

support recipients, as well as added costs. Unfortunately, certain aspects of the *Order* fall into this category.

- **First**, the *Order* unreasonably requires satellite broadband providers that receive CAF II support to retain third parties to conduct performance testing, even though: (i) the requirement would apply to a single winning bidder in the CAF II auction, contrary to the principles of competitive and technological neutrality; (ii) the requirement would be extremely difficult to satisfy given the lack of qualified third-party testing firms and the significant costs that likely would be incurred by the sole satellite broadband provider in connection with such testing; and (iii) the *Order* provides no explanation or justification for this requirement, making the requirement arbitrary, capricious, and contrary to law.
- **Second**, the *Order* directs satellite broadband providers to conduct “real-world” tests of latency using procedures specified in ITU-T Recommendation P.800, even though that Recommendation: (i) expressly specifies procedures for *laboratory* testing under carefully controlled circumstances; (ii) provides insufficient guidance as to how “real-world” latency testing should proceed in the CAF context; and therefore (iii) cannot be reasonably or effectively utilized to conduct performance testing of satellite broadband service.

Accordingly, Viasat respectfully requests that the Bureaus reconsider these aspects of the *Order*.

I. THE BUREAUS SHOULD RECONSIDER THE THIRD-PARTY MEAN OPINION SCORE TESTING REQUIREMENT

Satellite-based broadband service that is CAF II-supported must satisfy a mean opinion score (“MOS”) of four or better.⁴ The *Order* outlines procedures that must be followed to verify satisfaction of this requirement, which apply to only a single winning bidder in the CAF II auction. Among other things, the *Order* specifies that “live interviews and surveys must be conducted by an independent agency or organization”—*i.e.*, a third party—to determine the MOS associated with the supported service.⁵ This requirement is inherently problematic for both legal and practical reasons, and therefore should be reconsidered.

⁴ 47 C.F.R. § 54.309(a)(2)(v)(B).

⁵ *Order* ¶ 44.

As an initial matter, the *Order* fails to provide *any* explanation or justification for this requirement. Notably, the *Order* does not even *suggest*—let alone *establish*—that third-party testing is necessary to ensure the accuracy or reliability of MOS testing. The *Order*'s failure to establish any reasonable basis for the Bureaus' decision is inherently arbitrary, capricious, and contrary to law—and, in and of itself, provides an adequate reason to reconsider this aspect of the *Order*.⁶

The *Order* compounds this legal infirmity by allowing all other CAF II support recipients (which would not provide satellite-based service) to rely exclusively on “self-testing” of relevant performance criteria (*e.g.*, speed).⁷ This is significant for two reasons. First, this decision implicitly recognizes that support recipients *can* be trusted to measure and report their performance levels in an accurate fashion—making the requirement that a satellite broadband provider engage a third party for MOS testing that much more inscrutable. Second, the decision to require a satellite broadband provider—and *only* a satellite broadband provider—to engage a third party for testing purposes is flatly inconsistent with the principles of competitive and technological neutrality, which have formed the bedrock of the Commission's universal service policies for decades.⁸

The *Order* also fails to consider the practical impediments to third-party MOS testing. For example, the *Order* does not address the lack of third parties that are ready and available to conduct such testing. Indeed, under the *status quo* MOS testing is uncommon, with

⁶ See, *e.g.*, *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

⁷ See *Order* ¶ 9.

⁸ See, *e.g.*, *Federal-State Joint Board on Universal Service*, Report and Order, 12 FCC Rcd 8776, at ¶ 48 (1997).

little demand for MOS testing services. The *Order*, in and of itself, has not created and will not create significant new demand for such services (particularly given that only a single winning bidder in the CAF II auction will offer satellite-based service). As such, few (if any) firms are likely to offer MOS testing on a third-party basis. It is therefore unclear how exactly the Bureaus expect a satellite broadband provider to satisfy the third-party MOS testing requirement.

And while potentially qualified firms have little incentive to offer MOS testing at all, they have even less incentive to offer MOS testing at reasonable rates. Because there is no competitive market for MOS testing services, any firm that might be inclined to offer such services would have significant leverage in “negotiating”—*i.e.*, dictating—applicable rates. This means that *if* a satellite broadband provider were able to identify a third-party firm to conduct MOS testing, it would be likely to incur substantial costs in connection with such testing. These costs simply cannot be justified given the ability of satellite broadband providers to efficiently and effectively self-test in the same manner as all other CAF II support recipients.

