FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 1

[WC Docket No. 19–195, DA 21–853; FR ID 39982]

Comment Sought on Technical Requirements for the Mobile Challenge, Verification, and Crowdsource Processes Required Under the Broadband Data Act

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Wireless Telecommunications Bureau (WTB), the Office of Economics and Analytics (OEA), and the Office of Engineering and Technology (OET) (collectively, the Bureau and Offices) seek comment on proposed technical requirements to implement the mobile challenge, verification, and crowdsourcing processes required by the Broadband DATA Act.

DATES: Comments are due on or before August 27, 2021; reply comments are due on or before September 13, 2021.

ADDRESSES: You may submit comments, identified by WC Docket No. 19–195, by any of the following methods:

- *Electronic Filers:* Comments may be filed electronically using the internet by accessing the ECFS: *https://www.fcc.gov/ecfs.*
- *Paper Filers:* Parties who choose to file by paper must file an original and one copy of each filing.
- Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street NE. Washington, DC 20554.
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID–19.

People with Disabilities. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to *fcc504@fcc.gov* or call the Consumer & Government Affairs Bureau at 202–418–0530 (voice, 202–418–0432 (tty).

FOR FURTHER INFORMATION CONTACT: Will Holloway, *William.Holloway@fcc.gov,* Competition & Infrastructure Policy Division, (WTB), Jonathan McCormack at *Jonathan.McCormack@fcc.gov* (OEA), or Martin Doczkat at *Martin.Doczkat@fcc.gov* (OET).

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's document, *Public Notice,* in WC Docket No 19–195, DA 21–853, released on July 16, 2021. The full text of this document, including the Technical Appendix is available for public inspection and can be downloaded at *https://www.fcc.gov/document/input-sought-mobile-challenge-verification-technical-requirements* or by using the Commission's ECFS web page at *www.fcc.gov/ecfs.*

Ex Parte Rules

This proceeding shall be treated as a ''permit-but-disclose'' proceeding in accordance with the Commission's *ex parte* rules. Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must: (1) List all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made; and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda, or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with § 1.1206(b) of the Commission's rules. In proceedings governed by § 1.49(f) of the rules or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.,* .doc, .xml., .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

Paperwork Reduction Act

The rulemaking required under section 802(a)(1) of the Broadband DATA Act is exempt from review by OMB and from the requirements of the Paperwork Reduction Act of 1995 (PRA), Public Law 104–13. As a result, the Public Notice will not be submitted to OMB for review under section 3507(d) of the PRA.

Synopsis

I. Introduction

1. With this *Public Notice,* the Wireless Telecommunications Bureau (WTB), the Office of Economics and Analytics (OEA), and the Office of Engineering and Technology (OET) (collectively, the Bureau and Offices) take the next step in implementing the requirements of the Broadband DATA Act and improving the Commission's data on broadband availability as part of the Broadband Data Collection (BDC). To implement the Broadband DATA Act's requirements and obtain better mobile broadband availability data, the Commission delegated to the Bureau and Offices the obligation to develop: (1) Technical requirements for a challenge process that will enable consumers and other third parties to dispute service providers' coverage data; (2) a process to verify service providers' coverage data; and (3) a process to accept crowdsourced information from third parties. These measures will enable the Commission, Congress, other federal and state policy makers, Tribal entities, consumers, and other third parties to verify and supplement the data collected by the Commission on the status of broadband availability throughout the United States.

2. This *Public Notice* seeks comment on proposed technical requirements to implement the mobile challenge, verification, and crowdsourcing processes required by the Broadband DATA Act. These requirements include the metrics to be collected for on-the-ground test data and a methodology for determining the threshold for what constitutes a cognizable challenge requiring a provider response. The *Public Notice* also provides tentative

views and seeks comment on the types of data that likely will be probative in different circumstances for validating broadband availability data submitted by mobile service providers. The *Public Notice* and the detailed Technical Appendix, Appendix A, propose detailed processes and metrics for challengers to use to contest providers' broadband coverage availability, for providers to follow when responding to a Commission verification request, and for state, local, and Tribal governmental entities and other third parties to follow when submitting verified broadband coverage data. For purposes of this *Public Notice,* the Bureau and Offices generally refer to state, local, and Tribal entities as ''government entities'' or ''governmental entities.'' The *Public Notice* seeks comment on the technical requirements for these complex issues to assure that the broadband availability data collected in the challenge and other data verification and crowdsource processes serves the important broadband data verification purposes envisioned in the Broadband DATA Act.

3. The Broadband DATA Act requires the Commission to collect granular data from broadband internet access service providers on the availability and quality of broadband service and also to establish a challenge process, verify the accuracy and reliability of the broadband coverage data that providers are required to submit in their BDC filings, and improve data accuracy through a crowdsourcing process. The Broadband DATA Act also requires the Commission to develop ''a process through which it can collect verified data for use in the coverage maps from: (1) [s]tate, local, and Tribal governmental entities that are primarily responsible for mapping or tracking broadband internet access service coverage for a [s]tate, unit of local government, or Indian Tribe, as applicable; (2) third parties . . . ; and (3) other Federal agencies.'' In its *Second Order and Third Further Notice,* the Commission adopted some of the Broadband DATA Act's requirements for collection and reporting broadband data from providers, developed the framework for the BDC, established a process for verifying the broadband data it receives from providers in their BDC filings, and adopted a basic framework for collecting crowdsourced information. While the challenge process, crowdsource data, and other FCC efforts will all serve to validate the data submitted by providers, for purposes of this *Public Notice,* ''verification'' or ''verification process'' refers to the internal process the Commission sought comment on in section IV.D. of the *Third Further Notice* and adopted in section III.E. of the *Third Order.* In the *Third Order,* the Commission adopted additional requirements for collecting and verifying provider-submitted data and established the challenge process. The Commission directed the Bureau and Offices to design and develop the new BDC platform for mapping broadband availability, and to set forth the specifications and requirements for the mobile challenge, verification, and crowdsourcing processes. The Commission was able to begin development of the BDC systems and the proposed technical requirements to implement these processes after funding to implement the Act was appropriated in December 2020.

4. In the *Third Order,* the Commission determined that it should aggregate speed test results received from multiple consumer challenges in the same general area in order to resolve challenges in an efficient manner, mitigate the time and expense involved, and ensure that the mobile coverage maps are reliable and useful. When these aggregated results reach an appropriate threshold, they will constitute a cognizable challenge requiring a provider response. While the Commission acknowledged that consumers are likely to submit challenges in distinct, localized areas instead of expending the time and resources to test in a broader area or for extended periods, it also recognized that providers should not be subject to the undue cost of responding to a large number of challenges in very small areas. In response to the *Second Order and Third Further Notice,* providers argued that a requirement to respond to every consumer challenge would be a substantial burden. The Commission directed OEA, in consultation with WTB, to determine the threshold number of mobile consumer challenges within a specified area that will constitute a cognizable challenge triggering a provider's obligation to respond. In connection with that determination, the Commission also directed OEA, in consultation with WTB, to establish: (1) The methodology for determining this threshold; and (2) the methodology for determining the boundaries of a geographic area where the threshold for a cognizable challenge has been met.

5. Consistent with the approach it adopted for consumer challenges, the Commission stated that it would also aggregate speed test evidence received from multiple government and third-party challengers in the same general area. The Commission directed OEA to determine the threshold number of mobile governmental and third-party challenges within the same general area that will constitute a cognizable challenge that requires a provider response. Similar to the consumer challenges, the Commission directed OEA, in consultation with WTB, to establish the methodology for this threshold and the methodology for determining the boundaries of an area where the threshold has been met.

II. Discussion

A. Mobile Service Challenge Process

6. The Broadband DATA Act requires the Commission to ''establish a user-friendly challenge process through which consumers, [s]tate, local, and Tribal governmental entities, and other entities or individuals may submit coverage data to the Commission to challenge the accuracy of— (i) the coverage maps; (ii) any information submitted by a provider regarding the availability of broadband internet access service; or (iii) the information included in the Fabric.'' The Commission established requirements for challenges to mobile service coverage reporting in the *Third Order* and directed the Bureau and Offices to adopt additional implementation details.

7. At the outset, the Bureau and Offices note that coverage maps generated using propagation modeling are probabilistic due to the variability of mobile wireless service. The BDC coverage maps will be based on specifications adopted by the Commission to reflect where a mobile service provider's models predict a device has at least a 90% probability of achieving certain minimum speeds at the cell edge for the parameters and assumptions used in the modeling. But an individual speed test conducted in an area where a provider's propagation model predicts adequate coverage may not, by itself, be sufficient to establish the on-the-ground reality of service in that area. Throughout this *Public Notice* the Bureau and Offices use the term ''adequate coverage'' to refer to coverage where a device should achieve upload and download speeds meeting or exceeding the minimum values associated with the provider's map for a given technology. The Bureau and Offices have therefore designed the mobile challenge process to evaluate the on-the-ground truth of whether devices are able to achieve particular minimum speeds at least 90% of the time, measured at any point within the covered area and at any time during typical usage hours. This approach

strives to collect sufficient measurements to ensure the process is statistically valid, while at the same time meeting the statutory obligation to keep the challenge process ''user-friendly.'' The Bureau and Offices acknowledge that on-the-ground service can be measured and analyzed in ways other than the approach set forth herein, but the Bureau and Offices believe that their approach has the benefit of being both straightforward and consistent with the framework adopted by the Commission.

1. Cognizable Challenges

8. To implement the Commission's directives, the Bureau and Offices propose to evaluate the speed tests submitted by consumers in combination with the speed tests submitted by governmental and third-party challengers in the challenge process. Under this approach, the Bureau and Offices would combine such speed test evidence and apply a single methodology to determine whether the threshold for a cognizable challenge has been met and to establish the boundaries of the challenged area. Since the Bureau and Offices propose to require all entities submitting challenges to meet the same thresholds and follow similar procedures for submitting challenge data, the Bureau and Offices see little functional difference between consumer and governmental or third-party challenges. As such, the Bureau and Offices believe combining all challenges will result in more robust and accurate challenges.

9. In addition to combining consumer speed tests and governmental and third-party speed tests, the Bureau and Offices propose to validate each submitted speed test and exclude tests that are outside the scope of the challenge process, do not conform to the data specifications, or do not otherwise present reliable evidence. The Bureau and Offices propose to accept as valid speed tests only those tests conducted between the hours of 6:00 a.m. and 10:00 p.m. local time, so that speed tests are reflective of the hours that consumers typically use mobile broadband networks. The Bureau and Offices acknowledge that their proposal departs slightly from the time range proposed by the Commission, which would allow for tests to be conducted between 6:00 a.m. and 12:00 a.m. (midnight) local time. However, the Bureau and Offices believe that tests conducted after 10:00 p.m. may likely record network performance that is materially different than tests conducted earlier in the day due to reduced cell loading. The Bureau and Offices seek comment on this proposal and their assumptions about network traffic patterns. The Bureau and Offices also propose to compare each speed test against the relevant coverage map. Specifically, the Bureau and Offices propose to compare speed tests for a particular network technology (*e.g.,* 3G, 4G LTE, or 5G) to the coverage maps for the corresponding technology, to compare the environment of the speed test—stationary or in-vehicle mobile—to the coverage map of the corresponding modeled environment, and to treat as invalid and exclude any speed tests that fall outside the boundaries of the provider's most recent coverage data for the relevant technology and modeled environment. Additionally, because the Bureau and Offices do not believe there is a reliable way to evaluate mobile voice coverage using the speed test data which the Commission requires for submitting challenges, the Bureau and Offices propose not to permit challenges to the voice coverage maps submitted by mobile service providers. The Bureau and Offices seek comment on these proposals.

10. After excluding any speed tests that fail the validations proposed above, the Bureau and Offices propose to associate the location of each validated speed test with a particular underlying geography depicted as a specific hexagonal cell area based upon the H3 geospatial indexing system. H3 is an open-source project developed by Uber Technologies, Inc. that overlays the globe with hexagonal cells of different sizes at various resolutions, from zero to 15. The lower the resolution, the larger the area of the hexagonal cell. The H3 system is designed with a nested structure in which each hexagonal cell can be further subdivided into seven ''child'' hexagons at the next higher (*i.e.,* finer) resolution that approximately fit within the ''parent'' hexagon. Because of this nested structure, using the H3 system to group speed tests allows for challenges at multiple levels of granularity. The nested structure includes 16 total H3 resolutions of hexagons ranging in average area size from approximately 4.25 million square kilometers to 0.9 square meters. In the case where a test reports more than one pair of distinct geographic coordinates (*e.g.,* because the device was in motion), the Bureau and Offices propose to associate the test with the midpoint of the reported coordinates. The Bureau and Offices propose to use a system based upon hexagonal shapes instead of squares or rectangles because hexagons better enable them to evaluate challenges across multiple levels of granularity which can cover a significant area. The Bureau and Offices further propose that the smallest cognizable challenge would be to a single resolution 8 hexagonal cell, which has an area of approximately 0.7 square kilometers. The Bureau and Offices seek comment on this choice of geographical area, including their proposal to use the H3 geospatial indexing system, as well as the ideal resolution or minimum size of the area to consider a cognizable challenge.

