

Performance Measures Testing Guidance

Version 1, as of March 15, 2026

The Broadband Equity, Access, and Deployment (BEAD)-funded last-mile broadband deployment projects are required to **meet specific capacity, latency, and availability standards**, per National Telecommunications and Information Administration (NTIA) requirements.

Network speeds must reach or exceed:

- 100 megabits per second (Mbps) download and 20 Mbps upload for broadband serviceable locations (BSLs); and
- 1 gigabit per second (Gbps) for both download and upload for community anchor institutions (CAIs), unless otherwise specified.

To comply with the latency standard, a provider’s certified test results must show:

- 95 percent or more of all tests of network round-trip latency are at or below 100 milliseconds.
- Additionally, last-mile networks must not be unavailable for more than 48 hours over 365 days.

This document contains:

- [Comparison of Performance Measures Testing vs. Field Validation](#)
- [Obligation to conduct Performance Measures Testing](#)
- [Methodology and process in conducting Performance Measures Testing](#)
- [Measurement approaches](#)
- [Reporting requirements](#)
- [Applicable NTIA Guidance](#)

Performance Measures Testing vs. Field Validation

The BEAD Program involves two forms of validation, the NTIA-required performance measures testing, and IOB-led field validation. The difference is laid out below:

Activity	Description	Who Performs	Timeline
Performance Measures Testing	Network testing required by the NTIA as part of the BEAD Program	Grantee	Grantees are required to perform testing annually during the period of performance once locations are served.
Field Validation	Network testing and validation required by DCEO to comply with state statutory requirements	Illinois Office of Broadband (IOB)	IOB’s field validation vendor will coordinate with grantee to perform field validation once 50% of locations in project are passed, and then before project closeout.

Overview of Grantee Obligation to Conduct Performance Measures Testing

- Grantees are required to perform testing annually during the period of performance. The results of these tests will be reported to the IOB through a provided CSV template.
 - A test is defined as a single, discrete observation or measurement of speed or latency conducted from the customer premises of an active subscriber at a BEAD-funded network location to a remote test server located at, or reached by, passing through an FCC-designated Internet exchange point (IXP).
- Testing should begin when one or more BSL(s) satisfy all of the following conditions:
 - The BSL is included in the FCC location fabric
 - Service is available at the BSL
 - The service offered at the BSL has an active subscriber
 - The tested BEAD service was reported in the Grantee’s most recent FCC Broadband Data Collection (BDC) filing
- Summary reporting of testing outcomes will be due to the IOB on **November 30** of each year and will be included in reporting to the NTIA in the semiannual report prepared by the IOB due the following January 30.

Sample Selection Methodology

- The number of subscriber connections to be tested is based on the total number of active subscribers to service plans meeting or exceeding the subgrantee’s committed speed tier for each broadband technology at all BEAD locations across Illinois. Subscribers are counted across all BEAD-funded projects of the grantee in the state for each technology type, not separately for each BEAD project.
- Locations sharing the same technology type and committed speed tier are to be tested in the same sample set, which will consist of the following:

Active Subscribers	Number of Locations to Test
50 or fewer	5 locations (or all if less than 5 active subs)
51 to 500	10% of the total subscribed locations
More than 500	50 locations

Test subjects must be selected randomly. Grantees may select their own method for ensuring that the selection is random and must describe their method of ensuring random selection as part of the report submission. Grantees may use inducements to encourage subscriber participation in testing but must offer the same inducement to all subscribers randomly selected for testing.

