

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
)	
Comment Sought on Performance Measures)	WC Docket No. 10-90
For Connect America High-Cost Universal)	
Service Support Recipients)	

To: Chief, Wireline Competition Bureau
Chief, Wireless Telecommunications Bureau
Chief, Office of Engineering and Technology

**COMMENTS OF THE
WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

The Wireless Internet Service Providers Association (“WISPA”) hereby responds to the request of the Wireline Competition Bureau, the Wireless Telecommunications Bureau and the Office of Engineering and Technology (together, the “Bureaus”) to refresh the record regarding performance measurement methods, parameters and enforcement for the Connect America Fund (“CAF”) high-cost support programs.¹ In general, with the modifications and clarifications described below, WISPA supports the proposals advanced by USTelecom, which will promote flexibility while still ensuring that high-cost recipients are accountable to the Commission and to consumers in high-cost areas that will be the beneficiaries of CAF financial support.²

Background

WISPA represents the interests of wireless Internet service providers (“WISPs”) that provide IP-based fixed broadband services to consumers, businesses, first responders, and community anchor institutions across the country. WISPA’s members include more than 800 WISPs, equipment manufacturers, distributors and other entities committed to providing

¹ See *Public Notice*, “Comment Sought on Performance Measures for Connect America High-Cost Universal Support Recipients,” DA 17-1085 (rel. Nov. 6, 2017) (“*Public Notice*”).

² See Letter from Kevin G. Rupy, Vice President, Law & Policy, USTelecom, to Marlene Dortch, FCC Secretary, WC Docket No. 10-90 (filed May 23, 2017) (“USTelecom Proposal”).

affordable and competitive fixed broadband services. WISPs use unlicensed spectrum, lightly-licensed spectrum (or “shared access” spectrum) and licensed spectrum to deliver last-mile broadband and voice services to millions of consumers. Many WISPs also rely on underground and aerial fiber to deploy hybrid wireless/fiber broadband networks where it is economically feasible for them to do so.

A recent poll of WISPA’s membership illustrates the small size and rural focus of its operator members. The vast majority of respondents – 76.7 percent – reported serving 2,000 or fewer residential customers, and more than 56 percent reported having 1,000 or fewer residential customers. More than 75 percent of respondents indicated that they serve primarily rural areas. More than half of the 196 respondents have one to five full-time employees, almost 70 percent have ten or fewer full-time employees, and 88 percent have 25 or fewer employees.

WISPA’s interest in this proceeding is two-fold. First, WISPA members are recipients of Rural Broadband Experiment support. Second, WISPA members are likely to participate in the upcoming Connect America Fund (“CAF”) Phase II reverse auction. In each case, the requirements adopted pursuant to the *Public Notice* will impose measurement and other burdens on those members that participate in these high-cost programs.

In comments filed in response to the Bureaus’ October 16, 2014 Public Notice,³ WISPA asked the Commission to exempt small broadband providers from any additional burdens and costs, noting that the proposals “seem to have been written primarily with large broadband providers in mind.”⁴ Among other things, WISPA stated that “[i]mposing onerous testing and record-keeping requirements on small broadband providers also will chill participation in the

³ See *Public Notice*, “Wireline Competition Bureau, Wireless Telecommunications Bureau, and the Office of Engineering and Technology Seek Comment on Proposed Methodology for Connect America High-Cost Universal Service Support Recipients to Measure and Report Speed and Latency Performance to Fixed Locations,” DA 14-1499 (rel. Oct. 16, 2014) (“2014 Public Notice”).

⁴ Comments of WISPA, WC Docket No. 10-90 (filed Dec. 22, 2014), at 2.

Phase II bidding. Some small providers may refuse to participate in the competitive bidding process if they foresee significant additional costs that outweigh the potential financial benefit.”⁵ WISPA also asked the Commission (or USAC) to conduct audits only “for cause,” and not for administrative errors or late-filing of required reports.⁶

WISPA appreciates the opportunity to “refresh the record,”⁷ and to respond to the USTelecom Proposal. As the Bureaus consider the record, they should remain mindful of the financial and human resource constraints inherent in small providers. As WISPA has stated in other filings regarding the CAF proceeding, the rules and requirements should encourage robust participation in the upcoming reverse auction by large and small providers.⁸ Applying onerous “one size fits all” regulatory obligations on small providers could discourage auction participation – with fewer bidders, the auction will be less competitive and less successful.

