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FILED/ACCEPTED

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Federal Communications Commission
Office of the Secretary

December 14, 2009

Marlene H. Dortch
Secretary
Federal Communications Commission
Office of the Secretary
c/o Natek, Inc.
236 Massachusetts Avenue, N.E.
Suite 110
Washington, DC 2002

Re: Broadband Measurement and Transparency of Fixed and Small Business Services in the United States (GN Docket Nos. 09-47, 09-51 and 09-137)

Dear Ms. Dortch:

On behalf of The Nielsen Company ("Nielsen") please find an original and four (4) copies of the above-referenced public filing. A confidential version of this filing has also been submitted today through your office.

Kindly have your staff date-stamp the extra copy of the filing and return it to the awaiting courier.

Respectfully submitted,

Judith L. Harris
Amy S. Mushahwar

JLH/ASM:lsj

Enclosures

PUBLIC VERSION
REDACTED FOR PUBLIC INSPECTION

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.

In the Matter of	)	
	)	
Broadband Measurement and Consumer Transparency of Fixed Residential and Small Business Services in the United States.	)))	GN Docket Nos. 09-47, 09-51 and 09-137 DA 09-2474
	)	

To: Office of the Secretary

COMMENTS OF THE NIELSEN COMPANY TO NBP PUBLIC NOTICE # 24

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December 14, 2009

PUBLIC VERSION
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TABLE OF CONTENTS

I. INTRODUCTION & SUMMARY 1

II. GOING FORWARD CUSTOMER EXPERIENCE DATA MEASUREMENT METRICS 3

A. Network Monitoring Locations: Going Forward, Broadband Service Quality Should Be Measured Using a Multi-Faceted Approach 5

B. Performance Characteristics That Should Be Measured 7

C. Speed Reporting Metrics 9

D. Quality of Service Measurement and Reporting 11

III. CUSTOMER EXPERIENCE PANEL CONFIGURATION 12

IV. HOSTING, AUDITING AND TRACKING CONSUMER EXPERIENCE DATA MEASUREMENT 13

V. BENEFITS AND COSTS OF MEASUREMENT FOR PROVIDERS, REGULATORS, END-USER CONSUMERS 15

A. Consumer Perceived Broadband Quality Data Would Provide a Number of Benefits 15

B. Cost Estimate for Providing Consumer Perceived Data 17

C. Privacy / Security Considerations of Data Collection 19

VI. BROADBAND PANELS COULD BE DEVELOPED THAT WOULD MEASURE RURAL GEOGRAPHIES 20

VII. CONCLUSION 22

EXHIBITS 23

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To: Office of the Secretary

COMMENTS OF THE NIELSEN COMPANY TO NBP PUBLIC NOTICE # 24

The Nielsen Company ("Nielsen"), by its attorneys, hereby submits its comments to the above-captioned public notice (the "Notice"). Therein, the Commission sought comment regarding the measurement, tracking and reporting of fixed broadband services, and Nielsen responds by providing methodological guidance on how consumer-perceived broadband network quality could be measured on a national and more granular basis.

I. INTRODUCTION & SUMMARY

The Nielsen Company is the world's #1 market research firm, and Nielsen monitors consumer media, telecommunications and Internet habits on behalf of its customers. Active in more than 100 countries, the company's major business segments include retail measurement services (ScanTrack); household consumer panels (Nielsen Homescan); media measurement business Nielsen Media Research; leading Internet measurement service, Nielsen Online; and telecom performance measurement service Nielsen Telecom; and the foremost market segmentation experts, Nielsen Claritas.

With Nielsen's wealth of consumer experience across all viewing screens, it realizes that, on the Internet, it's all about speed. However, a modern-day challenge presents itself when a customer attempts to define and measure speed, or compare competitive broadband offerings. All too often, consumers have little to no information to compare actual broadband network performance in a given area. Nielsen Online, through its Online and Telecom divisions has considerable expertise measuring the consumer usage and experience on broadband networks, including the capability to report a consumer's download and upload throughput levels based on a users actual broadband usage. Nielsen Claritas further supplements Nielsen Online's experience by providing expert measurement scientists who specialize in breaking down the national customer experience data into discrete market segments (by geography or by other demographic information).

