Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
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. 12-228

COMMENTS OF VIASAT, INC.

ViaSat, Inc. ("ViaSat") hereby responds to the *Ninth Broadband Progress Notice of Inquiry* ("*NOI*") adopted by the Commission on August 15, 2012 in the above-referenced proceeding. Pursuant to Section 706 of the Telecommunications Act of 1996, as amended,[1] the *NOI* solicits "data and information" to help the Commission "evaluate all of the factors that influence the availability of broadband to all Americans" in connection with its next annual report to Congress on the state of deployment of "advanced telecommunications capability" in the United States.[2]

Among other things, the *NOI* seeks comment on the Commission's proposal to define "advanced telecommunications capability" in terms of speed, data capacity, and latency benchmarks. As an initial matter, any such attempt to define "advanced telecommunications capability" in terms of a few specific, fixed performance indicators would fail to account fully for the multidimensional nature of "broadband" or the fact that consumers' broadband needs

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1 Telecommunications Act of 1996, Pub. L. No. 104-104, § 706.

2 *NOI* ¶ 1.

vary and evolve over time.[3] More specifically, such an approach would not reflect that: (i) different users place different values and weights on the various dimensions or capabilities of broadband services; (ii) different applications have varying performance requirements; and (iii) network operators establish varying performance objectives and optimization goals in designing and implementing their networks and service offerings, and in pricing their services, all in response to market forces.

ViaSat's experience is that speed and data capacity are two key and distinct characteristics that drive the broadband value proposition for many consumers, and different segments of the market weight these two characteristics differently. In fact, ViaSat's new Exede® service has revolutionized the satellite broadband industry by offering 12/3 Mbps service starting at $49.99 per month, and is winning customers from terrestrial competitors.[4] Some of those competitors are now actively marketing other alternatives to the inadequate DSL service that has been the only terrestrial option for many Americans.[5] ViaSat therefore cautions that any attempt by the Commission to impose a rigid, "top-down" definition of "advanced telecommunications capability" could disrupt the natural evolution of such services in the marketplace, as well as continuing efforts to provide innovative broadband solutions to consumers.

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3 *See* Mark D. Dankberg, Thomas E. Moore, and Girish Chandran, *Toward a National Broadband Plan: Ensuring a Meaningful Understanding of Broadband Capabilities and Facilitating Competitive Choices* (Aug. 31, 2009) (filed with the Commission on Aug. 31, 2009 in GN Docket No. 09-47).

4 *See* Letter to FCC from ViaSat, Inc. WC Docket No. 10-90, Att. at 6-8 (Sep. 19, 2012).

5 *See* http://www.verizonwireless.com/b2c/homefusion/hf/main.do; *see also* Stacey Higginbotham, *Why Verizon is killing DSL & cheap broadband*, GIGAOM (Mar. 6, 2012), *at* http://gigaom.com/broadband/why-verizon-is-killing-dsl-cheap-broadband/.

That said, if the Commission is determined to define "advanced telecommunications capability" in terms of speed, data capacity, and latency benchmarks, the Commission at least should: (i) ensure that any speed threshold facilitates the introduction and adoption of broadband services; (ii) base any data capacity threshold on the *actual* usage patterns of *typical* consumers; and (iii) evaluate any latency threshold in the context of the real-world ability of consumers to use critical applications. The Commission also should ensure that satellite broadband deployment is measured and reported in the same manner as other broadband technologies.

I. THE COMMISSION SHOULD ENSURE THAT ANY SPEED THRESHOLD FACILITATES THE INTRODUCTION AND ADOPTION OF BROADBAND SERVICES

ViaSat agrees that new applications and usage patterns (*e.g.*, the fact that "an increasing number of households are attaching multiple devices to a single, shared household broadband connection") are increasing the "need for speed" in many American households.[6] As ViaSat has noted previously, 4/1 Mbps speeds are slower than those that are typical in many urban areas, and may not fully support applications like two-way video conferencing that require upload speeds in excess of 1 Mbps.[7] Thus, it is increasingly evident that 4/1 Mbps service is *not* sufficient for many users.