To address the issues identified above, Viasat respectfully requests that the Bureaus reconsider their decision to require third-party MOS testing (instead of allowing self-testing).

II. THE BUREAUS SHOULD RECONSIDER THEIR DECISION TO REQUIRE “REAL-WORLD” LATENCY TESTING USING ITU-T REC. P.800

The *Order* requires satellite broadband providers to conduct “an ITU-T Recommendation P.800 conversational-opinion test.”⁹ ITU-T Rec. P.800 provides general “advice . . . on conducting subjective tests of transmission quality in . . . laboratories.”¹⁰ Among other things, the Recommendation seeks to ensure that testing is conducted under strictly

⁹ *Order* ¶ 44.

¹⁰ ITU-T Rec. P.800 § 1.

controlled conditions designed to ensure the integrity of the testing process and the reliability of measured data.

But the *Order* requires a satellite broadband provider to conduct “ITU-T Recommendation P.800” conversational-opinion testing in a manner that is fundamentally inconsistent with the directives of ITU-T Rec. P.800. Most notably, the *Order* requires a satellite broadband provider to use “operational network infrastructure, such as actual satellite links” to conduct MOS testing, and expressly prohibits the use of “*laboratory-based simulations intended to reproduce service conditions.*”¹¹ In stark contrast, ITU-T Rec. P.800 explicitly calls for the use of laboratory tests in order to “reproduce, in the laboratory situation, the actual service conditions experienced by telephone customers.”¹² The *Order* fails to acknowledge or address this fundamental inconsistency or explain how satellite broadband providers can be expected to conduct “real-world” testing under the terms of ITU-T Rec. P.800—which is simply inapposite. As a result, the *Order* creates significant uncertainty and undermines the efforts of satellite broadband providers to effectively offer CAF II-compliant service.

Any attempt to translate or adapt ITU-T Rec. P.800 outside the laboratory context for which it was developed would necessitate significant modification of the testing framework established in that Recommendation. For example, “real-world” testing would introduce a number of additional variables—*e.g.*, background noise, third-party interference, latency from interconnected network elements, the uncontrolled effects of customer equipment such as handsets—that otherwise would be controlled under laboratory conditions. Any attempt to account for these variables would require new testing protocols to “fill in the gaps” in the ITU-T

¹¹ *Order* ¶ 45 (emphasis added).

¹² ITU-T Rec. P.800 § 6.1.

Rec. P.800 framework so that it could apply under “real-world” conditions and, among other things, discount latency elements not fairly attributed to the network being tested. But this work has not yet been completed by the Commission or otherwise.

A satellite broadband provider should not be expected to address the resulting uncertainty by attempting to develop such testing protocols unilaterally and implement their networks on that basis. This risk is an unreasonable burden for a satellite broadband provider to bear, and it undermines the ability to implement satellite broadband networks and advance the Commission’s universal service objectives effectively and efficiently.

Viasat therefore requests that the Bureaus eliminate the requirement that “real-world” conversational-opinion testing proceed under ITU-T Recommendation P.800 and instead develop a workable testing methodology from the ground up. Viasat is more than willing to work closely with the Bureaus to achieve this objective on an expedited timetable.

III. CONCLUSION

For the foregoing reasons, Viasat respectfully requests that the Bureaus: (i) reconsider their decision to require that a satellite broadband provider conduct third-party MOS testing and instead allow the self-testing that all other CAF II recipients are allowed to conduct and (ii) eliminate the requirement that “real-world” conversational-opinion testing proceed under ITU-T Recommendation P.800 and instead develop a workable testing methodology from the ground-up. These changes would allow satellite broadband providers to conduct performance testing in a more reasonable, effective, and efficient matter while still advancing the Commission’s universal service objectives.

Respectfully submitted,

/s/ Christopher J. Murphy
Christopher J. Murphy
Associate General Counsel,
Regulatory Affairs
Viasat, Inc.
6155 El Camino Real
Carlsbad, CA 92009

/s/ John P. Janka
John P. Janka
Jarrett S. Taubman
LATHAM & WATKINS LLP
555 Eleventh Street, NW, Suite 1000
Washington, DC 20004-1304

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