Nielsen has developed a consumer experience benchmarking service focused on measuring broadband service quality, and in particular consumer throughput speeds and network latencies. Its broadband service quality product reports customer perceived download and upload throughput based on observed behavior in the Nielsen Online panels, in which Nielsen has transaction-level HTTP download and upload data for over 100,000 unique household panelists in the domestic United States, with an ever-expanding international presence. Nielsen relies on its experience in wireless broadband measurement, broadband usage measurement and broadband service quality development in providing these comments on customer experience data measurement for fixed broadband services.

A customer's broadband experience data—objective data collected from an actual consumer browsing activities—would benefit the FCC, consumers and broadband service providers, alike by:

- Measuring the end-user experience, a necessary ingredient in understanding broadband service quality;
- Measuring broadband service quality on a more localized basis, including rural populations, tribal lands and customers of small Internet service providers;
- Permitting a means for validating broadband service quality through the use of a trusted third party; and
- Providing much consumer benefit with only minimal (and consensual) intrusion on the privacy of the actual panelists involved.

Nielsen strongly recommends a test approach that incorporates the consumer behavior environment as part of a larger, end-to-end broadband network service measurement. Without the consumer-based measurement, the full end-to-end service quality cannot be accurately represented.

II. GOING FORWARD CUSTOMER EXPERIENCE DATA MEASUREMENT METRICS

Currently, the user community has limited ability to scrutinize network performance on anything other than an anecdotal basis or ad hoc, user-initiated network speed tests. Broadband service providers internally measure their own broadband speeds and self-report those speeds to the FCC with little independent verification. As the FCC has recognized existing data collection processes have left a gap in the amount of information consumers have about actual performance of broadband service. 1/ And, as the broadband service providers' comments in the FCC's Truth-in-Billing proceeding have made clear, consumers have some data available to them when selecting a broadband provider, such as word of mouth advertising,

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1/ *See* Broadband Gaps, FCC Open Meeting PowerPoint, November 18, 2009, *available at* http://www.fcc.gov/Daily_Releases/Daily_Business/2009/db1118/DOC-294708A1.pdf.

broadband service provider advertisements, consumer organizations (*e.g.*, Consumer Reports and J.D. Power and Associates) and websites (*e.g.*, broadbandreports.com and cnet.com). 2/ But, all of these sources have inherent short comings, such as: (1) in word of mouth advertising, speed data is colloquial and cannot be replicated; (2) in broadband service provider advertising, broadband service providers provide little concrete data; 3/, (3) in consumer organization surveys, the organizations do not independently verify network quality data, rather, they survey residential customers and rely on customer response information 4/ and (4) websites, such as broadbandreports.com and cnet.com, provide some speed data, but not with nearly the granularity needed by a consumer in order to select a broadband service. None of these sources of information enable consumers to identify, in one place, competing broadband providers, network performance, and pricing data for a particular local area. Even the FCC's Form 477 data is reported on a state-by-state basis and contains no geographical breakdown by street data, county or even zip code plus four digits.

2/ *See e.g.,* In re Consumer Information and Disclosure, Truth-in-Billing and Billing Format, and IP-Enabled Services, Comments of Verizon and Verizon Wireless CG Docket No. 09-158, CC Docket No. 98-170, WC Docket No. 04-36 (filed October 13, 2009) at 16-24. *See also,* In re Consumer Information and Disclosure Truth-in-Billing and Billing Format IP-Enabled Services, CG Docket No. 09-158, CC Docket No. 98-170 and WC Docket No. 04-36 (filed October 13, 2009) at 7-9.