11. As part of the proposed methodology, the Bureau and Offices would evaluate all valid challenger speed tests for a given technology within each hexagon to determine whether to create a cognizable challenge to the coverage in that area. In so doing, the Bureau and Offices propose to categorize each speed test as either a ''positive'' test or a ''negative'' test based upon whether the test is consistent or inconsistent with the provider's modeled coverage. The Bureau and Offices would consider a negative test to be a speed test that does not meet the minimum predicted download or upload speed based on the provider-reported technology-specific minimum speeds with the cell edge probability and cell loading factors modeled by the provider. The Bureau and Offices would consider a positive test to be a speed test that records speeds meeting or exceeding the minimum download and upload speeds the mobile service provider reports as available at the location where the test occurred. The Bureau and Offices seek comment on this proposal. Alternatively, rather than considering a speed test as ''negative'' when either the recorded download or upload speed fails to meet the minimum predicted speeds for that area, should the Bureau and Offices evaluate the download and upload portions of each test independently? The Bureau and Offices note that speed test applications (apps) typically measure download, upload, and latency metrics sequentially and not simultaneously, and thus evaluating these metrics independently may better account for geographic and/or temporal variability at the expense of adding complexity to their proposed approach. The Bureau and Offices seek comment on this alternative and also on whether the Bureau and Offices should consider any other methodologies to address the probabilistic nature of mobile wireless coverage and the potential for test results ''at the margins'' (either on the download speed or the upload speed) to either overrepresent or underrepresent coverage. Commenters proposing any

alternative methodologies should explain how their proposals are consistent with the requirements and standardized reporting parameters set forth by the Commission and in the Broadband DATA Act. By aggregating speed tests and requiring challenges to meet the thresholds described below, the Bureau and Offices tentatively conclude that the methodology the Bureau and Offices propose above would ensure that challenges are temporally and geographically diverse, and therefore reflect a robust and representative sample of user experience. As such, the Bureau and Offices anticipate that situations in which a mobile service provider has throttled speeds of consumers that exceed data limits will have little, if any, effect on the challenge process. The Bureau and Offices seek comment on their assumptions, tentative conclusions, and whether there are other ways to address the issue of throttling.

12. The Bureau and Offices propose to consider a provider's coverage for a given technology in a resolution 8 hexagon to be challenged when the set of valid speed tests meets three thresholds: (1) A geographic threshold, (2) a temporal threshold, and (3) a testing threshold. For the geographic threshold, the Bureau and Offices propose to require that at least four child hexagons (or ''point-hexes'') within the resolution 8 hexagon include two or more tests taken within each point-hex, and that at least one of the tests in each point-hex be negative. The Bureau and Offices define a point-hex as a resolution 9 child hexagon for a given resolution 8 hexagon. A resolution 9 hexagon has an area of approximately 0.1 square kilometers. The Bureau and Offices propose to require fewer than four point-hexes to include tests when there are fewer than four of the seven point-hexes of a resolution 8 hexagon that are ''accessible''—that is, where at least 50% of the point-hex overlaps with the provider's reported coverage data and a road runs through the point-hex. Setting these dual requirements will help to demonstrate that inadequate coverage occurs at multiple locations within the resolution 8 hexagon. For the temporal threshold, the Bureau and Offices propose to require at least two negative tests be conducted at different times of day, separated by at least four hours, to demonstrate persistent inadequate coverage. For the testing threshold, the Bureau and Offices propose to require at least five negative tests within the resolution 8 hexagon when 20 or fewer total challenge tests have been submitted within the hexagon. When more than 20 challenge tests have been submitted within the hexagon, the Bureau and Offices propose to require that the percentage of negative tests within the resolution 8 hexagon statistically demonstrate, using a 0.95 statistical confidence level, that the probability of a test achieving the minimum speeds reported for the provider's coverage is less than 90% and therefore warrants a challenge. The required percentage of negative tests would thus vary, from at least 24% when between 21 and 30 challenge tests have been submitted within the hexagon, to 16% when 100 or more tests have been submitted. The Bureau and Offices also propose that a larger, ''parent'' hexagon (at resolutions 7 or 6) be considered challenged if at least four of its child hexagons are considered challenged. Consistent with the Commission's direction to consider ''whether the tests were conducted in urban or rural areas,'' the Bureau and Offices propose to allow challenges that account for differences in areas. The proposal sets forth a different geographic threshold depending on the road density of each resolution 8 hexagon which the Bureau and Offices anticipate will make it easier for challengers to establish a challenge in less densely populated areas. Additionally, the proposal includes a process to trigger challenges to a parent or grandparent hexagon (at resolutions 7 and 6, respectively) that likewise takes into account this different geographic threshold, thus more easily allowing for challenges over large rural areas. The Bureau and Offices seek comment on this proposed methodology and the associated thresholds. Specifically, the Bureau and Offices seek comment on whether these thresholds are sufficient to adequately reflect the actual coverage in an area while maintaining a user-friendly challenge process. Should additional tests and testing at additional times of day be required in order to overcome typical variability in mobile wireless coverage? Alternatively, instead of the Bureau and Offices proposed temporal threshold, should the Bureau and Offices categorize tests into different temporal ranges (*e.g.,* 6:00 to 10:00 a.m., 10:00 a.m. to 2:00 p.m., 2:00 to 6:00 p.m., and 6:00 to 10:00 p.m.) and require tests in different time ranges to account for the temporal variability of mobile networks, such as variability due to cell loading? Should the Bureau and Offices consider other metrics that correlate with the availability of mobile broadband (*e.g.,* signal strength or other radiofrequency metrics) or that provide an indication of real-world conditions that impact throughput, such as cell loading, when determining the temporal or testing thresholds, and if so, how should the Bureau and Offices adjust these thresholds in relation to such metrics? Once the challenge process has been implemented, the Bureau and Offices anticipate that the Bureau and Offices may revisit and modify these thresholds, after notice and comment, if they are not sufficient to provide a clear determination of actual coverage conditions. Appendix A of the *Public Notice* provides a more detailed technical descriptions of these proposed thresholds.

13. Because mobile service providers are required to submit two sets of coverage data for a given technology—one map modeled to assume a device is in a stationary environment and one map modeled to assume a device is in-vehicle and in a mobile environment—the Bureau and Offices propose to evaluate all tests for a given technology against each map independently when determining whether to establish a cognizable challenge. That is, the Bureau and Offices would filter speed tests to exclude any stationary tests that fall outside of the provider's stationary coverage map and exclude any in-vehicle mobile tests that fall outside of the provider's in-vehicle mobile coverage map. The Bureau and Offices would then aggregate all of the remaining stationary and in-vehicle mobile tests and compare these tests against the coverage data for a given technology and modeled environment. If the aggregated tests in a resolution 8 hexagon meet all three thresholds proposed above, the Bureau and Offices would consider that map's coverage to be challenged for that hexagon. Because the two sets of coverage data may differ (especially at the edge of a provider's network), tests submitted as challenges against the same provider within the same hexagon may be sufficient to create a challenge against one of the maps and insufficient to create a challenge against the other. The Bureau and Offices seek comment on this proposed approach to evaluating challenges against stationary and in-vehicle mobile maps. The Bureau and Offices acknowledge that stationary tests and in-vehicle mobile tests may not be entirely homogeneous measurements of an on-the-ground experience. However, the Bureau and Offices believe that aggregating such tests when evaluating challenges would more closely align with the Broadband DATA Act requirement to develop a

''user-friendly'' challenge process and would thus outweigh any cost to accuracy in treating such tests as homogeneous. In the alternative, if the Bureau and Offices were to not aggregate such tests and only evaluate stationary tests against stationary maps and separately evaluate in-vehicle mobile tests against in-vehicle mobile maps, the Bureau and Offices anticipate that it may be significantly more difficult to establish a challenge to certain coverage data. For example, if most consumers conduct stationary tests while most government and third-party entities conduct in-vehicle mobile tests (*i.e.,* drive tests), segregating such tests when evaluating challenges would likely result in tests meeting all three proposed thresholds in fewer resolution 8 hexagons. Moreover, there is a higher likelihood that, after adjudicating the challenges, portions of a provider's coverage data may show a lack of coverage for one type of map, due to successful challenges, yet still show robust coverage for the other type of map due solely to an absence of one type of test and in ways that are inconsistent with mobile wireless propagation. The Bureau and Offices seek comment on this view and on any alternatives to reconciling challenges to these two sets of coverage data.

14. In the *Third Order,* the Commission required consumer challengers to use a speed test app approved by OET for use in the challenge process and provided the metrics that approved apps must collect for each speed test. The Commission directed OET, in consultation with OEA and WTB, to update the FCC Speed Test app as necessary or develop a new speed test app to collect the designated metrics, so that challengers may use it in the challenge process. For government and third-party entity challengers, the Commission did not require the use of a Commission-approved speed test app but instead set forth the information that all submitted government and third-party challenger speed test data must contain and directed OEA, WTB, and OET to adopt additional testing requirements if they determine it is necessary to do so. The Bureau and Offices propose to update the metrics that approved apps must collect for consumer challenges and that government and third party entity challenger speed test data must contain. Specifically, the Bureau and Offices propose that on-the-ground test data submitted by challengers meet the following testing parameters: (1) A minimum test length of 5 seconds and a maximum test length of 30 seconds; (2) test measurement results that have been averaged over the duration of the test (*i.e.,* total bits received divided by total test time); and (3) a restriction that tests must be conducted between the hours of 6:00 a.m. and 10:00 p.m. local time. The Bureau and Offices also propose that on-the-ground challenge test data shall include the following metrics for each test: (1) App name and version; (2) timestamp and duration of each test metric; (3) geographic coordinates measured at the start and end of each test metric with typical Global Positioning System (GPS) Standard Positioning Service accuracy or better; (4) device make and model; (5) cellular operator name; (6) location (*e.g.,* hostname or IP address) of server; (7) signal strength, signal quality, unique identifier, and radiofrequency (RF) metrics of each serving cell, if available; (8) download speed; (9) upload speed; (10) round-trip latency; (11) the velocity of the vehicle, if available, for in-vehicle tests; and (12) all other metrics required per the most-recent specification for mobile test data released by OEA and WTB. The Bureau and Offices propose to require challengers to collect these data using mobile devices running either a Commission-developed app (*e.g.,* the FCC Speed Test app) or another speed test app approved by OET to submit challenges. For government and third-party entity challengers, the Bureau and Offices would also allow these data to be collected using other software and hardware. The Bureau and Offices anticipate that updating these parameters will provide the Commission with reliable challenges, while assuring a user-friendly challenge process by allowing consumers to use a readily-downloadable mobile app and preserving flexibility for government and third-party entities to use their own software and hardware. The Bureau and Offices note, however, that certain technical network information and RF metrics are not currently available on Apple iOS devices, thus limiting the conclusions that the Bureau and Offices can draw from on-the-ground tests conducted using such devices. The Bureau and Offices therefore propose to require that, until such time as such information and metrics are available on iOS devices, government and third-party entity challenges must use a device that is able to interface with drive test software and/or runs the Android operating system. However, the Bureau and Offices do not propose this same restriction for challenges submitted by consumers to ensure that the challenge process remains user-friendly and encourage public participation, including by consumers that may use a device running the iOS operating system. The Bureau and Offices seek comment on these proposals.