For this reason, many broadband service providers—including satellite broadband providers—are making higher-speed service offerings available to consumers. For example, ViaSat's Exede® service makes 12/3 Mbps speeds broadly available to consumers, including in

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6 *NOI* ¶¶ 9-10.

7 ViaSat Petition for Reconsideration, WC Docket No. 10-90, at 15 (Dec. 29, 2011).

rural and "remote" areas. The Commission should adopt policies that facilitate the introduction of competitive, higher-speed services in all areas of the country.

The Commission also should recognize that increasing the speed threshold could be counterproductive if not managed properly. Any higher speed threshold would translate into higher costs.[8] While some users would view higher speeds as sufficiently important to justify these costs, others would not; it would be reasonable for a user to opt for a moderate-speed service that meets the user's needs over a high-speed, high-cost service that provides far more performance than the user needs. In other words, establishing a higher speed threshold could encourage service providers to offer higher-priced offerings and thus chill broadband adoption by consumers—a result that would be contrary to the intent of Section 706.

II. ANY DATA CAPACITY THRESHOLD SHOULD BE BASED ON *ACTUAL* CONSUMER USAGE PATTERNS

The *NOI* proposes to incorporate a data capacity threshold into the definition of "advanced telecommunications capability."[9] ViaSat urges the Commission to exercise caution in evaluating any such threshold. Simply stated, there is no "correct" data capacity allowance for all users.

The data capacity allowance associated with any broadband service plan represents a tradeoff among a variety of factors that affect the broadband experience. Notably, consumer response to ViaSat's new Exede® service offering indicates that *many* consumers

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8 This conclusion is reflected in the *USF/ICC Transformation Order*, in which the Commission determined, based on an analysis of empirical data regarding consumer preferences and usage patterns, that supporting 4/1 Mbps speeds would enable supported high-cost households to enjoy most broadband applications, without unreasonably increasing the size of the USF program beyond sustainable limits. *See Connect America Fund*, Report and Order, 26 FCC Rcd 17666, at ¶ 93 (2011) ("*USF/ICC Transformation Order*").

9 *NOI* ¶ 20.

prefer high-speed satellite broadband service to terrestrial alternatives—even with the associated capacity allowance. At the same time, the Commission's own data suggest that only a small minority of users make intense use of network resources such that they would benefit from the inflated data capacity allowances associated with some terrestrial wireline offerings. Indeed, one Commission study shows that the top one percent of broadband users account for a higher percentage of broadband network usage than the bottom eighty percent of such users *combined*.[10]

That said, if the Commission is determined to adopt such a threshold, it should at least be calibrated to "focus on the amount of data consumers actually use, instead of what they are offered"—consistent with one of the approaches suggested in the *NOI*.[11] Ensuring that such a threshold is based on the capacity consumed by a typical consumer would advance the objectives of Section 706, which defines "advanced telecommunications capability" as that which enables *users* to receive high-quality service. In contrast, focusing on the capacity of the underlying broadband networks maintained by some *providers* in large urban areas would not be consistent with the objectives of Section 706.

Nor would importing the approach adopted in the *USF/ICC Transformation Order* be consistent with such objectives. The *USF/ICC Transformation Order* eschews any consideration of *actual* consumer usage patterns, or whether a relatively low given data capacity limit has any *actual* impact on the quality of the user experience as measured by empirical data.[12] Thus, as an initial matter and as ViaSat has demonstrated separately, the approach adopted in the *USF/ICC Transformation Order* is not legally sustainable because it fails to ensure comparable

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10 *See The Broadband Availability Gap*, OBI Technical Paper No. 1, at 112, Exh. 4-BR (2010).

11 *NOI* ¶ 20.