3/ *See e.g.*, Verizon Fios Commercials on You Tube *available at:* http://www.youtube.com/watch?v=BuHkwPyih_4 (does not mention Internet speed); http://www.youtube.com/watch?v=QhufnXTQ4rc (calls Verizon's Internet service the fastest Internet, period, but does not mention any network speeds). *See also, e.g.,* AT&T Internet Commercial *available at* http://www.youtube.com/watch?v=utbXk-ya8t0 (mentions that the connection is blazing fast).

4/ *See e.g.*, J.D. Power and Associates Reports: Improvements in Performance and Reliability Drive Increase in Overall Customer Satisfaction with Residential Internet Service Providers, Press Release (October 28, 2009) (Based on customer satisfaction study responses of 23,997 service providers nationwide).

However, there are valid reasons why the broadband service providers have shied away from granular independent performance measurement, including the facts that:

- inconsistent results could be used as "evidence" that advertised services are not being delivered, creating potential exposure to investigators, and possibly actions, by the Federal Trade Commission, state Attorneys' General and the risk of class action lawsuits;
- inconsistent test methodologies might be used which, in turn, would deliver inconsistent results and cause customer confusion;
- unknown test systems and applications environments could be used, which would also deliver inconsistent results and cause customer confusion;
- test results could be misinterpreted; and
- objective analysis might not be performed.

Nielsen believes that with certain protections built in for broadband service providers, a third party broadband measurement system that includes end-user service experience, in-network node tests and / or other third party measurements could be developed that would both alleviate the broadband service providers' concerns and provide consumers with the comparative broadband data necessary to enable them to make informed choices. The optimal solution would compare measurement points internal and external to broadband service provider networks to determine true network capabilities and the external variables (consumers' in-home network infrastructure, terminal configuration, operating system etc.) between the network and end-user that would affect the consumer experience.

A. Network Monitoring Locations: Going Forward, Broadband Service Quality Should Be Measured Using a Multi-Faceted Approach

One of the most useful broadband measurement data for consumers (and broadband service providers) going forward would be network quality data measured from an

individuals' consumer device (or item 6, the computer, in the Public Notice diagram). However, as stated above, a complete end-to-end system is required to thoroughly understand the service "available" to the user and actual service experienced by the end consumer. A number of variables can create additional confusion around service availability if there are not multiple measurement points within the path a consumer utilizes for broadband services. Variables include, but are not limited to, the network capability, the service level subscribed to by the consumer, the consumer's home infrastructure (Wi-Fi, fixed line, routers, etc.) and the consumer's terminal configuration. It is critical to compare these variables on an ongoing basis to truly understand the impacts of service quality. Otherwise, broadband service provider measurements from inside their own networks may not take into account any number of factors that could impact customer perceived broadband quality such as: (1) the distance of an individual's line from a central office; (2) last mile network congestion; and (3) third party factors, such as congestion on websites that are not hosted by the broadband service provider. Conversely, a measurement tool only taking into account the end user experience would not identify impacts that are outside the reach of a broadband service provider offering a commercial service. Such factors could result in a great disparity between broadband service provider-reported broadband quality and the actual broadband quality perceived by consumers leading to greater confusion in the marketplace.

Thus, Nielsen recommends that broadband service quality be measured with a multi-faceted approach that includes software installed on an individual user's computer and measurement within a broadband service provider's network. Nielsen defers to other commenters for the most acceptable monitoring beginning and end points on the broadband service provider networks. However, Nielsen provides guidance here regarding the

recommended beginning and end points for customer experience measurement. For upstream communications (or computer to public Internet cloud communications) measured, the software would use the consumer's end user device as an starting point for measurement and the consumer's final destination website on the public Internet as the ending point. 5/ Whereas, for downstream communications, the measurement would be vice-versa; the software would use the destination on the public Internet as the starting point for measurement and the consumer's end user device as the ending point. For example, using the proposed consumer experience measurement structure, if a consumer were browsing the website for the *New York Times*, upstream communications would be measured from that consumer's computer to www.nytimes.com and downstream communications would be measured from www.nytimes.com to the user's computer.