2. Challenge Responses

15. Providers must either submit a rebuttal to the challenge or concede the challenge within a 60-day period of being notified of the challenge. Providers may rebut a challenge by submitting to the Commission either on-the-ground test data and/or infrastructure data, so that Commission staff can examine the provider's coverage in the challenged area and resolve the challenge, and may optionally include additional data or information in support of a response. When a mobile provider responds to a consumer challenge, the challengers who submitted the challenge data would be notified individually by the Bureau or Offices via the online portal and would be able to view the provider's response. The Commission directed OEA to ''develop a methodology and mechanism to determine if the data submitted by a provider constitute a successful rebuttal to all or some of the challenged service area and to establish procedures to notify challengers and providers of the results of the challenge.'' The Commission ''adopt[ed] the same challenge response process for government and third party-entities as [it] do[es] for consumer challenges in the mobile context,'' therefore the Bureau and Offices infer the notification process will occur in the same way for challenges made by governmental and other entities as it does for challenges made by consumers. The Bureau and Offices propose for mobile service providers and challengers to be notified monthly of the status of challenged areas. Parties would be able to see a map of the challenged area, and a notification about whether or not a challenge has been successfully rebutted, whether a challenge was successful, and if a challenged area was restored based on insufficient evidence to sustain a challenge. The Bureau and Offices also propose that any area in which the provider does not overturn the challenge but is otherwise no longer challenged (*e.g.,* because some challenger tests were subsequently considered to be invalid or unreliable evidence), the coverage area would be restored to its pre-challenge status and would be eligible for challenges against it in the future. The Bureau and Offices propose that any valid speed test in a hexagon that was challenged and then restored (but where the provider did not

overturn the challenge by demonstrating adequate coverage) may still be used for a future challenge (up to a year from the date the test was conducted). The Bureau and Offices seek comment on these proposals.

16. The Commission also directed OEA, in consultation with WTB, to establish procedures for notifying service providers of cognizable challenges filed against them. Accordingly, the Bureau and Offices propose that the challenged mobile service provider would be notified by the Bureau or Offices via the online portal of the challenged hexagons at the end of each calendar month. The Bureau and Offices seek comment on this proposal and note that this approach would allow challengers to submit additional evidence if desired and grant providers a standard set of deadlines rather than a rolling set of multiple deadlines. If the challenged provider concedes or fails to submit data sufficient to overturn the challenge within 60 days of notification, it must revise its coverage maps to reflect the lack of coverage in the successfully challenged areas.

a. Rebutting Challenges With On-the-Ground Data

17. The Commission directed OEA to resolve challenges based on a ''preponderance of the evidence'' standard with the burden on the provider to verify their coverage maps in the challenged areas. When the challenged mobile service provider chooses to submit on-the-ground speed test data to rebut a challenge, the Bureau and Offices propose to require the provider to meet analogous thresholds to those required of challengers, adjusted to reflect the burden on providers to demonstrate that sufficient coverage exists at least 90% of the time in the challenged hexagons. The Bureau and Offices also propose that mobile providers submit on-the-ground data consistent with the specific testing parameters and methodologies outlined above that the Bureau and Offices propose challengers use when submitting speed test data. The Bureau and Offices propose to require providers to collect these data using mobile devices running either a Commission-developed app (*e.g.,* the FCC Speed Test app), another speed test app approved by OET to submit challenges, or other software and hardware if approved by staff. As noted above, certain technical network information and RF metrics are not currently available on Apple iOS devices. Accordingly, until such time as these data are available on iOS devices, the Bureau and Offices propose to require providers to use a device that is able to interface with drive test software and/or runs the Android operating system. The Bureau and Offices seek comment on their proposals.

18. The Bureau and Offices propose that the test data that providers submit meet the same three thresholds required of challenger tests: (1) A geographic threshold; (2) a temporal threshold; and (3) a testing threshold. However, the Bureau and Offices propose somewhat different values (*i.e.,* the number of tests and percentages) for test data for each threshold. For the geographic threshold, the Bureau and Offices propose to require at least four point-hexes of a resolution 8 hexagon to include two tests taken within them, at least one of which must be positive, to demonstrate that adequate coverage occurs at multiple locations within the resolution 8 hexagon. Fewer point-hexes may be tested when not all seven point-hexes of a resolution 8 hexagon are within the coverage area or do not contain at least one road. For the temporal threshold, the Bureau and Offices also propose to require at least two positive tests be taken at times of day separated by at least four hours to demonstrate persistent adequate coverage. For the testing threshold, the Bureau and Offices propose to require at least 17 positive tests within the resolution 8 hexagon when 20 or fewer total response tests have been submitted within the hexagon. When more than 20 response tests have been submitted within the hexagon, the Bureau and Offices propose to require that the percentage of negative tests within the resolution 8 hexagon statistically demonstrate, using a 0.95 statistical confidence level, that the probability of a test achieving the minimum speeds reported in the provider's coverage is 90% or greater and therefore the area has adequate coverage. The required percentage of positive tests would thus vary, from at least 82% when between 21 and 34 response tests have been submitted within the hexagon to 88% when 100 or more tests have been submitted. As with the thresholds proposed for challengers, the Bureau and Offices seek comment on whether these thresholds are sufficient to adequately demonstrate the on-the-ground reality of coverage in an area while maintaining a user-friendly challenge process. The Bureau and Offices expect any future modifications to these thresholds would apply to both challengers and providers. The Bureau and Offices also propose that a provider may demonstrate sufficient coverage in a resolution 8 hexagon that was not challenged if that hexagon is the child of a lower resolution challenged hexagon. As discussed more fully in section 3.2.4 of the Technical Appendix of the *Public Notice,* for challenged hexagons at resolution 7 or 6, if the provider submits response data sufficient to demonstrate coverage in the hexagon's child hexagons such that fewer than four child hexagons would still be challenged, then the resolution 7 or 6 hexagon would no longer be challenged even if sufficient data were not submitted to rebut a challenge for the remaining child hexagons. If the provider can demonstrate sufficient coverage in a challenged hexagon, the provider would have successfully rebutted the challenge to that hexagon, and the challenge would be overturned. Conversely, if the provider is not able to demonstrate sufficient coverage in a challenged hexagon, the provider would be required to revise its coverage maps to reflect the lack of coverage in such areas. If the provider demonstrates sufficient coverage in some but not all child hexagons and the parent (or grandparent) hexagon remains challenged, we the Bureau and Offices propose that a provider would not be required to remove from its coverage map the portions of the challenged parent (or grandparent) hexagon where the provider demonstrated sufficient coverage in the child hexagons. However, the provider would be required to remove the remaining portion of the challenged parent (or grandparent) hexagon where it did not demonstrate sufficient coverage. The Bureau and Offices propose that any areas where the provider has demonstrated sufficient coverage would be ineligible for subsequent challenge until the first biannual BDC coverage data filing six months after the later of either the end of the 60-day response period or the resolution of the challenge. This is to avoid requiring a provider to repeatedly confirm the same area but also acknowledges that coverage may change over time due to changes in technology and infrastructure. The Bureau and Offices seek comment generally on this approach and as to whether this time period is too short or too long.

19. The Bureau and Offices seek comment on this methodology and invite commenters to propose alternative approaches that would allow for staff to adjudicate most challenges through an automated process. AT&T submitted a preliminary proposal for defining a challenge area based on the test data submitted by the challenger(s), and the Bureau and Offices considered

this proposal while developing the proposed methodology. The Bureau and Offices tentatively conclude that their proposed methodology is preferable to that submitted by AT&T, because it ensures the challenge process is both user-friendly and supported by sufficient data, while also targeting a more precise geographic area where broadband coverage is disputed and limiting the burden on providers in responding to challenges. AT&T recommends the Bureau and Offices adopt an approach in which the geographic location of speed tests would determine the size and shape of a polygon that would serve as the challenged area. Moreover, AT&T proposes the Commission adopt a tiered structure in which challenges are filed and adjudicated in a manner proportional to their likelihood of success based on a percentage of valid speed tests in a polygon. This could lead to significant challenged areas with few or no speed tests. The Bureau and Offices' approach differs in that challenged areas would be based on the H3 hexagonal indexing system. Under the Bureau and Offices proposed process, individual speed tests would be aggregated and evaluated collectively, and a hexagon would be classified as challenged once the aggregated speed tests have met geographic, temporal, and testing thresholds in that particular area. In addition to the on-the-ground data or infrastructure information submitted by mobile service providers, staff could also consider other relevant data submitted by challenged providers, request additional information from the challenged provider (including infrastructure data, if necessary), and take such other actions as may be necessary to ensure the reliability and accuracy of the rebuttal data. The Bureau and Offices propose such steps could include rejecting speed tests or requiring additional testing. The Bureau and Offices seek comment on these proposals.

b. Rebutting Challenges With Infrastructure Data

20. Providers may respond to challenges with infrastructure data rather than (or in addition to) on-the-ground speed test data. In cases where a challenged mobile service provider chooses to submit infrastructure data to rebut a challenge, the Bureau and Offices propose that the mobile service provider submit the same data as required when a mobile provider submits infrastructure information in response to a Commission verification request, which would include information on the cell sites and antennas used to provide service in the challenged area. Based on the Bureau and Offices' tentative conclusion below that such data may not be as probative in certain circumstances as on-the-ground speed tests, the Bureau and Offices propose to use these data, on their own, to adjudicate challenges in only a limited set of circumstances. Specifically, a challenged provider may use infrastructure data to identify tests within a challenger's speed test data that the provider claims are invalid or non-representative of network performance. Under the Bureau and Offices' proposal, a provider could claim a speed test was invalid, or non-representative, based on the following reasons: (1) Extenuating circumstances at the time and location of a given test (*e.g.,* maintenance or temporary outage at the cell site) caused service to be abnormal; (2) the mobile device(s) with which the challenger(s) conducted their speed tests do not use or connect to the spectrum band(s) that the provider uses to serve the challenged area; (3) speed tests were taken during an uncommon special event (*e.g.,* a professional sporting event) that increased traffic on the network; or (4) speed tests were taken during a period where cell loading exceeded the modeled cell loading factor. While providers may use infrastructure information with hourly cell loading data to rebut a challenge in this scenario to show sporadic or abnormally high cell loading, in the event a high number of challenges indicates persistent over-loading, the Bureau and Offices propose that staff may initiate a verification inquiry to investigate whether mobile providers have submitted coverage maps based on an accurate assumption of cell loading in a particular area. The Bureau and Offices propose to require that mobile providers respond to such a verification inquiry with on-the-ground data. Using this proposed approach, the Bureau and Offices would recalculate the challenged hexagons after removing any invalidated challenger speed tests and consider any challenged hexagons that no longer meet the thresholds required for a challenge to be restored to their status before the challenge was submitted. Challenged providers may also demonstrate sufficient coverage for any areas that remain challenged by submitting on-the-ground speed test data. The Bureau and Offices seek comment on this approach, including on whether there are other reasons or circumstances under which the Bureau and Offices should use infrastructure data alone to determine the outcome of a challenge.

21. The Bureau and Offices seek comment generally on other ways that infrastructure data could be used to automatically evaluate or rebut speed test data submitted by challengers. Where a challenged provider's submitted infrastructure data do not meet one of the processing rules proposed above, the Bureau and Offices propose that Commission staff consider any additional information submitted by the challenged provider or request additional information from the challenged provider. Such information would include on-the-ground speed test data, as specified in the *Third Order,* and staff would use this information to complete its adjudication of the challenge. The Bureau and Offices acknowledge there may be some scenarios in which a provider may not be able to respond to a challenge with on-the-ground test data due, for example, to the inability to collect on-the-ground data during certain months of the year or other unforeseen circumstances. The Bureau and Offices seek comment on the best approach to handle such situations. One approach would be to allow for providers to seek a waiver of the 60-day response deadline until the provider can make on-the-ground measurements, or a waiver of the requirement to submit either infrastructure or on-the-ground speed tests data in response to a challenge. Another approach would be to allow providers to submit infrastructure data, even if one of the four instances of particular probative value set forth above does not apply, with supplemental data that explain their inability to make on-the-ground measurements at that time. In such cases, the Commission could request that the on-the-ground test data be submitted at a time when such measurements would be more feasible, or that a possible substitute for such data—such as transmitter monitoring software data or third-party speed test data—be submitted instead. Commission staff could also use infrastructure data to do its own propagation modeling and generate its own predicted coverage maps using the data submitted by the provider including link budget parameters, cell-site infrastructure data, and the information provided by service providers about the types of propagation models they used, standard terrain and clutter data, as well as standard propagation models, to determine whether the provider should be required to update its maps. The Bureau and Offices seek comment on other approaches the Bureau and Offices

should take where on-the-ground testing is temporarily infeasible.

22. In instances where the Commission staff uses its own propagation modeling to adjudicate challenges, the Bureau and Offices seek comment on how staff should conduct such propagation modeling. What model or models should staff use in different conditions (*e.g.,* for what combinations of spectrum band and terrain)? What inputs and parameters should staff use beyond those supplied by providers (*e.g.,* what specific sources of terrain and clutter data in what areas)? What assumptions should the Commission make regarding carrier aggregation? How should staff calculate the throughput in a given area given propagation-model calculations for signal strength? Finally, how should the Commission calibrate its models or ensure their accuracy?

