobile.com/4g-wireless-technology> (last accessed May 23, 2011); T-Mobile, Personal Coverage Check, <http://www.t-mobile.com/coverage/pcc.aspx> (last accessed May 23, 2011).

¹⁸ Alaska Communications Systems, <http://www.alaskacommunications.com/Shop/Plans/Mobile-Broadband.aspx>; *see also* <http://www.alaskacommunications.com/Shop/Plans/~media/Files/pdf/ACSAAlaskaCoverageMap.ashx> and <http://www.alaskacommunications.com/Shop/Plans/~media/Files/pdf/ACSNationwideCoverageMap.ashx> (last accessed May 23, 2011) (providing coverage maps that provide consumers with layered readings of service quality (*e.g.*, EV-DO Rev. A, 1xRTT, voice)); Alaska Communications Systems, <http://www.alaskacommunications.com/Shop/Plans/Mobile-Broadband.aspx> (last accessed May 24, 2011).

- Bluegrass Cellular provides data on maximum speeds for its nationwide 3G EV-DO service, including maximum speeds for phones, smartphones, and wireless modems.¹⁹

CTIA and its members also have developed the Wireless Consumer Checklist Initiative (“Initiative”), an innovative effort that, among other things, provides even greater transparency regarding wireless services and plans and assists consumers in obtaining exactly the type of performance-related information that is most useful to their assessment of which services to purchase.²⁰ The Initiative already has produced two separate checklists that contain standardized questions for consumers to ask customer service representatives when selecting among wireless service options, including questions about a wireless carrier’s service and device offerings; coverage area; contract terms; trial periods; plans and devices; and terms and charges for specific voice, text, data services and devices.²¹ By supplying customers with practical information and tools, these checklists demonstrate, yet again, the wireless industry’s responsiveness and commitment to transparency. They also show that new disclosure mandates are not necessary to ensure that consumers receive accurate and meaningful information regarding wireless broadband services.

In addition to industry efforts, third parties conduct studies and offer niche applications that provide valuable information to consumers regarding broadband performance. For instance, consumers can readily download speed test applications directly to their devices, which provide

¹⁹ Bluegrass Cellular, Nationwide 3G EV-DO, http://bluegrasscellular.com/network/nationwide_3g_ev_do (last accessed May 23, 2011).

²⁰ See Public Notice at 2.

²¹ CTIA, Wireless Consumer Checklist Initiative, General Wireless FAQ, *available at* <http://files.ctia.org/pdf/WirelessFAQ.pdf> (last accessed May 24, 2011); CTIA, Wireless Consumer Checklist Initiative, Checklist for Choosing Your Service and Device, *available at* <http://files.ctia.org/pdf/Checklist.pdf> (last accessed May 24, 2011).

instant data on network speed for their particular device.²² Similarly, PC World and others conduct extensive testing of wireless broadband services and summarize data rates, network performance, average upload and download speeds, and reliability.²³

II. PROVIDING DETAILED SPEED AND PERFORMANCE DATA ABOUT WIRELESS SERVICES IS NOT TECHNICALLY FEASIBLE AT THIS TIME.

Although the Public Notice seeks comment on the merits of providing certain extraordinarily detailed speed and performance-related information to consumers,²⁴ it seems to assume, erroneously, that such information is actually available for wireless broadband services. Carriers already voluntarily provide broadband speed and performance information to customers in as granular a fashion as is feasible given the unique characteristics of wireless broadband service. As discussed below, wireless data rates and service performance are extremely dynamic. Wireless service providers are not presently able to provide the kind of precise, detailed, quantitative data discussed in the Public Notice with reliable accuracy. Providing detailed speed and performance data for every possible device, used in every possible location, accounting for every possible spectrum capacity scenario, is not technically feasible at this time.

²² See, e.g., Speedtest.net Mobile, available at <http://www.appbrain.com/app/speedtest-net-mobile/org.zwanoo.android.speedtest> (last accessed May 25, 2011) (Android app); Speedtest.net Mobile Speed Test, available at <http://itunes.apple.com/us/app/speedtest-net-mobile-speed/id300704847?mt=8> (last accessed May 25, 2011) (iPhone app).