B. Performance Characteristics That Should Be Measured

The performance characteristics that should be measured across the monitoring locations are: (1) the bandwidth of the network; (2) the maximum user-perceived throughput; (3) the network throughput; and (4) broadband service provider service and package classification. Each of these performance characteristics should be measured as described below.

Bandwidth is the line speed or physical capacity from the network monitoring start to end point, as measured from the consumer's perspective. Bandwidth can be measured using discrete download tests sent to the consumer's personal computer three times per day when

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5/ The upstream and downstream communications analysis is simplified for purposes of this filing. Nielsen's measurement includes the IP transactions that would take place to request or receive information from a website, such as, DNS queries.

the machine is on and connected to the Internet. A software program installed locally on the consumer's individual computer could perform these tests automatically. Such tests produce line speed values based on simple a File_Size/Transfer_Time formula which is generated by a controlled synthetic test procedure. File size would be expressed in kilobits or megabits per second.

Maximum User-Perceived Throughput uses the same File Size/Transfer_Time formula mentioned above, but applies that formula to panelists' actual Internet web browsing activities. Nielsen recommends that to measure this value automatically, only HTTP download files over a minimum threshold are identified as valid samples and similarly only files greater that a minimum threshold be considered valid for upload throughput values. 6/

Network Throughput measures file transfer time. Network Throughput is calculated by a more complex formula that adjusts for the TCP/IP network congestion controls TCP Slow Start, 7/ and TCP Window Size. 8/ Attached hereto as Exhibit 1, Nielsen provides an

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6/ Note, however, many variables can cause maximum user-perceived throughput to differ from network throughput and from achievable/available bandwidth. Nielsen attempts to control for some of these variables. But, there are some variables that are out of any Internet traffic research firm's control. These include content provider throttling, multiple users on a connection, and network congestion. In order to control for these variables, Nielsen recommends that the FCC only consider measuring consumers that have a minimum set of valid downloads and uploads for throughput calculations. Then, maximum user-perceived throughput would be calculated by taking the 99-percentile bandwidth for each monitored consumer in the reporting period. The assumption is that at some point during the collection window, the monitored user would hit the maximum allotted speed for the connection.

7/ Transmission Control Protocol (TCP) is a transport layer protocol that establishes a reliable, full duplex, data delivery service used by many TCP/IP application programs. The TCP software uses the IP protocol to transmit information across the Internet. Slow-start, in turn, is part of the congestion control strategy used by TCP. Slow-start is used in conjunction with other algorithms to avoid congesting the network by sending more data than the network is capable of transmitting.

in-depth analysis of how a third party provider could compensate for TCP/IP network congestion controls. **[EXHIBIT REDACTED FOR PUBLIC INSPECTION]**

Service and Package Classification. In addition to developing ways to measure the classic network performance metrics mentioned above, Nielsen is developing a solution to measure a broadband provider's service and package classifications by user. Attached hereto as Exhibit 2, Nielsen provides an in-depth analysis of how a third party provider could evaluate a broadband provider's service and package classifications by an end user's measured performance. **[EXHIBIT REDACTED FOR PUBLIC INSPECTION]**

C. Speed Reporting Metrics

In 2000, the Commission defined broadband as a two-way Internet data service with speeds over 200kbps, and further expanded the definition to include "high-speed" services where speeds exceed 200kbps in one direction, and "advanced services" with speeds exceeding 200kbps in both directions. In 2004, the Commission began collecting this data from broadband service providers based on five "speed tiers," including wideband and ultra-wideband tiers in the 25-100+ Mbps ranges. 9/ New Commission reporting requirements issued in June of last year

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8 / The TCP Window Size is another means for controlling the flow of data and avoiding network congestion; its value is limited to between 2 and 65,535 bytes.