23. The Bureau and Offices also seek comment about how staff should adjudicate instances where the on-the-ground test data and infrastructure data disagree or where the provider-filed coverage and Commission-modeled coverage differ. Under what conditions should staff determine that a given hexagon has network coverage? Would the results of the Commission propagation modeling always be dispositive? For example, should the Bureau and Offices always find that an area has network coverage if so indicated by the Commission propagation model, despite any number of on-the-ground tests that indicated a lack of service at the required speeds? Should the Bureau and Offices incorporate other, related metrics, such as signal strength or cell loading data, when considering how to treat infrastructure data in the adjudication of challenges? And should staff always require providers to update their filings or submit additional data if the Commission's propagation modeling indicate a lack of network coverage? If the Commission propagation model indicates network coverage over part of a hexagon, how should staff adjudicate that area? Should the specific location of on-the-ground test measurements within a challenged hexagon, relative to the Commission-predicted coverage, matter? Are there other scenarios in which the Bureau and Offices should consider adjudicating challenges with only infrastructure data?

c. Other Data

24. In the *Third Order,* the Commission sought to adopt a flexible approach for providers to respond to challenges. Several commenters argued that the Commission should grant providers additional flexibility in responding to challenges, including allowing providers to respond with drive testing data collected in the ordinary course of business, third party testing data (such as speed test data from Ookla or other speed test app), and/or tower transmitter data collected from transmitter monitoring software. As discussed in the *Third Order,* providers may voluntarily submit these or other types of data to support their rebuttals, but they may not be used in lieu of on-the-ground testing or infrastructure data. Consistent with the Commission's direction, OEA staff will review such data when voluntarily submitted by providers in response to consumer challenges, and if any of the data sources are found to be sufficiently reliable, the Bureau and Offices will specify appropriate standards and specifications for each type of data and add them to the alternatives available to providers to rebut a consumer challenge via public notice.

25. The Bureau and Offices also seek comment regarding the conditions under which a provider's transmitter monitoring software can be relied upon by staff in resolving challenges. For example, in what ways would transmitter monitoring software data augment or reinforce the probative value of infrastructure or other data to rebut challenger speed test data? How precisely do such systems measure the geographic coordinates (longitude and latitude) of the end-user devices, and how does that precision compare to the information collected from on-the-ground testing? Would such software record instances of end-user devices not being able to connect to the network at all? If not, would that exclusion make the data less reliable and probative in the rebuttal process? What other information would staff need to determine how to make use of such data in the challenge process?

B. Collecting Verification Information From Mobile Providers

26. The Broadband DATA Act requires the Commission to ''verify the accuracy and reliability of the [broadband internet access service data that providers submit in their biannual BDC filings] in accordance with measures established by the Commission.'' In the *Third Order,* the Commission determined that OEA and WTB may request and collect verification data from a provider on a case-by-case basis where staff have a credible basis for verifying the provider's coverage data. The *Third Order* specifies that, in response to an OEA and WTB inquiry to verify a mobile service provider's coverage data, the provider must submit either infrastructure information or on-the-ground test data for the specified area(s). A mobile provider has the option of submitting additional data, including but not limited to on-the-ground test data or infrastructure data (to the extent such data are not the primary option chosen by the provider), or other types of data that the provider believes support its reported coverage. The Commission further directed OEA and WTB to implement this data collection and adopt the methodologies, data specifications, and formatting requirements that providers must follow when collecting and reporting such data. Below, the Bureau and Offices propose processes and methodologies for determining areas subject to verification and for the collection of on-the-ground test data and infrastructure information, as well as information from transmitter monitoring systems and other data. The Bureau and Offices seek comment on each of these proposals, including the additional details and specifications set forth in the Technical Appendix of the *Public Notice.*

1. Area Subject to Verification

27. The Bureau and Offices propose to identify the portion(s) of a mobile provider's coverage map for which the Bureau and Offices would require verification data—referred to as the targeted area(s)—based upon all available evidence, including submitted speed test data, infrastructure data, crowdsourced and other third-party data, as well as staff evaluation and knowledge of submitted coverage data (including maps, link budget parameters, and other credible information). The Bureau and Offices seek comment on this proposal and on any alternative methodologies for determining where staff have a credible basis for verifying a mobile provider's coverage data.

28. Within the targeted area, the Bureau and Offices propose to require verification data covering a statistically valid sample of areas for which the mobile service provider must demonstrate sufficient coverage in order to satisfy the verification request. The Bureau and Offices propose to start the sampling with the division of the targeted area into unique components called ''units.'' The complete list of units within the targeted area is called the ''frame.'' The Bureau and Offices propose to first subdivide the targeted area into units based upon the same hexagonal geography the Bureau and Offices propose to use for grouping challenger speed tests (*i.e.,* H3

geospatial indexing system at resolution 8). To create the frame, the Bureau and Offices propose to include all resolution 8 hexagons that are within the targeted area or, for those resolution 8 hexagons that are only partially within the boundary of the targeted area, its centroid falls within or on the boundary of the targeted area. The Bureau and Offices next propose to group the hexagonal units that comprise the frame into non-overlapping, mutually exclusive groups (one ''stratum'' or multiple ''strata''). The Bureau and Offices propose to define each stratum based upon one or more variables that are correlated with a particular mobile broadband availability characteristic, such as population, road miles, and/or variation in terrain, and seek comment on what variables the Bureau and Offices should consider. The Bureau and Offices propose to exclude any hexagons that are not accessible by roads from the strata. If an area is unable to be sampled because there are too few hexagons accessible by road, the Bureau and Offices propose to include the minimum number of non-accessible hexagons within the strata as necessary to create a sufficient sample. The Bureau and Offices seek comment on these proposals, and on other methods that can be used to verify the part of the targeted area that cannot be drive tested.

29. Next, the Bureau and Offices propose to select a random sample of hexagons independently within each stratum and to require that a service provider conduct on-the-ground testing within these randomly selected hexagons or else submit infrastructure data sufficient for staff to reproduce coverage for these randomly selected hexagons. When evaluating on-the-ground test data, the Bureau and Offices propose that a sample meet two of the three thresholds proposed for evaluating tests in a challenged hexagon in the challenge process, specifically the geographic and temporal thresholds. The Bureau and Offices also propose to require a minimum of five speed tests in each selected hexagon. The Bureau and Offices would then evaluate the entire set of speed tests to determine the probability that the targeted area has been successfully verified. Under the Bureau and Offices' proposal, for the targeted area to be successfully verified, the probability of adequate coverage must be greater than or equal to 0.9 assessed using a one sided 95% confidence interval. When evaluating infrastructure data, the Bureau and Offices propose that staff review all available data and staff propagation modeling to demonstrate adequate coverage for all hexagonal units in a sample for the targeted area to be successfully verified. Where the data submitted by the provider in response to a verification request are not by themselves sufficient to demonstrate adequate coverage, the Bureau and Offices may request additional information to complete the verification process. The Bureau and Offices seek comment on these proposals.

30. Several commenters supported the Bureau and Offices' proposal in the *Second Order and Third Further Notice* to verify broadband availability data by requiring providers to submit tests and information on sampled areas, and agreed that it would be an efficient and less burdensome approach than having providers perform annual drive tests or regularly submit infrastructure information. The Bureau and Offices agree that sampling will require lower costs and fewer resources than collecting data from a provider's entire network coverage area. In particular, the proposed approach for sampling the targeted area is designed to minimize the cost and burden placed on service providers while ensuring staff have access to sufficient data to verify coverage in a reliable way. Without such a sampling plan, providers would need to submit substantially more data to demonstrate broadband availability.

31. In response to the *Second Order and Third Further Notice,* some providers expressed concerns that sampling would not mitigate the costs associated with performing testing and would still be a burden on providers, as it would require a minimum number of tests at different locations. However, compared to requiring providers to regularly drive test their networks or submit large amounts of infrastructure data in response to a verification request, the Bureau and Offices anticipate that their proposal to require providers to submit speed test results or infrastructure information on a case-by-case basis would minimize the time and resources associated with responding to the Commission's verification requests. The proposed stratification methodology would ensure that variation in broadband availability would be as small as possible within hexagons in the same stratum. The Bureau and Offices anticipate this methodology would reduce the sample size (*e.g.,* the number of test locations), the cost of data collection, and the variance in the estimate of the variable interest (meaning the percentage, P-hat, of positive tests indicating broadband availability), and, in turn, would increase the precision of the final estimate. The Bureau and Offices seek comment on this proposed methodology.

32. In addition, the Bureau and Offices seek comment on other variables which correlate with broadband availability and upon which stratification should be based. The Bureau and Offices also seek comment on the tradeoffs of setting a higher or lower confidence level for this verification process than the thresholds established for the challenge process. Under the Bureau and Offices' proposed methodology, if the provider fails to verify its coverage data, the provider would be required to submit revised coverage maps that reflect the lack of coverage in targeted areas failing the verification. Where a provider fails to verify its coverage and submits revised coverage data, the Bureau and Offices propose to re-evaluate the data submitted by the provider during the verification process against its revised coverage data for the targeted area. If the targeted area still cannot be successfully verified, the Bureau and Offices propose to require the provider to submit additional verification data or further revise its coverage maps until the targeted area is successfully verified. The Bureau and Offices seek comment on this proposal and invite commenters to propose alternative methodologies for generating a statistically valid sample of areas for which the mobile service provider must demonstrate sufficient coverage in response to a verification request.

33. Alternatively, the Bureau and Offices seek comment on the use of available spatial interpolation techniques, such as Kriging, that could be used to evaluate and verify the accuracy of coverage maps based on available measurements. Spatial interpolation techniques can be an alternative or complementary approach to specifying an exact testing threshold since spatial interpolation techniques require fewer data to compare with predictions using propagation models. Although spatial interpolation techniques can readily verify whether or not a hexagonal cell has coverage with speeds at or above the minimum values reported in the provider's submitted coverage data, the incremental benefit over testing thresholds may be minimal because spatial interpolation techniques provide better results as more data is collected. The Bureau and Offices seek comment on the costs and benefits of using spatial interpolation techniques either in addition to or as an alternative to the testing thresholds proposed above for verifying the accuracy of coverage maps.

2. On-the-Ground Test Data

34. To submit on-the-ground test data in response to a verification inquiry, the Bureau and Offices propose to require that mobile providers conduct on-the-ground tests consistent with the testing parameters and test metrics that the Bureau and Offices propose to require for provider-submitted test data in the challenge process. As described above, the Bureau and Offices propose to require verification data covering a statistically valid sample of areas for which the mobile service provider must demonstrate sufficient coverage in order to satisfy the verification request. To verify coverage with on-the-ground speed test data, the Bureau and Offices propose that the provider submit on-the-ground speed tests within a hexagonal area based upon the H3 geospatial indexing system at resolution 8. The Bureau and Offices would require that these tests meet a threshold percentage of positive tests (*i.e.,* those recording download and upload speeds at or above the minimum speeds the provider reports in its BDC submission as available at the location where the test occurred). The tests would be evaluated to confirm, using a 95% statistical confidence interval, that the cell coverage percentage is 0.9 or higher. In addition, the Bureau and Offices propose to require that tests meet the same geographic, temporal, and testing thresholds as proposed for evaluating provider rebuttals to challenges. The Bureau and Offices envision that the specific thresholds and the confidence interval proposed would provide balance between the costs to providers associated with verifying maps and the need for the Commission to acquire a significant enough sample to accurately verify mobile broadband availability. The Bureau and Offices seek input from commenters on the costs and benefits associated with these proposed threshold numbers and confidence intervals.

35. The Bureau and Offices propose that if the service provider is able to show sufficient coverage in the selected resolution 8 hexagon, the provider would have successfully demonstrated coverage to satisfy the verification request in that hexagon. The Bureau and Offices seek comment on this proposed methodology and invite commenters to propose alternative approaches that would allow for staff to automatically adjudicate speed test data submitted during the verification process. Staff may consider other relevant data submitted by providers, may request additional information from the provider (including infrastructure data, if necessary), and may take other actions as may be necessary to ensure the reliability and accuracy of the verification process. The Bureau and Offices seek comment on these proposals.

3. Infrastructure Information

36. In the *Third Order,* the Commission found that infrastructure information can provide an important means for the Commission to fulfill its obligation to independently verify the accuracy of provider coverage propagation models and maps and provided examples of the infrastructure information that mobile providers may be required to submit as part of a verification inquiry. The Commission further concluded that collecting such data will enable the Commission to satisfy the Broadband DATA Act's requirement that the Commission verify the accuracy and reliability of submitted coverage data.