Discussion

I. THE COMMISSION SHOULD AFFORD HIGH-COST RECIPIENTS FLEXIBILITY IN HOW TO MEASURE BROADBAND PERFORMANCE

Noting that “technology has continued to improve,”⁹ the Bureaus seek comment on whether all high-cost recipients should be subject to the same testing method options and, if not, what options the Bureaus should consider.¹⁰ WISPA believes that recipients should be permitted to use a variety of affordable and reliable methods to measure broadband speed. If reliable speed-testing options are already incorporated into network management software or readily available to broadband providers, recipients should not be required to purchase expensive

⁵ *Id.* at 4.

⁶ *See id.* at 5.

⁷ *Public Notice* at 3.

⁸ *See, e.g.,* Comments of WISPA, AU Docket No. 17-182 and WC Docket No. 10-90 (filed Sept. 18, 2017).

⁹ *Public Notice* at 3.

¹⁰ *See id.*

solutions.¹¹ This flexibility will be especially beneficial to small providers that have or can purchase reliable speed measurement tools at low cost. As USTelecom stated, “determinations are best made by individual ETCs, given the broad range of factors they must assess, which can include the cost of individual solutions and their ease of implementation.”¹²

In its March 18, 2015 ex parte letter, USTelecom described four approaches for measuring broadband performance: (1) “software installed on the residential gateway that would regularly initiate speed and latency testing against performance collection servers in the network,” (2) “a hardware solution that involves the placement of ‘white boxes’ similar to those used in the Measuring Broadband America (MBA) initiative,” (3) “installation of Raspberry Pi micro-computers that are pre-loaded with the necessary speed testing code on the device,” and (4) “place[ment of] the Raspberry Pi micro-computer on the ISP’s digital subscriber line access multiplexer (DSLAM).”¹³ Although installing a hardware “white box” solution may be more expensive and installing Raspberry Pi on a DSLAM is not appropriate for fixed wireless technology, WISPA agrees that each of these four alternatives is reliable and should be deemed an acceptable testing method.

In addition, there are other speed-testing methods that broadband providers have found to be affordable and reliable, at least in some circumstances. These include the following:

Deep Packet Inspection (“DPI”) – Many large service providers, and some small/medium providers, use DPI platforms from Procera (and its recently acquired subsidiary

¹¹ See, e.g., *Network Traffic Management and the Evolving Internet*, Institute of Electrical and Electronics Engineers (Nov. 2, 2010) at 10, available at <https://ieeeyusa.org/wp-content/uploads/2017/07/IEEEUSAWP-NTM2010.pdf> (“[t]o respond to this bandwidth utilization reality, service providers rely on a range of network management tools and techniques, as well as other approaches, to service these demands on a dynamic and on-going basis”).

¹² USTelecom Proposal at 7.

¹³ Letter from Kevin G. Rupy, Vice President, Law & Policy, USTelecom, to Marlene Dortch, FCC Secretary, WC Docket No. 10-90 (filed March 18, 2015), at 1-2.

Sandvine), Allot, Cisco, and many others. These platforms constantly measure latency, packet loss and throughput as a way of measuring Quality of Experience (“QoE”). They detect congestion and apply operator defined “reasonable network management policy” based on the QoE metrics. These platforms gather a large amount of data, from which average latency and throughput metrics can be extracted. This methodology, if well defined, would likely be supported by the larger recipients that can leverage existing equipment and reports. Most importantly, this method does not create any synthetic traffic that will congest networks while the speed tests are run.

Iperf – Iperf is a widely used tool for network measurement and tuning. It can be deployed across any network to produce standardized test measurements and results. Iperf requires software functionality at both the access point and the end user location and can create data streams to measure throughput between the two ends in one or both directions. Some customer premise equipment (“CPE”) already has Iperf software built in, and others have similar test tools built in that can be remotely triggered. Unlike DPI, Iperf generates synthetic traffic that can increase network load and decrease throughput during the testing time. It is also more difficult to implement due to the need to add test servers and modify CPE firmware. Typical Iperf output contains a time-stamped report of the amount of data transferred and the throughput measured.