12 *USF/ICC Transformation Order* ¶ 98.

access to telecommunications and information services as required by Section 254(b)(3) of the Communications Act, as amended.[13] Similarly, focusing on data capacity *allowances* in this proceeding, instead of assessing whether consumers have meaningful *access* to broadband services, would be contrary to the intent of Section 706 (which focuses on the ability of consumers to access broadband services), while creating a significant risk of increasing the costs that must be borne by consumers.

Notably, the Commission's own data and analysis suggest that the median broadband user can be expected to consume at most 14 GB per month by 2015,[14] while the mean broadband user can be expected to consume only about 40 GB per month by that year.[15] Notably, the 300 GB per month threshold cited in the *NOI* is *more than 21 times* this expected median consumption level, and *almost 8 times* this expected mean consumption level.[16] It would make little sense to define "advanced telecommunications capability" using a data capacity threshold many times higher than these levels, which reflect the expected consumption of a

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13 *See* ViaSat Petition for Reconsideration, WC Docket No. 10-90, at 16-18 (Dec. 29, 2011); *see also* 47 U.S.C. § 254(b)(3).

14 The Commission estimates that the median user consumed 1.7 GB per month in 2009. *See Broadband Performance*, OBI Technical Paper No. 4, at 6 (2010). At the same time, the model used to estimate the broadband availability gap assumes a "medium usage" case in which users consume 3.5 GB per month in 2009. *See The Broadband Availability Gap*, OBI Technical Paper No. 1, at 90-91 (2010). Assuming, as the Commission has, that average monthly usage will double roughly every three years based on historical growth, *id.*, the median user can be expected to consume at most 14 GB per month (3.5 GB x 4) by 2015.

15 While the mean user consumed close to 10 GB per month in 2009, the Commission has correctly noted that "[t]he extreme difference between average and median data usage is principally due to a relatively small number of users who consume very large amounts of data each month[.]" *See Broadband Performance*, OBI Technical Paper No. 4, at 6 (2010). Assuming, as the Commission has, that average monthly usage will double roughly every three years based on historical growth, the mean user can be expected to consume only about 40 GB per month (10 GB x 4) by 2015.

16 *NOI* ¶ 18.

typical user. Such an approach would encourage service providers to offer unnecessarily high-cost service plans instead of lower-cost, higher-quality broadband services that are truly responsive to consumer needs. This, in turn, would chill broadband adoption by consumers—and particularly by low-income consumers that would have the most difficulty paying for broadband services.

III. ANY LATENCY THRESHOLD SHOULD BE DEFINED IN TERMS OF THE REAL-WORLD NEEDS OF CONSUMERS

The *NOI* asks whether the Commission should incorporate a 100 millisecond latency threshold into the definition of "advanced telecommunications capability."[17] It should not; 100 milliseconds would be an arbitrary quantitative threshold that would not reflect the real-world needs of consumers.

In truth, latency affects very few of the applications that consumers use and value most,[18] and for most consumers the limited impact of latency can be more than offset by other dimensions of a given broadband service, such as a low jitter rate, which enables smooth video streaming for important educational, telecommuting, and medical applications (among other things). For example, many consumers would prefer a 12/3 Mbps broadband service with a low jitter rate to a slower service with a higher jitter rate and lower latency. Users are fully capable of balancing the technical characteristics, price, and the other significant benefits of a given technology or service offering, and they in fact make these tradeoffs as they switch from one service provider to another.[19]

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17 *NOI* ¶ 16.

18 *See Cisco Visual Networking Index: Forecast and Methodology, 2009-2014*, at 10 (Jun. 2, 2010).

19 *See* Letter to FCC from ViaSat, Inc. WC Docket No. 10-90, Att. at 3, 10 (Sep. 19, 2012).