37. If a mobile service provider chooses to submit infrastructure data in response to a verification request, the Bureau and Offices propose to require the provider to submit such data for all cell sites and antennas that provide service to the targeted area. The Bureau and Offices propose that the Commission staff then evaluate whether the provider has demonstrated sufficient coverage for each selected hexagon using standardized propagation modeling. Under this approach, staff engineers would generate their own predicted coverage maps using the data submitted by the provider (including link budget parameters, cell-site infrastructure data, and the information provided by service providers about the types of propagation models they used). Using these staff-generated maps, the Bureau and Offices would evaluate whether each selected hexagon has predicted coverage with speeds at or above the minimum values reported in the provider's submitted coverage data. In generating the Bureau and Offices' own coverage maps, they propose to use certain standard sets of clutter and terrain data. The Bureau and Offices seek comment on this proposal and seek comment generally on other ways that infrastructure data could be used to evaluate the sufficiency of coverage in their proposed verification process. Staff may also consider other relevant data submitted by providers during the verification process, may request additional information from the provider (including on-the-ground speed test data, if necessary), and may take steps to ensure the accuracy of the verification process. The Bureau and Offices seek comment on these proposals.

38. Alternatively, the Bureau and Offices could use the submitted infrastructure and link budget data, along with available crowdsourced data, to perform initial verification of the claimed coverage within the selected hexagons using standard propagation models as well as appropriate terrain and clutter data. The Bureau and Offices could evaluate the provider's link budgets and infrastructure data for accuracy against other available data, such as Antenna Structure Registration and spectrum licensing data. Under this approach, if the Bureau and Offices' projection of speeds, along with the available crowdsourced data at the challenged locations, does not predict speeds at or above the minimum values reported in the provider's submitted coverage data, the Bureau and Offices propose that Commission staff would consider any additional information submitted by the provider or request additional information from the provider. Such information would include on-the-ground speed test data and staff would use this information to complete its verification of the targeted area. The Commission could also leverage spatial interpolation techniques to evaluate and verify the accuracy of coverage maps based on available crowdsourcing and on-the-ground data. The Bureau and Offices seek comment on this approach and other ways that infrastructure data could be used to verify a provider's coverage in the targeted area.

39. Consistent with the authority the Commission delegated to OEA and WTB in the *Third Order* to ''adopt the methodologies, data specifications, and formatting requirements'' that providers must follow when collecting and reporting mobile infrastructure data, and to help ensure that infrastructure information submissions are useful, the Bureau and Offices seek comment on adding additional input fields to the list of infrastructure information providers should include when responding to a verification request. In addition to the types of infrastructure information listed as examples in the *Third Order,* the Bureau and Offices propose that providers submit the following additional parameters and fields: (1) Geographic coordinates of each transmitter; (2) per site classification (*e.g.,* urban, suburban, or rural); (3) elevation above ground level for each base station antenna and other transmit antenna specifications, including the make and model, beamwidth, and orientation (*i.e.,* azimuth and any electrical and/or mechanical down-tilt)

at each cell site; (4) operate transmit power of the radio equipment at each cell site; (5) throughput and associated required signal strength and signal to noise ratio; (6) cell loading distribution; (7) areas enabled with carrier aggregation and a list of band combinations (including the percentage of handset population capable of using this band combination); and (8) all other metrics required per the most-recent specification for infrastructure data released by OEA and WTB. The Bureau and Offices anticipate the Bureau and Offices will need all of this infrastructure information to use as inputs for Commission engineers to generate their own predicted coverage maps. While the Bureau and Offices recognize that several commenters recommended limiting the scope of infrastructure data in response to the *Second Order and Third Further Notice,* the Bureau and Offices anticipate that collecting additional infrastructure data based on the data specifications listed above will be necessary in order for such data to be useful in verifying providers' biannual data submissions. The Bureau and Offices seek comment on these proposals and tentative conclusions.

4. Additional Data

40. Mobile service providers may supplement their submission of infrastructure information or on-the-ground test data required by verification inquiry with ''other types of data that the provider believes support its coverage.'' In addition, OEA and WTB may require the submission of additional data when necessary to complete a verification inquiry. The Bureau and Offices seek comment on what types of other data, besides infrastructure information and on-the-ground test data, will be useful to verifying mobile service providers' coverage data and whether such data should be submitted in a specific format.

41. For example, in the *Third Order,* the Commission stated that it will allow mobile broadband service providers to supplement their submission of either infrastructure information or on-the-ground test data with additional data that the provider believes support its coverage, such as data collected from its transmitter monitoring systems and software. The Commission found that such data currently have not been shown to be a sufficient substitute for either on-the-ground testing or infrastructure data in response to a verification investigation. However, the Commission directed OEA and WTB to accept and review transmitter data to the extent they are voluntarily submitted by providers in response to verification requests from staff. These data could be especially helpful to the extent that they support potential reasons for service disruptions during the time interval in which measurements were performed, or to describe remedial improvements to network quality. To that end, the Commission delegated authority to OEA and WTB to specify appropriate standards and specifications for such data and add them to the alternatives available to providers to respond to verification requests if staff concludes that such methods are sufficiently reliable.

42. In the absence of any experience with this process it is premature to propose specifications and standards to receive voluntary data collected from a provider's transmitter monitoring systems and software. However, mobile service providers may submit transmitter data in addition to the infrastructure or on-the-ground data they submit in response to a verification investigation. The Bureau and Offices propose that OEA and WTB analyze transmitter data submitted by mobile service providers to determine whether such data accurately depict coverage by a mobile service provider. The Bureau and Offices seek comment on this proposal.

C. Collecting Verified Broadband Data From Governmental Entities and Third Parties

43. The Broadband DATA Act requires the Commission to develop a process through which it can collect verified data for use in the coverage maps from: (1) State, local, and Tribal government entities primarily responsible for mapping or tracking broadband internet access service coverage in their areas; (2) third parties, if the Commission determines it is in the public interest to use their data in the development of the coverage maps or in the verification of data submitted by providers; and (3) other federal agencies. In the *Third Order,* the Commission directed OEA to collect verified mobile on-the-ground data from governmental entities and third parties through a process similar to that established for providers making their semiannual Broadband Data Collection filings.

44. In accordance with the Commission's direction in the *Third Order* and to ensure the Commission receives verified and reliable data, the Bureau and Offices propose that governmental entities and third parties should submit on-the-ground test data using the same metrics and testing parameters as the Bureau and Offices propose above for mobile providers to use in submitting on-the-ground test data. While the Massachusetts Department of Telecommunications and Cable asks the Commission to adopt a ''minimum standard'' and avoid ''strict submission methodology guidelines'' on data submissions by states and other third parties, the Bureau and Offices do not propose standards that are lower than or differ from those the Bureau and Offices propose for mobile providers. As discussed, these data can be used to verify service providers' coverage maps, similar to the data submitted by mobile providers. The Bureau and Offices therefore anticipate that assigning consistent, standardized procedures for governmental entities and third parties to submit on-the-ground data will be both appropriate and necessary to ensure the broadband availability maps are as accurate and precise as possible.

45. The Bureau and Offices also propose that, to the extent the Commission has verified on-the-ground data submitted by governmental entities and third parties, such data may be used when the Commission conducts analyses as part of the verification processes and would be treated as crowdsourced data. Governmental entities and third parties may also choose to use these data to submit a challenge, provided it meets the requirements for submission of a challenge under the Commission's rules. The Bureau and Offices invite comment on both of these proposals and also on whether stakeholders would benefit from additional guidance regarding when the Commission will consider data from government entities and third parties.

D. Probative Value

46. The Commission directed OEA and WTB to provide guidance on the types of data that will likely be more probative in validating broadband availability data submitted by mobile service providers in different circumstances. The Bureau and Offices believe that on-the-ground test data that reflects actual on-the-ground tests as opposed to predictive modeling and other techniques will generally be more accurate reflections of user experience and thus more probative than infrastructure or other sources of information in most but not all circumstances. The Bureau and Offices recognize that on-the-ground test data can be more costly to obtain and may not be necessary in every instance, and therefore describe below at least four circumstances where the Bureau and

Offices tentatively conclude that infrastructure information will likely be of probative value comparable to on-the-ground data. The Bureau and Offices seek comment on these conclusions and whether there are any other circumstances where the Bureau and Offices can draw such a conclusion. The Bureau and Offices further seek comment on the probative value of potentially less burdensome testing techniques using aerial drones or other technologies for collecting test data.

47. First, the Bureau and Offices propose to find that infrastructure information will be of comparable probative value when extenuating circumstances at the time and location of a given test (*e.g.,* maintenance or temporary outage at the cell site) caused service to be abnormal. In such cases, the Bureau and Offices propose for providers to submit coverage or footprint data for the site or sectors that were affected and information about the outage, such as bands affected, duration, and whether the outage was reported to the Network Outage Reporting System (NORS), along with a certification about the submission's accuracy. The Bureau and Offices would then remove measurements in the reported footprint in the relevant band(s) made during the outage and, as appropriate, recalculate the statistics.

48. Second, the Bureau and Offices propose to find that infrastructure or other information will be of comparable probative value when measurements that led to the verification request or challenge rely on devices that lack a band that the provider uses to make coverage available in the area in question. In such cases, the Bureau and Offices propose for providers to submit band-specific coverage footprints and information about which specific device(s) lack the band. The Bureau and Offices would then remove measurements from the listed devices in the relevant footprint and recalculate the statistics.

49. Third, the Bureau and Offices propose to find that infrastructure information will be of comparable probative value when speed tests were taken during an uncommon special event (*e.g.,* a professional sporting event) that increased traffic on the network. The Bureau and Offices recognize that mobile service providers would not have the same throughput they would in normal circumstances given the high volume of traffic on networks during these types of events, so demonstrating the existence of coverage in the area by submitting infrastructure information would be persuasive for why speed tests were negative in such a scenario.

50. Fourth, the Bureau and Offices propose to find that infrastructure information will be of comparable probative value when challenger speed tests were taken during a period where cell loading exceeded the modeled cell loading factor. The Bureau and Offices recognize speed tests taken during a period when cell loading is higher than usual can result in negative speed tests. However, as discussed, the Bureau and Offices anticipate infrastructure information will be useful to rebut challenges in this situation, but if a high number of challenges show persistent over-loading, the Bureau and Offices propose that staff may initiate a verification inquiry to investigate whether mobile providers have submitted coverage maps based on an accurate assumption of cell loading in a particular area, and mobile providers should respond to such a verification request with on-the-ground data in order to assess the experience of users in that area.

E. Crowdsourced Data

51. The Broadband DATA Act requires the Commission to ''develop a process through which entities or individuals . . . may submit specific information about the deployment and availability of broadband internet access service . . . on an ongoing basis . . . to verify and supplement information provided by providers.'' In the *Second Order,* the Commission adopted a crowdsourcing process to allow individuals and entities to submit such information.

52. The Commission instructed OET, OEA, WTB, and the Wireline Competition Bureau (WCB) to develop a process to prioritize the consideration of crowdsourced data submitted through data collection apps used by consumers and other entities that are determined to be ''highly reliable'' and that ''have proven methodologies for determining network coverage and network performance.'' The Commission further directed OET, OEA, WCB, and WTB to consider ''(1) whether the application uses metrics and methods that comply with current Bureau and Office requirements for submitting network coverage and speed data in the ordinary course; (2) whether the speed application has enough users that it produces a dataset to provide statistically significant results for a particular provider in a given area; and (3) whether the application is designed so as not to introduce bias into test results.'' The Bureau and Offices propose to find that the Commission's speed test app is a reliable and efficient method for entities to use in submitting crowdsourced mobile coverage data to the Commission. The Commission's speed test app allows users to submit specific information about the deployment and availability of mobile broadband service and meets the requirements outlined in the Commission's *Second Order.* To the extent that OET, in consultation with OEA and WTB, determines that other apps used by consumers or other entities are ''highly reliable'' and ''have proven methodologies for determining mobile broadband network coverage and network performance,'' the Bureau and Offices propose to allow consumers and other entities to use such an app to submit crowdsourced information. The Bureau and Offices also propose to consider as crowdsourced information speed tests taken with an authorized app that do not meet the criteria needed to create a cognizable challenge or are otherwise not intended to be used to challenge the accuracy of a mobile service providers' map.

53. To the extent consumers and governmental or other entities choose to submit on-the-ground crowdsourced mobile speed test data in the online portal, the Bureau and Offices propose that such data be collected using a similar measurement methodology as the Commission's speed test app and submitted in a similar format to that which the Bureau and Offices propose for challengers and providers to use when submitting speed tests. However, because crowdsourced data will not automatically require a response from a provider, and Commission staff will use crowdsourced data for identifying individual instances or patterns of potentially inaccurate or incomplete deployment or availability data that warrants further review and will only initiate an inquiry when a ''critical mass of'' crowdsourced filings suggest that a provider has submitted inaccurate or incomplete data, the Bureau and Offices propose for some speed test metrics to be optional. For example, the Bureau and Offices propose to allow entities submitting crowdsourced data to submit tests that include any combination of the download speed, upload speed, or round-trip latency test metrics rather than requiring all three as with challenge data. The Bureau and Offices seek comment on their proposal. Should the Bureau and Offices adopt a more or less stringent standard for consumers and other entities to submit crowdsourced data? If so, what metrics and methods should consumers and other entities be required to meet when

submitting crowdsourced data? How should the Bureau and Offices ensure that a speed app has enough users to provide statistically significant results for a mobile provider in a specific geographic area? How should the Bureau and Offices ensure apps do not introduce bias into test results?