Measurement Approach

Methodology:

- Performance metrics are measured by active measurements (i.e., devices or software sending packets to servers located at the edge of the provider network), rather than classical network management systems. Grantees may use standardized CPE WAN Management Protocols (CWMP), such as TR-06919F and TR-36920F, rely on software included on a residential gateway supplied to the customer, or install dedicated network measurement devices at subscriber locations.
- Grantees need to obtain consent from their subscriber to deploy separate measurement-specific hardware on customer premises. Consent cannot be made a condition of service.
- Speed and latency testing must be conducted for one week, repeated at the measurement intervals detailed below (See Speed Testing and Latency Testing sections), with a default of one measurement period per year.
- Testing must be performed between the hours of 6:00 pm and 12:00 am Central Time each day. Testing for all locations in a single committed speed tier must be performed during the same week.
- Grantees must not use any technology that prioritizes test traffic or customer connections selected for testing over those of other customers. Test traffic must receive the same priority as non-test traffic and customer connections not selected for testing but traversing the same IXP. Grantees may not purposefully influence the route taken by test traffic to explicitly manipulate the test traffic path. Grantees may prioritize measurement traffic within the existing provisioned service and/or capacity of the test subject to reduce or eliminate the impact of any customer application traffic.
- For BEAD performance measures, NTIA adopts the FCC-designated IXP (i.e., any building, facility, or location housing a public Internet gateway that has an active interface to a qualifying internet autonomous system (ASNs)). The qualifying ASNs are listed in Appendix B of the *FCC Performance Measures Reconsideration Order*.

Speed Testing:

- A speed test is a single measurement of download or upload speed of at least 15 seconds duration between a test subject location and a specific remote server location.
- The grantee must conduct a minimum of one test per testing hour in each direction (download and upload) and start at the beginning of each test hour. If the consumer application traffic load is greater than 10% of the committed speed tier in the relevant direction, the grantee may defer the affected test for one minute and reevaluate whether the load exceeds the threshold before retrying the test.
- To comply with the speed standard, a grantee’s certified test results, for technology and speed tier, must show that 80 percent of the upload measurements are at or above 80 percent of the required upload speed, and 80 percent of the download measurements are at or above 80 percent of the required download speed.
- The grantee must report the following information in CSV templates provided by the IOB, where collected fields are defined as the f

Field	Description
BSL Identifier	BSL Fabric Identifier
Subscriber ID	Subgrantee Identifier
Speed Type	1 = Download 2 = Upload
IP Target	IXP Address
Start Test	ISO 8601 UTC format with milliseconds (ms) and time zone offset
End Test	ISO 8601 UTC format Including ms and time zone offset
Bytes	Total bytes sent or received
Test Status	1 = Success 2 = Cross Traffic 3 = Other
Comments	Optional

Table 2: Universal Service Administrative Company (USAC) Performance Measures Speed Testing Data Fields and Formatting CSV Template

Latency Testing:

- A latency test is a single measurement of latency, often performed using a single User Datagram Protocol (UDP) packet or a group of three Internet Control Message Protocol (ICMP) or UDP packets sent at essentially the same time (as is common with ping tests).
- The grantee must conduct a minimum of one test per minute for each testing hour (i.e., – 60 tests per hour).
- The grantee’s certified test results must show that 95 percent or more of all tests of network round-trip latency are at or below 100 milliseconds when measured between the test subject and a remote server that is located at or reached by passing through an FCC-designated IXP. Grantees must record the observed latency for all latency test measurements, including all lost packet tests. Grantees may not discard lost packet tests from their test results as these tests count as discrete tests not meeting the standard.
- The grantee must report the following information in .csv templates provided by the IOB, where collected fields are defined as the following:

Field	Description
BSL Identifier	BSL Fabric Identifier
Subscriber ID	Subgrantee Identifier
IP Target	IXP Address
Start Test	ISO 8601 UTC format with ms and timezone offset
Latency	Roundtrip time (RTT) in ms
Packets Sent	Packets successfully sent
Packets Received	Packets successfully received
Test Status	1 = Success 2 = Not Run: Cross Traffic 3 = Not Run: Other
Comments	Optional

Table 3: USAC Performance Measures Latency Testing Data Fields and Formatting CSV Template

Required Download / Upload Speeds:

- For all projects, the “required download speed” and “required upload speed” is 100Mbps download and 20Mbps upload.