²³ See, e.g., Mark Sullivan, *4G Speed Tests: Which Is Really the Fastest?*, PC WORLD (Mar. 13, 2011), available at http://www.pcworld.com/article/221931/4g_wireless_speed_tests_which_is_really_the_fastest.html (last accessed May 25, 2011) (“4G Speed Tests”); Mark Sullivan, *AT&T Roars Back in PCWorld’s Second 3G Wireless Performance Test*, PC WORLD (Feb. 22, 2010), available at http://www.pcworld.com/article/189592/atandt_roars_back_in_pcworlds_second_3g_wireless_performance_test.html (last accessed May 25, 2011). PC Mag conducted similar tests in 18 cities across the country and published charts comparing average and maximum upload and download speeds. Sascha Segan, *The Fastest Mobile Networks 2010*, PC MAG (June 3, 2010), available at <http://www.pcmag.com/article2/0,2817,2364263,00.asp> (last accessed May 25, 2011) (“Fastest Mobile Networks 2010”).

²⁴ See Public Notice at 2-3.

Even if it was, the sheer volume of information would be highly unreliable, confusing, overwhelming, and unhelpful to many consumers.

As an initial matter, CTIA cautions the Commission against comparing wireless and fixed broadband services, whether based on speeds or other metrics. Although wireless broadband is critical to the nation's broadband connectivity, wireless broadband networks are very different from wireline broadband networks. Both provide Internet connectivity, but each service has distinct attributes and limitations due to their underlying technologies.²⁵ Therefore, attempting to compare speed and data measurements for each type of service is not helpful for consumers as they evaluate their choices within the entire broadband market.

The Commission itself has acknowledged that the unique characteristics of wireless service limit the accuracy and feasibility of large-scale efforts to measure wireless broadband speeds.²⁶ For example, it recently noted that a variety of conditions make it difficult to achieve peak speeds for mobile broadband services, including:

[R]adio frequency (RF) factors such as signal strength and interference level, which vary with the user's location relative to the site and are affected by factors such as distance, terrain, foliage, buildings, walls, and speed, as well as loading conditions (*i.e.*, the number of users that are sharing the total bandwidth available in a sector).²⁷

²⁵ For instance, wireless broadband is inherently mobile and provides consumers with broadband wherever and whenever they want access. Fixed broadband is significantly less flexible but sometimes promises faster speeds than wireless options, which are constrained by spectrum limitations.

²⁶ See, e.g., *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 10-159, Seventh Broadband Progress Report and Order on Reconsideration, FCC 11-78, 16-17 (rel. May 20, 2011) ("Seventh Broadband Progress Report"); *The Broadband Availability Gap*, Omnibus Broadband Initiative Technical Paper 1, FCC, at 66, available at Appendix to *Connect America Fund A National Broadband Plan for Our Future High-Cost Universal Service Support*, Notice of Inquiry and Notice of Proposed Rulemaking, 25 FCC Rcd 6657 (2010) ("Broadband Availability Gap") (recognizing that "a wireless network has several layers of complexity that . . . affect the user experience").

²⁷ Seventh Broadband Progress Report at n. 114.

Moreover, cell capacity is shared between all services running over the network. In addition, wireless networks are RF-based and subject to blockage and fading,²⁸ unlike wireline networks. Thus, contrary to the assumptions implicit in the Public Notice, providing extremely detailed speed and performance information with reliable accuracy is nearly impossible for wireless carriers.

Device disparities also can have a critical impact on speed and performance data measurements.²⁹ There is a wide range of end-user device types, which “vary in their peak bandwidth capabilities [and] have different types of antennas [and] form factors.”³⁰ User devices handle data differently depending on their operating system, digital signal processor (and chip sets), antenna sensitivity, and other manufactured components.³¹ Therefore, even if carriers were able to control for all of the network measurement factors mentioned above – which they are not (especially the user’s mobility) – they could not gather and provide the extremely detailed information contemplated by the Public Notice for all devices in all localities in a way that is accurate and meaningful for an individual consumer.³²

²⁸ For example, signal strength can drop by a factor of several thousand, or 30-40 dB, as a result of Rayleigh fading. *See* http://en.wikipedia.org/wiki/Rayleigh_fading.