54. In the *Third Order,* the Commission directed OET, in consultation with OEA and WTB, to update the FCC Speed Test app as necessary or develop a new speed test app to collect the metrics and include the requisite functionalities so that challengers may use it in the challenge process. The Commission also directed OET to approve additional third-party speed test apps that collect all necessary data and include these required functionalities for use in the challenge process. The Bureau and Offices propose that OET issue a public notice inviting proposals for designation of third-party speed test data collection apps as acceptable for use for submission of crowdsourced and challenge data. In submitting proposals, parties would be required to include information indicating how the app complies with the requirements for crowdsourced data collection and challenge data collection requirements as set forth in applicable Commission orders. OET would provide an opportunity for comments and replies regarding the proposals. OET would then review all of the proposals, comments, and replies, and evaluate the functionalities before designating apps as acceptable for use for submission of crowdsourced and challenge data. The Bureau and Offices also propose that OET would provide periodic review and offer guidance for designated third party apps to ensure continued compliance with all technical and program requirements. The Bureau and Offices seek comment on their proposed process.

55. The Commission found it appropriate to establish and use an online portal for crowdsourced data filings and use the same portal for challenge filings. In adopting this approach, the Commission directed the Bureaus and Offices to implement the crowdsourced data collection and create a portal for the receipt of crowdsourced data. The Commission also directed OET, OEA, WCB, and WTB to ''issue specific rules by which [the Commission] will prioritize the consideration of crowdsourced data in advance of the time that the online portal is available.'' The Bureau and Offices seek comment on ways to implement this directive. Specifically, the Bureau and Offices ask commenters to recommend methodologies for submitting mobile crowdsourced data prior to the creation of the online portal that are efficient for consumers and other entities, protect consumers' privacy, and are feasible for the Bureaus and Offices to implement. For example, data submitted by consumers and other entities that do not follow any specific metrics or methodologies may be less likely to yield effective analysis and review by the Commission of providers' mobile broadband availability. Therefore, the Bureau and Offices propose to require consumers and other entities to submit any preliminary crowdsourced data using the same metrics that providers would use when submitting on-the-ground data in response to a Commission verification request. Do commenters agree?

56. As discussed in the *Second Order,* the Commission declined to establish specific thresholds to use when deciding whether to evaluate providers' filings where crowdsourced data suggest potential inaccuracies. Instead, the Commission found that staff should initiate inquiries when a ''critical mass of'' crowdsourced filings suggest that a provider has submitted inaccurate or incomplete information. The Commission directed OET, OEA, WCB, and WTB to provide guidance to providers when inquiries based on crowdsourced filings could be initiated. Commenters generally agreed that the crowdsourcing process could be used to highlight problems with the coverage maps' accuracy and trigger further review by the Commission. The Bureau and Offices propose to evaluate mobile crowdsourced data through an automated process to identify potential areas that would trigger further review using a methodology similar to the mobile verification process proposed above, with certain simplifications. The Bureau and Offices propose that the outcome of this methodology may provide staff with a credible basis for verifying a provider's coverage data. Under the Bureau and Offices proposed approach, they therefore propose that areas identified from crowdsourced data using this methodology would be subject to verification inquiry consistent with the proposed mobile verification process. The Bureau and Offices seek comment on this proposed framework for evaluating crowdsourced data.

57. More specifically, the methodology the Bureau and Offices propose would first exclude any anomalous or otherwise unusable tests submitted as crowdsourced data, and the Bureau and Offices seek comment generally on how to identify such tests. From the remaining crowdsourced tests, the Bureau and Offices propose to use data clustering to identify potential targeted areas where crowdsourced tests indicate a provider's coverage map is inaccurate. The Bureau and Offices seek comment on their proposal and on any alternative methods for determining when a ''critical mass'' of crowdsourced filings suggest a provider has submitted inaccurate or incomplete information.

58. In the *Second Order,* the Commission determined that all information submitted as part of the crowdsourcing process will be made public, with the exception of personally identifiable information and any data required to be confidential under § 0.457 of the Commission's rules, and directed OEA to make crowdsourced data publicly available as soon as practicable after submission and to establish an appropriate method for doing so. Accordingly, the Bureau and Offices propose to make all crowdsourced data available via the Commission's public-facing website. Such information will depict coverage data and other associated information and will not include any personally identifiable information. The Bureau and Offices propose to update the public crowdsourced data biannually. The Bureau and Offices seek comment on their proposals and on any alternative methods for making crowdsourced data available to the public. The Bureau and Offices also seek comment on ways to ensure personally identifiable and other sensitive information is kept secure and private.

59. Finally, the Commission directed OET, OEA, WCB, and WTB to modify the process for the collection of fixed and mobile crowdsourced data over time as determined to be necessary by the Bureaus and Offices. The Bureaus and Offices seek comment on the proposals herein and will modify the process for collecting mobile crowdsourced data in the future as necessary.

F. Supplemental Initial Regulatory Flexibility Analysis

60. *Supplemental Initial Regulatory Flexibility Analysis.* As required by the Regulatory Flexibility Act of 1980, as amended (RFA), the Bureau and Offices have prepared this Supplemental Initial Regulatory Flexibility Analysis (Supplemental IRFA) of the possible significant economic impact on a substantial number of small entities by the proposed rules and policies contained in this *Public Notice* to supplement the Commission's Initial and Final Regulatory Flexibility Analyses completed in the *Digital*

Opportunity Data Collection Report and Order and Further Notice of Proposed Rulemaking, Second Order and Third Further Notice, and *Third Order.* Written public comments are requested on this Supplemental IRFA. Comments must be identified as responses to the Supplemental IRFA and must be filed by the same deadline for comments specified on the first page of this *Public Notice.* The Commission will send a copy of this *Public Notice,* including this Supplemental IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA). In addition, this *Public Notice* and Supplemental IRFA (or summaries thereof) will be published in the **Federal Register**.

61. *Need for, and Objectives of, the Proposed Rules.* In this *Public Notice,* WTB, OEA, and OET take the next step to obtain better coverage data and implement the requirements under the Broadband DATA Act which tasks the Commission with collection of granular data from providers on the availability and quality of broadband internet access service and verification of the accuracy and reliability of broadband coverage data submitted by providers. Following the December 27, 2020, Congressional appropriation of funding for the implementation of the Broadband DATA Act, the Commission began to implement challenge, verification, and crowdsourcing processes involving broadband data coverage submissions.

62. The Commission has delegated to its staff the responsibility to develop technical requirements for verifying service providers' coverage data, a challenge process that will enable consumers and other third parties to dispute service providers' coverage data, and a process for third parties and other entities to submit crowdsourced data on mobile broadband availability. These measures will help the Commission, Congress, federal and state policy makers, and consumers to evaluate the status of broadband deployment throughout the United States. The *Public Notice* proposes and seeks comment on technical requirements to implement the mobile challenge, verification, and crowdsourcing processes required by the Broadband DATA Act, such as metrics for on-the-ground test data and a methodology for determining the threshold for what constitutes a cognizable challenge requiring a provider response. It also provides initial guidance and seeks comment on what types of data will likely be more probative in different circumstances. The Bureau and Offices propose detailed processes and metrics for providers to follow when responding to a Commission verification request, for government entities and other third parties to follow when submitting verified broadband coverage data, and for challengers to follow when contesting providers' broadband coverage availability. The Bureau and Offices believe this level of detail is necessary to allow providers, consumers and other third parties with robust opportunities to comment, provide input and help formulate the processes and procedures to enable better evaluation of the status of broadband deployment throughout the United States.

63. *Legal Basis.* The proposed action is authorized pursuant to sections 1–5, 201–206, 214, 218–220, 251, 252, 254, 256, 303(r), 332, 403, and 641–646 of the Communications Act of 1934, as amended, 47 U.S.C. 151–155, 201–206, 214, 218–220, 251, 252, 254, 256, 303(r), 332, 403, 641–646.

64. *Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply.* The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules and policies, if adopted. The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act. A ''small business concern'' is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.

65. As noted above, Regulatory Flexibility Analyses were incorporated into the *Digital Opportunity Data Collection Report and Order and Further Notice of Proposed Rulemaking, Second Order and Third Further Notice,* and *Third Order.* In those analyses, the Bureau and Offices described in detail the small entities that might be affected. In this *Public Notice,* for the Supplemental IRFA, the Bureau and Offices hereby incorporate by reference the descriptions and estimates of the number of small entities from the previous Regulatory Flexibility Analyses in the *Digital Opportunity Data Collection Report and Order and Further Notice of Proposed Rulemaking, Second Order and Third Further Notice,* and *Third Order.*

66. *Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities.* The granular data collection for the challenge and verification processes proposed in the *Public Notice* would, if adopted, impose some new reporting, recordkeeping, or other compliance requirements on some small entities. Specifically, the Bureau and Offices propose that mobile providers of broadband internet access service submit coverage data in the form of on-the-ground test data or infrastructure information on a case-by-case basis in response to a Commission request to verify mobile broadband providers biannual BDC data submissions. Additionally, the Bureau and Offices propose a methodology for state, local, and Tribal government entities and third parties to follow when submitting verified mobile on-the-ground data to the Commission for use in the coverage maps. The Bureau and Offices also establish a methodology for mobile broadband providers to follow when responding to or rebutting consumer challenges of broadband availability. The Bureau and Offices also seek comment on other types of data that will likely have more probative value when used to either verify coverage maps or respond to a consumer challenge. Finally, the Bureau and Offices propose details and seek comment on how third parties and other entities may submit crowdsourced data and how this information may be put to best use. If adopted, any of these requirements could impose additional reporting, recordkeeping, or other compliance obligations on small entities.

67. The challenge and verification process proposals and issues raised for consideration and comment in the *Public Notice* may require small entities to hire attorneys, engineers, consultants, or other professionals. At this time, however, the Commission cannot quantify the cost of compliance with any potential rule changes and compliance obligations for small entities that may result from the *Public Notice.* The Bureau and Offices expect their requests for information on potential burdens, costs and cost minimization and alternative approaches associated with matters raised in the *Public Notice* will provide them with information to assist with their evaluation of the cost of compliance for small entities of any reporting, recordkeeping, or other compliance requirements the Bureau and Offices adopt.

68. *Steps Taken to Minimize the Significant Economic Impact on Small Entities and Significant Alternatives Considered.* The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include

the following four alternatives (among others): ''(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.''

69. The Bureau and Offices anticipate the proposals set forth in the *Public Notice* will balance the need for the Commission to generate more precise and granular mobile broadband availability maps with any associated costs and burdens on mobile broadband providers. In implementing the requirements of the Broadband DATA Act in orders preceding this *Public Notice,* the Commission sought comment on the burdens associated with the potential requirements discussed in collecting broadband internet access service data and how such burdens can be minimized for small entities. For example, in the *Second Order and Third Further Notice,* the Commission sought comment on the potential burdens on small providers associated with: (1) Requiring providers to submit on-the-ground data to validate mobile broadband coverage; and (2) encouraging small providers to participate in the challenge process. In part, the comments received in response to the *Second Order and Third Further Notice* helped shape the proposals, approaches and steps taken in this *Public Notice.*

70. Consistent with the Commission's recognition in the *Third Order* that providers should not be subject to the undue cost of responding to a large number of challenges to very small areas, for the mobile service challenge process, the Bureau and Offices have proposed in this *Public Notice* to jointly evaluate speed tests submitted by consumers and governmental and third-party challengers. The Bureau and Offices have also proposed data specifications that all submitted challenger speed test data must meet. After combining consumer speed tests and governmental and third-party speed tests, the Bureau and Offices propose to validate each speed test and exclude tests that do not present reliable evidence. Under the Bureau and Offices' proposed approach, they would combine such speed test evidence and apply a single methodology to determine whether the threshold for a cognizable challenge has been met and to establish the boundaries of the challenged area. After determining the full set of combined, valid challenger speed tests, the Bureau and Offices would then associate each speed test with the proposed standardized geographical area discussed in the *Public Notice.* For each area that includes valid challenger speed tests, the Bureau and Offices would then evaluate whether several thresholds have been met in order to determine whether the challenger evidence demonstrates a cognizable challenge requiring a provider response. Adopting a process to determine whether there is a cognizable challenge to which a provider is required to respond rather than requiring a provider to respond to any and all submitted challenges will minimize the economic impact for small providers to the extent they are subject to challenges.