Availability / Reliability Tests:

- Each BEAD-funded network’s outages should not exceed, on average, 48 hours over any 365-day period except in the case of natural disasters or other force majeure occurrence. This availability requirement corresponds to an annual uptime of 99.45 percent.
- IOB will share an approach for measuring outages.

- Grantees must report network outages exceeding this availability requirement as part of their annual and final report prior to close-out. Reporting is for all BEAD-funded locations and should include the number of locations exceeding the requirement along with an explanation for the outage.
- Grantees must report all bona fide outages, starting at the time of customer report or first determination that the outage is the responsibility of the provider.
- Grantees must compute the availability for the past 365 days preceding the submission of the performance report to the IOB. To allow for analysis, the grantee may choose a 365-day period that ends no more than 30 calendar days before the report submission.

What to Do If Test Infrastructure Fails

- Grantees cannot delete, trim, edit, or otherwise exclude any test measurements. If a grantee knows or suspects that the testing infrastructure has failed or has negatively impacted test results, the grantee must still submit the results and may also submit evidence of the test infrastructure failure with sufficiently detailed information to the IOB.

Reporting Requirements

Transparency:

- Each grantee shall document the methodology, standards, and parameters used to measure the performance of its BEAD-funded networks. This documentation must be provided to the IOB with each Performance Measures Testing data submission, including a change log of any material changes from the previous submission. Documentation should include information about software, systems, protocols, and standards used in testing to fully describe and validate the effectiveness of the process.
- For each round of performance testing conducted, grantees must submit detailed per-location files to the IOB. Grantees must also publish on the network management practices page of their website their testing methodology, standards, and parameters used, as well as aggregate testing results for each sample set tested. Grantees must retain the measurement data and make it available for inspection by the IOB or NTIA for the duration of the period of performance.
- The measurement report, including the methodology, standards, parameters, and data, must include an official certification of the accuracy of the information reported. The certifying official must be a corporate officer of the service provider with supervisory and budgetary authority over network operations in the relevant service area.

Compliance:

- For speed, NTIA requires that 80 percent of download and upload measurements be at or above 80 percent of the required speed tier. Upload and download tests are counted separately (i.e., both must meet the 80/80 standard individually).
- For latency, 95 percent of measurements must be at or below 100 milliseconds.
- For availability, the grantee must show an average outage across its locations below 48 hours per calendar year.
- A grantee is non-compliant if it fails to meet any of the four thresholds (i.e., download, upload, latency, or availability) for any of the applicable speed tiers and technologies.

- A grantee is also non-compliant if it fails to use a compliant testing methodology, fails to report measurement results to the IOB on time, or fails to comply with transparency requirements in accordance with the NOFO and terms and conditions of their grant award.
- Grantees must submit their measurement results, including the reliability metrics, by the due date for their annual performance report or for the final report prior to grant close-out and final payment.
- Grantees are responsible for reporting any non-compliance to the IOB within 15 days of completing the measurement cycle or failing to meet the availability benchmarks. The NOFO includes information regarding penalties for grantee noncompliance, including the IOB taking necessary and appropriate enforcement action against grantees for failing to comply with a program requirement.

Applicable NTIA Guidance

- BEAD policy notice for performance measures testing: [BEAD Policy Notice – Performance Measures for BEAD Last-Mile Networks \(Sept 2025\)](#)
- BEAD last mile policy guidance: [BEAD Program: Performance Measures for BEAD Last-Mile Networks Policy Notice Primer \(Sept 2025\)](#)
- NTIA Performance measures testing guidance: [Performance Measures Testing Process \(Nov 2025\)](#)
- Subgrantee guidance on network deployment: [BEAD Obligations for Subgrantees Deploying Network Projects \(Aug 2025\)](#)
- Federal Communications Commission guidance: [FCC Performance Measures Reconsideration Order \(Oct 2019\)](#)