²⁹ As CTIA has discussed previously, the integrated nature of devices used on wireless networks significantly affects speed and performance measurements; obtaining such measurements is not as easy as porting over the SamKnows measurement model used for DSL, fiber, and cable broadband connections. Comments of CTIA – The Wireless Association®, CG Docket No. 09-158, 15-17 (filed July 8, 2010).

³⁰ Broadband Availability Gap at 66.

³¹ Even the unbiased studies mentioned earlier recognize the difficulty in providing “precise” speed and performance information to consumers. *See, e.g.*, 4G Speed Tests at 2 (noting that the speed test results were affected by the use of “different smartphones on different networks” and the limitations of each unique smartphone’s “radio chipset, processor and battery”); *see also* Fastest Mobile Networks 2010 at 3 (noting same regarding each device’s processor, video chip or browser).

³² Of note, carriers often support devices that consumers bring with them from other networks and service providers, even if the carrier does not typically sell such devices directly.

The variations discussed above were confirmed when CTIA conducted its own unscientific, but real-world, speed test across multiple wireless devices and carriers in July 2010. CTIA discovered that there can be as much as a 97% drop in speed, followed by a 1,200% increase, in a single three-minute period *even when the devices are kept stationary*.³³ The speed measurements varied wildly, not only among devices and networks, but even across the same device.³⁴ Even more shocking, the highest and lowest speeds recorded, 5.5 Mbps and 138 kbps respectively, were recorded on the same device just one minute apart. These examples underscore how nearly impossible it is for carriers to provide comprehensive, detailed speed and performance information or speed “forecasts.”

III. NO NEW SPEED AND DISCLOSURE MANDATES ARE NECESSARY OR APPROPRIATE AT THIS TIME TO MEET CONSUMER EXPECTATIONS.

Driven by competition and consumer demand, carriers have each developed a rational, meaningful, and technically feasible methodology for disclosing data speeds to customers. Fundamentally, it appears that consumers generally want to ensure that their wireless broadband service can support a wide range of voice, video, and data services and applications; they do not appear concerned about latency, jitter, or the other very technical and detailed data anticipated by the Public Notice.³⁵ To address consumer’s concerns, carriers provide key information about peak and average upload and download data rates, as well as coverage maps that provide granular information on availability and likely speeds in a consumer-friendly format.

³³ CTIA tested six devices from four national wireless broadband providers. The test was done in one- to two-minute intervals in a fixed location at CTIA’s offices. All six devices downloaded the same file from the same host. All six devices remained perfectly stationary for the pendency of the test.

³⁴ For instance, identical models of a smart phone on a single carrier’s network recorded speeds from 442 kbps to 1.8 Mbps.

³⁵ See Public Notice at 3.

Any new mandates or prescriptive regulations would be premature at this time. The intense competition among wireless providers will continue to spur additional innovation in the disclosure of key speed and performance information to consumers, and the Commission should not disturb the competitive wireless market with unnecessary and overly burdensome regulations. Moreover, to the extent that the Commission is seeking disclosures on additional categories of data, it has not resolved pending proceedings addressing how carriers might access or gather such data given the difficulties in measuring the speed and performance of wireless broadband services.³⁶ Instead of searching for new potential regulatory mandates, the Commission should support voluntary industry disclosure practices and third-party efforts, including the widely available published reports and studies, and the informative application tools discussed above.³⁷

In addition, consumers' predominant interest in adequate bandwidth for video and other applications underscores the need for the Commission to provide additional spectrum with wider channels to meet rapidly growing consumer demand for wireless broadband services. The greatest inhibitor to mobile broadband speeds is the lack of access to adequate spectrum. Thus, the Commission should continue to focus on finding and allocating additional spectrum for mobile broadband services.

IV. CONCLUSION

For the foregoing reasons, CTIA urges the Commission to support current, voluntary industry practices and third-party efforts to inform consumers about wireless broadband speeds and performance, and to refrain from imposing new mandates in this area.

³⁶ *Comment Sought on Measurement of Mobile Broadband Network Performance and Coverage*, Public Notice, DA 10-988 (2010) ("Notice").

³⁷ *See id.*

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