71. The proposed mobile service challenge process metrics for mobile providers to follow when responding to a Commission verification request seek to balance the need for the Commission to establish valuable methods for verifying coverage data with the need to reduce the costs and burdens associated with requiring mobile providers to submit on-the-ground test data and infrastructure information. For example, in order to ensure the challenge process is user-friendly for challengers and workable for mobile providers to respond to and rebut challenges, the Bureau and Offices have proposed that challenged mobile service providers who choose to submit on-the-ground speed test data will be held to the same standard as the challengers to demonstrate that the challenged areas have sufficient coverage. Providers would be required to submit on-the-ground data consistent with the metrics the Bureau and Offices propose for verifying coverage with on-the-ground data and meet the same three threshold tests as the challengers. The Bureau and Offices considered but declined a proposal to define a challenge area based on the test data submitted by the challengers on their belief that the Bureau and Offices' proposal is both user-friendly and supported by sufficient data while also targeting a more precise geographic area where broadband coverage is disputed and limits the burden on providers in responding to challenges. The *Public Notice* seeks comment on the specifics of the Bureau and Offices' proposed methodology and invites commenters to propose alternative approaches that would allow for staff to automatically adjudicate most challenges.

72. Our proposals for collection of verification information recognize that some types of test data such as on-the-ground test data can be more costly for small entities and others to obtain and therefore the Bureau and Offices have proposed to identify the portion of a provider's coverage map (target area) for which the Bureau and Offices would require verification data based upon all available evidence, including submitted speed test data, infrastructure data, crowdsourced and other third-party data, as well as staff evaluation and knowledge of submitted coverage data (including maps, link budget parameters, and other credible information). Using all available evidence will enable providers to choose options in line with their specific economic situations. Further, to minimize the cost and burden placed on service providers, while ensuring Commission staff have access to sufficient data to demonstrate coverage, the Bureau and Offices have proposed to use sampling of the target area. Mobile service providers would be required to provide verification data which covers a statistically valid sampling of areas for which sufficient coverage must be demonstrated to satisfy the verification request. The sample would also be required to meet the same thresholds for adequate coverage as defined in the challenge process using either infrastructure data or on-the-ground speed tests for the targeted area to be successfully verified. The proposed use of a sampling plan to demonstrate broadband availability will allow small and other providers to avoid submission of considerably more data and the associated costs.

73. In crafting the challenge and verification process proposals in the *Public Notice,* the Bureau and Offices also considered the appropriate verification data requirements for government entities and third parties and the probative value of other types of data. To ensure consistency, reliability, comparability, and verifiability of the data the Commission receives the Bureau and Offices declined to propose different or lower standards than those that would be applicable to providers. Requiring government entities and third parties to submit on-the-ground test data using the same metrics and testing parameters proposed for mobile providers will ensure that the Commission implements a standardized process resulting in the broadband availability maps that are as accurate and precise as possible. The Bureau and Offices' consideration of appropriate verification data sources took into consideration both the usefulness and costs of on-the-ground

test data which can be more costly to obtain and may not be needed in every situation versus the use of infrastructure information. Based on the Bureau and Offices' analysis they propose to find that infrastructure information will likely be of comparable probative value to on-the-ground test data in situations when cell sites or sectors had a temporary malfunction during measurements, when measurements that led to a verification request or challenge rely on devices that lack a band that the provider uses to make coverage available in the area in question, when speed tests were taken during an uncommon special event (*e.g.,* a professional sporting event) that increased traffic on the network, or when challenger speed tests were taken during a period where cell loading exceeded the modeled cell loading factor. The *Public Notice* seeks comment on this proposal, on whether there are any other circumstances where infrastructure data will be greater than, equal to, or comparable to, on-the-ground data, and on whether there are other types of data that will be probative in other circumstances.

74. To assist in the further evaluation of the economic impact on small entities of proposals in this *Public Notice,* and to identify any additional options and alternatives for such entities that the Commission can pursue while also achieving its objectives of improving accuracy and reliability of its data collections, the Bureau and Offices have sought comment on these matters. Before reaching any final conclusions and taking final action in this proceeding, the Bureau and Offices expect to review the comments filed in response to the *Public Notice* and more fully consider the economic impact on small entities and how any impact can be minimized.

75. *Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules.* None.

List of Subjects in 47 CFR Part 1

Broadband, Broadband Mapping, Communications, internet, Reporting and recordkeeping requirements, Telecommunications.

Federal Communications Commission.

Amy Brett,

Acting Chief of Staff, Wireless Telecommunications Bureau.

Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission, under delegated authority, proposes to amend 47 CFR part 1 as follows:

PART 1—PRACTICE AND PROCEDURE

■ 1. The authority citation for part 1 continues to read as follows:

Authority: 47 U.S.C. chs. 2, 5, 9, 13; 28 U.S.C. 2461 note, unless otherwise noted.

■ 2. Amend § 1.7001 by adding paragraph (a)(20) to read as follows:

§ 1.7001 Scope and content of filed reports.

(a) * * *

(20) *H3 standardized geospatial indexing system.* A system developed by Uber that overlays the Earth with hexagonal cells of different sizes at various resolutions. The smallest hexagonal cells are at resolution 15, in which the average hexagonal cell has an area of approximately 0.9 square meters, and the largest are at resolution 0, in which the average hexagonal cell has an area of approximately 4.3 million square kilometers. Hexagonal cells across different resolutions are referred to as a ''hex-n'' cell, where n is the resolution (*e.g.,* ''hex-15'' for the smallest size hexagonal cell). The H3 geospatial indexing system employs a nested cell structure wherein a lower resolution hexagonal cell (the ''parent'') contains approximately contains seven hexagonal cells at the next highest resolution (its ''children''). That is, a hex-1 cell is the ''parent'' of seven hex-2 cells, each hex-2 cell is the parent of seven hex-3 cells, and so on.

■ 3. Amend § 1.7006 by:

■ a. Redesignating paragraphs (b)(2) through (4) as paragraphs (b)(3) through (5) and adding new paragraph (b)(2);

■ b. Revising the newly redesignated paragraphs (b)(3) through (b)(5);

■ c. Revising paragraph (c);

■ d. Revising paragraph (e)(1)(iii);

■ e. Adding paragraphs (e)(2)(i) through (iii),

■ f. Revising paragraphs (e)(4) and (e)(6);

■ g. Adding paragraph (e)(7), and

■ h. Revising paragraphs (f)(1)(i) through (3) and (f)(5).

The revisions and additions read as follows:

§ 1.7006 Data verification.

* * * * *

(b) * * *

(2) On-the-ground crowdsourced data shall include the same metrics described in paragraph (c)(1) of this section.

(3) The online portal shall notify a provider of a crowdsourced data filing against it, but a provider is not required to respond to a crowdsourced data filing.

(4) If, as a result of crowdsourced data, the Commission determines that a provider's coverage information is not accurate, then the provider shall be subject to a verification inquiry consistent with the mobile verification process described in paragraph (c)(1) of this section.

(5) All information submitted as part of the crowdsourcing process shall be made public via the Commission's website, with the exception of personally identifiable information and any data required to be confidential under § 0.457 of this chapter.

(c) *Mobile service verification process for mobile providers.* Mobile service providers shall submit either infrastructure information or on-the-ground test data in response to a request by Commission staff as part of its inquiry to independently verify the accuracy of the mobile provider's coverage propagation models and maps. In addition to submitting either on-the-ground data or infrastructure data, a provider may also submit data collected from transmitter monitoring software. The Office of Economics and Analytics and the Wireless Telecommunications Bureau may require the submission of additional data when necessary to complete a verification inquiry. A provider must submit its data, in the case of both infrastructure information and on-the-ground data, within 60 days of receiving a Commission staff request. Regarding on-the-ground data, a provider must submit evidence of network performance based on a sample of on-the-ground tests that is statistically appropriate for the area tested.

(1) When a mobile service provider chooses to demonstrate mobile broadband coverage availability by submitting on-the-ground data, the mobile service provider shall provide valid on-the-ground tests within a Commission-identified statistically valid and unbiased sample of its network, and shall demonstrate that the sampled area meets a threshold percentage of positive tests, which are defined as tests that show speeds that meet or exceed the minimum download and upload speeds the mobile service provider reports as available at the location where the test occurred.

(i) On-the-ground test data shall meet the following testing parameters:

(A) A minimum test length of 5 seconds and a maximum test length of 30 seconds;

(B) Reporting measurement results that have been averaged over the duration of the test (*i.e.,* total bits received divided by total test time); and

(C) Conducted outdoors between the hours of 6:00 a.m. and 10:00 p.m. local time.

(ii) On-the-ground test data shall include the following metrics for each test:

(A) Testing app name and version;

(B) Timestamp and duration of each test metric;

(C) Geographic coordinates at the start and end of each test metric measured with typical Global Positioning System (GPS) Standard Positioning Service accuracy or better;

(D) Velocity of vehicle, if applicable and available, for in-vehicle tests;

(E) Device make and model;

(F) Cellular operator name;

(G) Location of server (*e.g.,* hostname or IP address);

(H) Available signal strength, signal quality, and radiofrequency metrics of each serving cell;

(I) Download speed;

(J) Upload speed;

(K) Round-trip latency; and

(L) All other metrics required per the most-recent specification for mobile test data released by the Office of Economics and Analytics and the Wireless Telecommunications Bureau.

(2) When a mobile service provider chooses to demonstrate mobile broadband coverage availability by submitting infrastructure data, the mobile service provider must submit such data for all cell sites that provide service for the targeted area.

(i) Infrastructure data shall include the following information for each cell site that the provider uses to provide service for the area subject to the verification inquiry:

(A) Geographic coordinates of the site measured with typical GPS Standard Positioning Service accuracy or better;

(B) A unique site ID for the site;

(C) The ground elevation above mean sea level of the site;

(D) Frequency band(s) used to provide service for each site being mapped including channel bandwidth (in megahertz);

(E) Radio technologies used on each band for each site;

(F) Capacity (Mbps) and type of backhaul used at each cell site;

(G) Number of sectors at each cell site;

(H) Effective Isotropic Radiated Power (EIRP);

(I) Geographic coordinates of each transmitter;

(J) Per site classification (*e.g.,* urban, suburban, or rural);

(K) Elevation above ground level for each base station antenna and other transmit antenna specifications (*i.e.,* the make and model, beamwidth (in degrees), and orientation (azimuth and any electrical and/or mechanical down-tilt in degrees) at each cell site);

(L) Operate transmit power of the radio equipment at each cell site;

(M) Throughput and associated required signal strength and signal to noise ratio;

(N) Cell loading distribution; and

(O) Areas enabled with carrier aggregation and a list of band combinations (including the percentage of handset population capable of using this band combination);

(P) Any additional parameters and fields that are listed in the most-recent specifications for wireless infrastructure data released by the Office of Economics and Analytics and the Wireless Telecommunications Bureau.

* * * * *

(e) * * *

(1) * * *

(iii) Speed test data. Consumer challenges shall include the test metrics described in paragraph (c)(1) of this section, and shall:

(A) Be performed outdoors;

(B) Indicate whether each test was taken in an in-vehicle mobile or outdoor pedestrian environment; and

(C) Be conducted using a speed test app that has been designated by the Office of Engineering and Technology, in consultation with the Office of Economics and Analytics and the Wireless Telecommunications Bureau, for use in the challenge process;

(2) * * *

(i) A hexagon at resolution 8 from the H3 standardized geospatial indexing system shall be classified as challenged if it satisfies the following criteria.

(A) *Geographic threshold.* At least two valid speed tests, at least one of which is a ''negative'' test, are recorded in a minimum number of ''point-hexes'' of the resolution 8 hexagon, where:

(*1*) A test shall be defined as negative when the test does not meet the minimum predicted speeds based on the highest technology-specific minimum download and upload speeds reported for that area by the provider in its most recent coverage data;

(*2*) A point-hex shall be defined as one of the seven nested hexagons at resolution 9 from the H3 standardized geospatial indexing system of a resolution 8 hexagon;

(*3*) A point-hex shall be defined as accessible where at least 50% of the point-hex overlaps with the provider's reported coverage data and the point-hex overlaps with any primary, secondary, or local road from the most recent U.S. Census Bureau's road data; and

(*4*) The minimum number of point-hexes in which tests must be recorded shall be equal to the number of accessible point-hexes or four, whichever number is lower. If there are no accessible point-hexes within a resolution 8 hexagon, the geographic threshold shall not need to be met.