9 *See Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscribership Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership*, Report and Order and Further Notice of Proposed Rulemaking, WC Docket No. 07-38 (rel. June 12, 2009) *available at*: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-89A1.pdf.

added provisions for reporting both upload and download speeds, and adopted new broadband tier classifications with the following updated definitions of broadband:

- First Generation (1996-2007 Broadband): > 200 kbps and < 768 kbps
- Basic Broadband (Tier1): ≥ 768 kbps and < 1.5 mbps
- Broadband Speed Tier2: ≥1.5 mbps and < 3 mbps
- Broadband Speed Tier3: ≥3 mbps and < 6 mbps
- Broadband Speed Tier4: 6 mbps and above

Third-party collection of broadband service quality should align with existing Commission data collection practices. Nielsen suggests the following speed classification reporting tiers to be applied to various service provider offerings and delivery platforms, which would also allow broadband service providers to compare their broadband service offerings to the entire field of competitors.

Table 1

Suggested Broadband Reporting Tiers

1st G	> 200kbps and < 768kbps Download, > 125kbps and < 275kbps Upload
Basic	≥ 768kbps and < 1.5mbps Download, ≥ 225kbps and < 600kbps Upload
Starter	≥ 1.5mbps and < 3 mbps Download, ≥ 400kbps and < 1mbps Upload
Copper-IP Video	≥ 3 mbps and < 6 mbps Download, ≥ 730kbps and < 2 mbps Upload
Bronze-SD Video	≥ 6 mbps and < 10 mbps Download, ≥ 1.3 mbps and < 5 mbps Upload
Silver-HD Video	≥ 10 mbps and < 25 mbps Download,

	≥ 2 mbps and < 10 mbps Upload
Gold-HD+	≥ 25 mbps and < 50 mbps Download, ≥ 4 mbps and < 20 mbps Upload
Platinum-Wideband	≥ 50 mbps and < 100 mbps Download, ≥ 7.5 mbps and < 30 mbps Upload
Titanium-Ultra Wideband	≥ 100 mbps Download, ≥ 14 mbps Upload

D. Quality of Service Measurement and Reporting

Nielsen understands that network speed and quality of service performance characteristics derived from the measurements proposed in these Comments would be extremely sensitive and could involve proprietary data of the broadband service providers. To help in evaluating their sensitivity, Nielsen has attached hereto as Exhibit 3, a detailed chart of the raw data Nielsen believes should be collected for measurement. **[EXHIBIT REDACTED FOR PUBLIC INSPECTION]** Ultimately, Nielsen understands that this data must be reported, not only, to the FCC, but probably also to the public-at-large if consumers are to reap the maximum benefit from the collected information.

However, at this early stage, Nielsen cannot judge which data would be acceptable to release publicly and in what form. Instead, Nielsen would like to work with all relevant parties in order to develop a reporting set of metrics that include a multi-faceted measuring approach that is satisfactory to the Commission, the public and the industry at large. To alleviate broadband service providers' concerns about these data sets, namely regarding their accuracy and potential legal liability that might be generated by their release, Nielsen would like

to suggest the following possible compromise solutions (and would like to work with the broadband service providers, consumers and trade associations to brainstorm more ideas):

- Data Correction Period. To address any concerns about the validity of the data, Nielsen suggests that the Commission provide a three to six month window for broadband service providers to evaluate the reported data. During that period, the data would not be publicly available, but broadband service providers would have access to their individual data results should they wish to dispute or reconcile them.

- Lawsuit 'Safe Harbor' Period. Broadband service providers are concerned that data inconsistent with existing advertising could be used as evidence that advertised services are not being delivered. Nielsen would like to work with broadband service providers to devise an acceptable lawsuit safe harbor period. During this time, broadband service providers would be immune from Federal Trade Commission actions, State Attorneys' General false advertising claims and civil litigation. A brief period of immunity would enable broadband service providers to evaluate any inconsistencies in their advertising and reconcile them with the Commission or amend their advertising accordingly.