High-cost recipients should not be limited by current technologies, nor should they be required to expend substantial sums to purchase standardized performance hardware, software or applications. Mandating expensive measurement tools is likely to chill participation by small broadband providers in the CAF reverse auction, contrary to the Commission’s efforts to encourage participation by small providers. Instead, so long as a recipient identifies the testing

method and certifies to the accuracy of the testing method(s) and results, it should have the flexibility to employ whatever internal or external hardware or software network management tools it chooses and to change tools over time.¹⁴ If Commission staff is unfamiliar with the testing method or has concerns about the results, it can request further information from the recipient and, if the answers about the method are not satisfactory, can conduct an audit.

II. THE COMMISSION SHOULD ADOPT USTELECOM'S PROPOSAL REGARDING SPEED TESTING PARAMETERS

The USTelecom Proposal offers a comprehensive alternative to the testing parameters the Bureaus proposed in the *2014 Public Notice*. As compared to the Bureaus' proposal,¹⁵ USTelecom would afford high-cost recipients greater flexibility with respect to the number of customers subject to testing and the times at which testing would be required to occur. WISPA supports this proposal and urges its adoption.

WISPA agrees that, for a given reporting year, the number of subscribers/locations should be the lesser of 20 percent of HUBB input locations with subscribers or 50 subscribers per state. This would provide recipients with an option in cases where there may be fewer than 50 subscriber locations available to test, a scenario more likely to occur in the first years following the award of CAF support when there would be fewer subscriber locations to test. Over time, it can be expected that subscribership levels will increase such that the lesser number will be 50 locations, as the Commission proposed in 2014. As USTelecom stated, this "approach would ensure that the Commission receives a statistically significant sample of broadband

¹⁴ See USTelecom Proposal at 6-8 (urging flexible approach with either hardware or software measurement methods).

¹⁵ The Bureaus proposed to require measurements to be made to a minimum of 50 randomly selected customer locations once hourly during 7:00-11:00 pm over four consecutive weeks and require 95 percent of measurements to be at or above the applicable speed. See *2014 Public Notice*.

locations for broadband measurement obligations under the CAF, while not overburdening ETCs that may have a smaller universe of potential testing locations.”¹⁶

WISPA also agrees that the testing window should be expanded in the manner USTelecom suggests.¹⁷ Depending on network capabilities and the testing method a recipient employs, testing the required number of subscribers during a specified time window could increase congestion on a network. Moreover, the definition of “peak” times may differ from location to location or season to season such that the “historical data showing that the peak period typically falls during the evening hours” may not, in fact, be true.¹⁸ When actual peak hours occur would, especially in rural areas, be affected by circumstances such as the prevalence of home-based businesses, the days when school is in session, the time of day when agricultural tasks occur, or the seasons when the harvest takes place. Measuring speed at different time slots would enable recipients to obtain a real-world understanding of when peak periods occur.

III. THE COMMISSION SHOULD ADOPT THE COMPLIANCE AND CERTIFICATION FRAMEWORK PROPOSED BY USTELECOM

The Bureaus ask whether they should adopt USTelecom’s proposal for a compliance and certification framework with respect to speed performance.¹⁹ Under this proposal, a high-cost recipient would certify on Form 481 that it meets one of five tiers for download and upload speeds for the applicable state.²⁰ USTelecom also proposes gradations of remediation, including increased reporting, suspension of funds and support recovery, based on the level of non-compliance.²¹ WISPA generally supports USTelecom’s plan as a fair and reasonable approach

¹⁶ USTelecom Proposal at 3.

¹⁷ *See id.* at 4.

¹⁸ *Public Notice* at 5.

¹⁹ *See id.* at 6.

²⁰ *See* USTelecom Proposal at 4-6

²¹ *See id.* at Exhibit A.

to ensuring compliance with the required speed performance and making recipients accountable to the Commission.²²

WISPA observes, however, that the framework that would be created penalizes non-compliance with broadband speed requirements more severely than non-compliance with build-out milestones established in Section 54.320(d) of the Commission's Rules.²³ As applied, a recipient reporting a 40 percent speed measurement compliance gap would be in Tier 4 remediation whereas a recipient reporting a 40 percent build-out compliance gap would be in Tier 3 remediation. In other words, a recipient that provides broadband service to 60 percent of eligible locations at full speed would be subject to stricter remediation procedures than a recipient that provides service to 100 percent of eligible locations at a speed that falls short – maybe just short – of the required threshold. To further illustrate this point, a CAF Phase II bidder accepting support for the Gigabit Tier that provides “only” 500 Mbps download service to the requisite percentage of eligible locations at a given build-out milestone could be worse off than a recipient who provides gigabit download speed to just a handful of eligible locations at the milestone, and no service the vast majority of eligible locations. This outcome would disproportionately penalize speed over build-out, a result that WISPA believes is contrary to the goals of the CAF program and the public interest.