Notably, the 100 millisecond latency threshold suggested by the *NOI* is not derived empirically from data regarding consumer needs, but rather appears to be based on the conclusion that most *terrestrial wireline* technologies can meet this standard.[20] This biased approach is contrary to the intent of Section 706, which is consumer-centric and defines "advanced telecommunications capability" as that which "enables *users* to originate and receive high-quality voice, data, graphics, and video telecommunications *using any technology*."[21] This approach also is contrary to the more general principles of competitive and technological neutrality that the Commission has repeatedly endorsed, and stacks the deck in favor of terrestrial wireline technologies at the expense of competition and consumer welfare.

If the Commission is determined to incorporate a latency threshold into the definition of "advanced telecommunications capability," it would do well to adopt an approach similar to that taken in the *USF/ICC Transformation Order*, which requires only that USF recipients "offer sufficiently low latency to enable use of real-time applications, such as VoIP."[22] Such an approach appropriately focuses on the extent to which a service meets the needs of consumers, and would not bias the Commission's analysis under Section 706 or favor one technology over another. Rather, it simply would accurately reflect the extent to which consumers can access broadband applications that are impacted by latency.

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20 *See NOI* ¶ 16.

21 Telecommunications Act of 1996, Pub. L. No. 104-104, § 706(c) (emphasis added).

22 *See USF/ICC Transformation Order* ¶ 96.

IV. THE COMMISSION SHOULD MEASURE AND REPORT SATELLITE BROADBAND DEPLOYMENT IN THE SAME MANNER AS OTHER TYPES OF BROADBAND SERVICE

The *NOI* correctly observes that satellite operators have begun to deploy broadband offerings (like ViaSat's Exede® service) that are capable of meeting the Commission's broadband performance thresholds.[23] The *NOI* proceeds to ask how the Commission should factor these services into its next Section 706 report.[24] The answer is clear: Satellite broadband services should be measured and reported in the same manner as other types of broadband services. Thus, it is entirely appropriate for the Commission to conclude that areas where satellite operators offer such services are "served" for purposes of Section 706.

The *NOI* inexplicably asks how the Commission should measure and account for "capacity limitations" affecting satellite service.[25] As ViaSat has explained previously, there is no basis for concluding that satellite operators are any more capacity-constrained than terrestrial providers, which can serve additional households only after additional infrastructure is deployed.[26] The *NOI* provides no basis for concluding otherwise, and previous "analyses" that have suggested otherwise have been soundly refuted.[27] In fact, satellite broadband operators will have sufficient capacity in 2015, using just two broadband satellites, to provide 4/1 Mbps and

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23 *NOI* ¶ 36.

24 *Id.*

25 *Id; see also NOI* ¶ 21.

26 *See* Dr. Charles L. Jackson, *Satellite Service Can Help to Effectively Close the Broadband Gap*, attached to Comments of ViaSat, Inc., WC Docket No. 10-90 (Apr. 18, 2011).

27 As ViaSat has demonstrated, OBI Technical Paper No. 1 suffers from serious analytical errors with respect to satellite broadband services. Most notably, that paper fails to account for the ability of satellite operators to launch additional satellites, and fails to account for expected advances in satellite technologies. Each of these errors causes the paper to dramatically understate the capabilities of satellite broadband providers.

better broadband service to over two million currently "unserved" households—a number that will increase in due course as additional satellites are launched and placed into service.

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ViaSat applauds the Commission's efforts to ensure that it measures and reports the state of "advanced telecommunications capability" in a fulsome and accurate manner. At the same time, ViaSat is concerned about the proposed benchmarks for defining "advanced communications capability," and urges the Commission to ensure that any new benchmarks that may be created for such measurement and reporting do not bias the results of the Commission's analysis or chill the adoption of broadband services by consumers. In this respect, the Commission should: (i) ensure that any speed threshold it may adopt facilitates the introduction and adoption of broadband services; (ii) base any data capacity threshold it may adopt on the *actual* usage patterns of *typical* consumers; and (iii) evaluate any latency threshold in the context of the real-world ability of consumers to use critical applications. The Commission also should ensure that satellite broadband deployment is measured and reported in the same manner as other broadband technologies.

Respectfully submitted,

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