III. CUSTOMER EXPERIENCE PANEL CONFIGURATION

To measure customer Internet website and Internet application usage, Nielsen suggests installing software meters on the computers of consumers who expressly opt-in to such measurement via research panels. Nielsen Online has experience with this form of research configuration and shares its experience in this regard.

Nielsen Online has partnered with several established, panel-based market research companies to provide ongoing recruitment of a representative sample of Internet users into the Nielsen Panel. By partnering with existing market research panels, Nielsen is able to reach a large and diverse group of panelists from all demographic groups and in all Internet usage locations. As a general rule, partnering companies send e-mail invitations to their own panel members, introducing them to the Nielsen check research program. Prospective panelists are then directed to the Nielsen panel recruitment website where they are presented with research

program details, including Nielsen Online's privacy policy 10/, and are asked to fill in their demographic profile information. Upon completion of the demographic survey and agreement to the privacy policy, the Nielsen Online patented NetMeter is downloaded to the panelist's computer. Attached hereto as Exhibit 4, Nielsen provides further detail on the collection and recruitment of panelists. **[EXHIBIT REDACTED FOR PUBLIC INSPECTION]**

Nielsen understands that State Broadband Data Development Grant Program mapping is underway in many states and believes that any third party collection of customer-perceived broadband quality data could supplement existing data collection efforts (provided that all parties come to agreement regarding the release of collected data). 11/ Even in states that have allocated funds to established broadband mapping entities, such as Connected Nation in Arkansas, these entities are initially obtaining their data from individual broadband service providers. 12/ Any third party collection of data, as Nielsen proposes here, could assist with verifying broadband service provider data.

IV. HOSTING, AUDITING AND TRACKING CONSUMER EXPERIENCE DATA MEASUREMENT

In the Public Notice, the Commission provided the following possibilities of who could host, audit and track fixed services broadband measurement: (a) the industry with third party auditing, (b) a third-party with the Commission or another third-party for auditing or (c) the

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10/ *See* Section V.C., *infra.*

11/ *See* Section II. E., *supra.*

12/ National Telecommunications and Information Administration Summary of Broadband Mapping Award, Arkansas Grant Award Profile, *available at:* http://www.ntia.doc.gov/broadbandgrants/Broadbandmapping_Arkansas_102609.pdf.

Commission both collecting and auditing the data. Nielsen believes that option (b) is best for the public and consumers alike.

Nielsen Media Research has much familiarity with this model in its television audience measurement panels. Nielsen Media Research is the preeminent entity for television audience ratings measurement and its television audience measurement services have been subject to continuous third party audits and accreditation since 1964 with validation analyses by public entities (such as the Commission and Congress) and members of the industry since 1950. In each review, Nielsen Media Research had an opportunity to reflect and learn even more about the statistical validity and accuracy of its measurement services.

The Commission's option (b), data collection by a third party with auditing by the Commission or another third party, provides the data collecting entity freedom to develop a statistically sound measurement system with sufficient public oversight to ensure that users of the collected data can fully understand and evaluate the validity of the data. It is important to recognize that accurate and reliable audience measurement is not just a matter of having the right technology. It is equally a matter of embedding that technology in an independent, rigorous and statistically based system of selecting samples, gathering data, interpreting that information, and providing it in useable fashion to customers and regulators. The systems and procedures used by Nielsen Media Research to collect, process and deliver data of superior value to customers will-- and should -- be constantly validated and evaluated. If option (b) is ultimately selected by the Commission, any entity should be similarly committed to public oversight and review. For Nielsen, this oversight process has only made its products even better.

In addition, Nielsen Online is currently undergoing a review by The Media Rating Council (MRC). The Council's independent CPAs have completed their audit process covering

NetSight, Nielsen Online's patented meter technology. The meter is currently in use in Nielsen Online's International panels and its U.S. panel, and is now being implemented into the company's other audience measurement products in the U.S. This phase of the MRC's Internet audience measurement accreditation process covered the full range of data collection functionality – including data capture, recording and transmission, post transmission data editing and meter systems development processes.