²² WISPA also recommends a few clarifications to the proposed Tier 4 remediation status suggested by USTelecom. First, it should be made clear that USAC will commence recovery action if the annual test set remains in Tier 4 for two *consecutive* quarterly reporting periods, not just two quarterly reporting periods that could be non-consecutive. Second, it should be made clear that USAC will commence recovery action for a percentage of support *that has already been disbursed*. WISPA believes that these changes correspond to USTelecom's intention, but including the italicized language will ensure greater clarity and avoid differing or inconsistent interpretations.

²³ The Commission adopted Section 54.320(d) on December 11, 2014, but did not at that time adopt rules regarding non-compliance with speed measurement. *See Connect America Fund, et al.*, 29 FCC Rcd 15644, 15693-99 (2014). Because the build-out non-compliance rule has already been codified, it is not subject to change by the Bureaus in this proceeding. Accordingly, efforts to adopt requirements that better balance the nature of the compliance gap can occur only with respect to the speed measurement compliance obligations at issue here.

To remedy this anomaly, WISPA recommends that the USTelecom Proposal be adjusted as follows:²⁴

Tier 1 – the ETC has a speed compliance gap of at least five percent but less than 25 percent of the number of locations.

Tier 2 – the ETC has a speed compliance gap of at least 25 percent but less than 40 percent of the number of locations.

Tier 3 – the ETC has a speed compliance gap of at least 40 percent but less than 60 percent of the number of locations.

Tier 4 – the ETC has a speed compliance gap of 60 percent or more.

WISPA believes that this approach more appropriately balances the impact on consumers of the two different categories of non-compliance by subjecting a recipient that does not meet its build-out obligations to a higher degree of remediation than a recipient that builds out and provides some level of service but falls short on meeting its speed threshold.

Second, WISPA notes that, in rare cases, a high-cost recipient may not be in compliance with both the speed measurements *and* the build-out requirements in Section 54.320(d). That could present the problem of a recipient being subject to withholding of monthly support for both instances of non-compliance. In the most extreme case, a recipient in Tier 4 for non-compliance with both speed and build-out could be subject to a 100 percent reduction in support (50 percent for each category of non-compliance), in addition to recovery of support already disbursed. While a recipient in Tier 4 status is obviously in dire straits, total suspension of support plus recovery of disbursed support provides the recipient with virtually no means to undertake the build-out and/or upgrade necessary to come into compliance.

²⁴ The tiers for non-compliance with a high-cost recipient's speed requirements should be expressed in the same manner as the tiers established in Section 54.320(d). That is, the tier categories should be expressed as deficiency levels, not compliance levels.

To address this “double jeopardy” concern, WISPA recommends that the Commission make clear that a high-cost recipient subject to support reduction for non-compliance with *both* speed and build-out milestones should have its support reduced by the greater of the two percentage amounts and not the combined percentage amount that might otherwise be required. WISPA believes this result is fair and reasonable and will afford non-compliant recipients a greater opportunity to come into compliance and meet the objectives of the Commission’s high-cost programs.

Conclusion

As the foregoing demonstrates, WISPA is in general agreement with the flexible speed measurement testing methods and parameters USTelecom has proposed. With the clarifications and modifications discussed above, WISPA also recommends adoption of USTelecom’s proposed non-compliance approach.

Respectfully submitted,

WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

December 6, 2017

By: /s/ *Chuck Hogg*, Chairman of the Board
/s/ *Mark Radabaugh*, FCC Committee Chair
/s/ *Fred Goldstein*, Technical Consultant

Stephen E. Coran
Lerman Senter PLLC
2001 L Street, NW, Suite 400
Washington, DC 20036
(202) 429-8970
Counsel to the Wireless Internet Service Providers Association