(B) *Temporal threshold.* The difference in time of day between two negative tests is at least four hours irrespective of calendar day; and

(C) *Testing threshold.* At least five speed tests are negative within a hex-8 cell when a challenger has submitted 20 or fewer tests. When a challenger has submitted more than 20 tests, a certain minimum percentage of the total number of tests in the cell must be negative;

(*1*) When a challenger has submitted 21–29 tests, at least 24% must be negative;

(*2*) When a challenger has submitted 30–45 tests, at least 22% must be negative;

(*3*) When a challenger has submitted 46–60 tests, at least 20% must be negative;

(*4*) When a challenger has submitted 61–70 tests, at least 18% must be negative;

(*5*) When a challenger has submitted 71–99 tests, at least 17% must be negative;

(*6*) When a challenger has submitted 100 or more tests, at least 16% must be negative;

(ii) In addition, a larger, ''parent'' hexagon (at resolutions 7 or 6) shall be considered challenged if at least four of its child hexagons are considered challenged. The smallest challengeable hexagonal cell is a hexagon at resolution 8 from the H3 standardized geospatial indexing system.

(iii) Mobile service providers shall be notified of all cognizable challenges to their mobile broadband coverage maps at the end of each month. Challengers shall be notified when a mobile provider responds to the challenge. Mobile service providers and challengers both shall be notified monthly of the status of challenged areas.

* * * * *

(4) To dispute a challenge, a mobile service provider must submit on-the-ground test data, consistent with the metrics and methods described in paragraph (c)(1) of this section, or infrastructure data to verify its coverage map(s) in the challenged area. To the extent that a mobile service provider believes it would be helpful to the Commission in resolving a challenge, it may choose to submit other data in addition to the data initially required, including but not limited to either infrastructure or on-the-ground testing (to the extent such data are not the primary option chosen by the provider)

or other types of data such as data collected from network transmitter monitoring systems or software, or spectrum band-specific coverage maps. Such other data must be submitted at the same time as the primary on-the-ground testing or infrastructure rebuttal data submitted by the provider. If needed to ensure an adequate review, the Office of Economics and Analytics may also require that the provider submit other data in addition to the data initially submitted, including but not limited to either infrastructure or on-the-ground testing data (to the extent not the option initially chosen by the provider) or data collected from network transmitter monitoring systems or software (to the extent available in the provider's network). If a mobile provider is not able to demonstrate sufficient coverage in a challenged hexagon, the mobile provider shall revise its coverage maps to reflect the lack of coverage in such areas.

(i) A mobile service provider that chooses to rebut a challenge to their mobile broadband coverage maps with on-the-ground speed test data shall confirm that a challenged area has sufficient coverage using speed tests that were conducted during the 12 months prior to submitting a rebuttal. A provider may confirm coverage in any hex-8 cell within the challenged area. This includes any hex-8 cell that is challenged, and also any non-challenged hex-8 cell that is a child of a challenged hex-7, hex-6, or hex-5 cell. Confirming non-challenged hex-8 cells can be used to confirm the challenged hex-7, hex-6, or hex-5 cell. To confirm a hex-8 cell, a provider must submit on-the ground speed test data that meets the following criteria:

(A) *Geographic threshold.* Two speed tests, at least one of which is a positive test, are recorded within a minimum number of point-hexes within the challenged area, where:

(*1*) A test shall be defined as positive when the test meets both the minimum predicted speeds based on the highest technology-specific minimum download and upload speeds reported for that area by the provider in its most recent coverage data;

(*2*) A point-hex shall be defined as one of the seven nested hexagons at resolution 9 from the H3 standardized geospatial indexing system of a resolution 8 hexagon;

(*3*) A point-hex shall be defined as accessible where at least 50% of the point-hex overlaps with the provider's reported coverage data and the point-hex overlaps with any primary, secondary, or local road from the most recent U.S. Census Bureau's road data; and

(*4*) The minimum number of point-hexes in which tests must be recorded shall be equal to the number of accessible point-hexes or four, whichever number is lower. If there are no accessible point-hexes within a resolution 8 hexagon, the geographic threshold shall not need to be met.

(B) *Temporal threshold.* The difference in time of day between at least two positive tests is at least 4 hours irrespective of calendar day; and

(C) *Testing threshold.* At least 17 positive tests within a hex-8 cell in the challenged area when the provider has submitted 20 or fewer tests. When the provider has submitted more than 20 tests, a certain minimum percentage of the total number of tests in the cell must be positive;

(*1*) When a provider has submitted 21–34 tests, at least 82% must be positive;

(*2*) When a provider has submitted 35–49 tests, at least 84% must be positive;

(*3*) When a provider has submitted 50–70 tests, at least 86% must be positive;

(*4*) When a provider has submitted 71–99 tests, at least 87% must be positive;

(*5*) When a provider has submitted 100 or more tests, at least 88% must be positive;

(D) Using a mobile device running either a Commission-developed app (*e.g.,* the FCC Speed Test app), another speed test app approved by OET to submit challenges, or other software and hardware if approved by staff;

(E) Using a device that is engineering-capable and able to interface with drive test software and/or runs on the Android operating system.

(ii) A mobile service provider that chooses to rebut a challenge to their mobile broadband coverage maps with infrastructure data may only do so in order to identify invalid, or non-representative, speed tests within the challenged speed test data. A provider may claim challenge speed tests were invalid, or non-representative, if:

(A) Extenuating circumstances at the time and location of a given test (*e.g.,* maintenance or temporary outage at the cell site) caused service to be abnormal;

(B) The mobile device(s) with which the challenger(s) conducted their speed tests do not use or connect to the spectrum band(s) that the provider uses to serve the challenged area;

(C) The challenge speed tests were taken during an uncommon special event (*e.g.,* professional sporting event) that increased traffic on the network; or

(D) The challenge speed tests were taken during a period where cell loading exceeded the modeled cell loading factor.

(iii) If the Commission determines, based on the infrastructure data submitted by providers, that challenge speed tests are invalid, such challenge speed tests shall be ruled void, and the Commission shall recalculate the challenged hexagons after removing any invalidated challenger speed tests and consider any challenged hexagons that no longer meet the challenge creation threshold to be restored to their status before the challenge was submitted.

(iv) Aside from the scenarios discussed in paragraph (e)(4)(ii)(A)–(D), the Commission shall only use infrastructure data, on their own, to adjudicate a challenge upon a showing by the provider that collecting on-the-ground or other data (not in infrastructure information) would be infeasible or unlikely to show an accurate depiction of network coverage. In such a situation, the Commission shall evaluate infrastructure data using the same process the Commission uses to verify providers coverage maps.

* * * * *

(6) After a challenged provider submits all responses and Commission staff determines the result of a challenge and any subsequent rebuttal have been determined:

(i) In such cases where a mobile service provider successfully rebuts a challenge, the area confirmed to have coverage shall be ineligible for challenge until the first time a mobile service provider files its biannual filing information six months after the end of the 60-day response period.

(ii) A challenged area may be restored to an unchallenged state, if, as a result of data submitted by the provider, there is no longer sufficient evidence to sustain the challenge to that area, but the provider's data fall short of confirming the area. A restored hexagon would be subject to challenge at any time in the future as challengers submit new speed test data.

(iii) In cases where a mobile service provider concedes or loses a challenge, the provider must file, within 30 days, geospatial data depicting the challenged area that has been shown to lack sufficient service. Such data will constitute a correction layer to the provider's original propagation model-based coverage map, and Commission staff will use this layer to update the broadband coverage map. In addition, to the extent that a provider does not later improve coverage for the relevant technology in an area where it conceded

or lost a challenge, it must include this correction layer in its subsequent filings to indicate the areas shown to lack service.

(7) Commission staff are permitted to consider other relevant data to support a mobile service provider's rebuttal of challenges, including on-the-ground data or infrastructure data, to the extent it was not previously submitted by a mobile service provider. The Office of Economics and Analytics will review such data when voluntarily submitted by providers in response to consumer challenges, and if it concludes that any of the data sources are sufficiently reliable, it will specify appropriate standards and specifications for each type of data and add it to the alternatives available to providers to rebut a consumer challenge.

(f) * * *

(1)

(i) Government and other entity challengers may use their own software to collect data for the challenge process. When they submit their data they must meet the test metrics described in paragraph (c)(1)(i)–(ii) of this section. Additionally, their data must contain the following metrics for each test:

(2) Challengers must conduct speed tests using a device advertised by the challenged service provider as compatible with its network and must take all speed tests outdoors. Challengers must also use a device that is engineering-capable and able to interface with drive test software and/or runs on the Android operating system.

(3) For a challenge to be considered a cognizable challenge, thus requiring a mobile service provider response, the challenge must meet the same threshold specified in paragraph (e)(2)(i) of this section.

* * * * *

(5) To dispute a challenge, a mobile service provider must submit on-the-ground test data or infrastructure data to verify its coverage map(s) in the challenged area based on the methodology set forth in paragraph (e)(4) of this section. To the extent that a service provider believes it would be helpful to the Commission in resolving a challenge, it may choose to submit other data in addition to the data initially required, including but not limited to either infrastructure or on-the-ground testing (to the extent such data are not the primary option chosen by the provider) or other types of data such as data collected from network transmitter monitoring systems or software or spectrum band-specific coverage maps. Such other data must be submitted at the same time as the primary on-the-ground testing or infrastructure rebuttal data submitted by the provider. If needed to ensure an adequate review, the Office of Economics and Analytics may also require that the provider submit other data in addition to the data initially submitted, including but not limited to either infrastructure or on-the-ground testing data (to the extent not the option initially chosen by the provider) or data collected from network transmitter monitoring systems or software (to the extent available in the provider's network).

* * * * *

■ 4. Amend § 1.7008 by revising paragraph (d)(2) to read as follows:

§ 1.7008 Creation of broadband internet access service coverage maps.

* * * * *

(d)(1) * * *

(2) To the extent government entities or third parties choose to file verified data, they shall follow the same filing process as providers submitting their broadband internet access service data in the data portal. Government entities and third parties that file on-the-ground test data shall submit such data using the same metrics and testing parameters the Commission requires of mobile service providers when responding to a Commission request to verify mobile providers' broadband network coverage with on-the-ground data (*see* 47 CFR 1.7006(c)(1)).

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[FR Doc. 2021–16071 Filed 7–27–21; 8:45 am]

BILLING CODE 6712–01–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 64

[WC Docket No. 12–375, FCC 21–60; FRS 35679]

Rates for Interstate Inmate Calling Services

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this Fifth Further Notice of Proposed Rulemaking, the Commission seeks to obtain detailed comment to enable it to make further progress toward ensuring that the rates, charges, and practices for and in connection with interstate and international inmate calling services meet applicable statutory standards. The Commission seeks comment about the provision of functionally equivalent communications services to incarcerated people with hearing and speech disabilities and whether the Commission should expand inmate calling services providers' reporting requirements to include all accessibility-related calls. The Commission also seeks comment on issues regarding the setting permanent interstate and international rate caps for calling services to incarcerated people; potential reforms to the treatment of site commission payments, including whether the Commission should preempt state and local laws imposing legally-mandated site commission payments; on providers' costs to serve different types of facilities; on how it should reform its rules permitting certain types of ancillary service charges in connection with interstate or international calling services and on how it should refine its methodology for setting international rate caps; on whether it should adopt an on-going periodic data collection and, if so, whether it should impose specific recordkeeping on providers; and on the characteristics of the bidding market for inmate calling services contracts and the optimal regulatory regime for inmate calling services in view of those characteristics.

DATES: Comments are due August 27, 2021. Reply Comments are due September 27, 2021.

ADDRESSES: Federal Communications Commission, 45 L Street NE, Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT: Michael Scott, Disability Rights Office of the Consumer and Governmental Affairs Bureau, at (202) 418–1264 or via email at *michael.scott@fcc.gov* regarding portions of the Fifth Further Notice of Proposed Rulemaking relating specifically to the provision of communications services to incarcerated people with hearing and speech disabilities and Katherine Morehead, Pricing Policy Division of the Wireline Competition Bureau, at (202) 418–0696 or via email at *katherine.morehead@fcc.gov* regarding other portions of the Fifth Further Notice of Proposed Rulemaking.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Fifth Further Notice of Proposed Rulemaking, FCC 21–60, released May 24, 2021. This summary is based on the public redacted version of the document, the full text of which can be obtained from the following internet address: *https://docs.fcc.gov/public/attachments/FCC-21-60A1.pdf.*

I. Introduction

1. Unlike virtually everyone else in the United States, incarcerated people