V. BENEFITS AND COSTS OF MEASUREMENT FOR PROVIDERS, REGULATORS, END-USER CONSUMERS

A. Consumer Perceived Broadband Quality Data Would Provide a Number of Benefits

Accurate broadband data measurements would provide a wealth of benefits for consumers, broadband service providers and regulators alike, including the following: data transparency, pricing, network comparability and increased broadband infrastructure development. Each of these factors are described more fully below.

Data Transparency. Consumers, the Commission and broadband service providers would benefit from the greater data transparency that would result from third-party data measurement. All parties would know exactly how broadband service quality would be measured and at what point or points on the network quality would be measured from. Such data transparency would not permit broadband service providers to solely choose broadband service quality measurements from the most favorable network node locations on their respective networks, thus giving both consumers and the Commission a more accurate picture of broadband service quality. Likewise, with this more accurate picture, broadband service providers could also use unfavorable broadband service quality data to determine if improvements to performance fall within their network or if service improvement is outside their control. If it is determined that improvements can be made within the network, the measurements would allow for more efficient resource allocation improve their networks (or encourage popular websites or applications off their networks to improve service).

Network Pricing Comparability. Also, clearer and comparable broadband service quality data would enable more accurate pricing comparisons among broadband providers in a given area. Consumers and the Commission would be able to evaluate, in any given geographic market, not only the actual customer perceived broadband quality but also the price paid for that level of service. Thus, customers and the Commission would be able to determine which broadband service providers provide the most network value per dollar. Broadband service providers, in turn, could re-evaluate their pricing and service to more closely align with the network value delivered to the consumer in the market. Where a broadband service provider leads in network value in its market, presumably, it could raise its prices to reflect the superior quality of its service. Or, where a broadband service provider delivers more deficient network

value in comparison to its competitors in a given geographic market, it could improve its quality consistent with its peers to enable it to be competitive.

Increased Broadband Infrastructure Development. Consumers, the Commission and broadband service providers could benefit from better broadband service quality data because it could lead to increased broadband infrastructure development. Presumably, where a broadband service provider saw poor broadband service quality in a demographic market with the income to support more subscriptions, that broadband service provider would have an incentive to provide better services and gain more subscribers with service improvements. Alternatively, if the market demographics could not efficiently support greater subscriptions (and the present subscriber base does not economically justify broadband improvements) the broadband service provider and the Commission could discuss whether broadband subsidies could be entertained in the future.

B. Cost Estimate for Providing Consumer Perceived Data

Nielsen would require further information before it could provide a detailed cost estimate. As noted above, there are multiple variables that impact broadband service/performance and the resultant survey research measurement costs. These include but are not limited to the following:

- Broadband service level availability;
- Service provider infrastructure capabilities;
- End user terminal configuration;
- End user in-home network infrastructure;
- End user application usage;

- End user location (urban, rural, tribal, etc.)
- Website host performance.

The Commission's desire to encapsulate all or portions of these variables in a measurement tool will determine the cost of the service. The more functionality that the Commission would require from the tool would result in a higher cost of service. Thus, Nielsen respectfully requests further guidance on what precise variables Nielsen, or any other survey research firm, would measure.

In addition to the functionalities measured, the application/system build life cycle should be considered. When any applications/systems developer determines costs for such a research measurement system, he or she must evaluate the expected longitudinal need for such a study (*i.e.*, 5, 10, 20 years). For longer ongoing studies, the costs would be higher with more ongoing operational costs, ongoing panel recruitment and the initial technology outlay cost. Thus, Nielsen also respectfully requests further guidance on the anticipated longitudinal need of this study.

Even though Nielsen cannot provide precise cost data at this juncture, it is expected that the costs for any multi-faceted broadband quality measurement system would be considerable. And, the Commission should explore methods on how to allocate this cost appropriately. Because the data would be of great value to broadband service providers, perhaps a pooling payment mechanism could be developed, whereby, broadband service providers would each pay a representative share of the cost for this service and the Commission would not have to bear the full brunt of the cost burden. Nielsen welcomes further input from Commission staff, broadband service providers and the public on how the costs for this service could be allocated appropriately among public and private entities.

C. Privacy / Security Considerations of Data Collection

The Nielsen Media Company has been recognized as the gold standard for consumer privacy protection. Nielsen has applied the same care and consideration for privacy matters for which it is known to its broadband service quality measurement panel mobile and online panels. For each panel, Nielsen takes the following privacy disclosure steps and would recommend that the Commission require any third party considered for customer perceived broadband measurement services to do the same.

- All panels are queried on a strict opt-in basis.
- Nielsen provides a clear Privacy Policy and Panel Membership Agreement before <u>any</u> data are collected.
- Nielsen keeps its Privacy Policy in a clear and conspicuous position on its website to continually remind panelists of their data privacy rights.
- Nielsen never uses panel participant information to advertise, promote or market third party goods to panel members.
- Nielsen always aggregates or de-identifies panelist data when they are reported to third parties. Nielsen never provides personally identifiable information ("PII") to third parties (other than in certain customary exceptions, such as vendors performing services on Nielsen's behalf).
- Nielsen has security measures in place (including encryption methods and access protocols) to help protect the security and confidentiality of stored PII at Nielsen.
- Nielsen permits panelists to correct their PII data at any time.

In addition to the current protections for its panels, Nielsen also works with public interest organizations to continually reassess its company-wide privacy compliance. At present, Nielsen is working with the following privacy organizations: the Center for Democracy and Technology, the Digital Policy Forum and the International Association of Privacy Professionals.

VI. BROADBAND PANELS COULD BE DEVELOPED THAT WOULD MEASURE RURAL GEOGRAPHIES

Nielsen is confident that broad panels could be developed that would measure rural geographies that are online, including tribal lands and the areas in which smaller broadband service providers operate. However, Nielsen cautions that, any third party selected to design broadband service measurement studies must customize its recruitment strategies to take into consideration the unique factors of rural and tribal areas, such as:

- Rural and tribal populations often have poor physical addresses.
- Rural and tribal members often use community computers (at a local school or library) that would not permit installation of broadband metering software.
- Rural and tribal members are often not reflected in credit reporting lists, commonly used by survey research firms to verify an individual's address (these individuals often have no economic activity in order to be placed on these credit reporting lists, such as loans, subscriptions, etc.).
- Tribal members are not adequately reflected by race designations.
- Census Bureau records may be less complete in some rural and tribal areas.

Thus, any provider seeking to collect data in these areas should employ compensating controls to ensure that they can accurately measure these regions. Nielsen Claritas,

Nielsen's geographic and demographic profiling survey research arm, has leading experts in the measurement of rural and tribal populations.

Claritas staff, over time, has learned how to work with existing communications and census barriers in order to develop a successful rural and tribal recruitment strategy. It is worth noting that these areas often call for onsite panel recruitment in order to overcome the difficulties of collecting data from these populations remotely. This frequent need for experienced recruitment personnel makes it essential for the Commission to select a company with sufficient numbers of trained personnel to conduct such on-the-ground recruitment.

Given the number of complicating factors for these rural and tribal areas, the Commission should select providers with the ability to: (1) recognize the problems in these areas, (2) develop the appropriate compensating controls for those problems and (3) possess sufficient on-the-ground staffing capabilities should the need arise.

VII. CONCLUSION

For the foregoing reasons, the Nielsen Company respectfully requests that the Commission consider measuring, tracking and reporting consumer-experienced network quality of fixed broadband services, via a third party in the manner outlined herein.

Respectfully Submitted,

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EXHIBITS

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Exhibit 1:	Network Throughput Calculation
Exhibit 2:	Provider Service and Package Classification
Exhibit 3:	Raw Data Collection Detailed Table
Exhibit 4:	Panelist Recruitment, Retention and Management