BEAD Network Performance Measurement Methodology

Broadband Equity, Access, and Deployment (BEAD) Program | Network Performance Testing

Subrecipient	Consumers Power, Inc.
Contract / FAIN	C2026392 / 41-20-B110
Projects	Lebanon Community SD 9 (85390); Corvallis SD 509J (87002)
Submitted to	Oregon Broadband Office
Version / Date	1.0 / October 28, 2026

1. Purpose and Scope

This document describes the methodology, standards, and parameters Consumers Power, Inc. (CPI) uses to measure the speed, latency, and availability of its BEAD-funded last-mile network in Oregon.

The methodology applies to both District Grant Areas under Contract C2026392: Lebanon Community SD 9 and Corvallis SD 509J. Neither project includes Community Anchor Institutions, so the 1/1 Gbps CAI standard does not apply.

The governing requirements are NTIA's Performance Measures for BEAD Last-Mile Networks Policy Notice, Version 1.0 (September 19, 2025) (the Policy Notice); BEAD NOFO § IV.C.2.a; and the Contract, specifically Section C(7)(b) (Final Testing Certification), Exhibit A (Service Quality Requirements and Project Reporting Requirements), and Appendix 2 Milestones 6a through 6d (subscriber test data at 25, 50, 75 and 100 percent completion). Where the Policy Notice is silent, CPI follows the basic measurement methodology in Appendix A of the FCC CAF Performance Measures Order (DA 18-710), as modified by the Policy Notice.

2. Standards Measured

The required speed for each sample set is the greater of 100/20 Mbps or CPI's committed speed tier.

Metric	Compliance threshold	Basis
Download speed	80% of download tests at or above 80% of the required download speed	Policy Notice §§ 3.12, 5
Upload speed	80% of upload tests at or above 80% of the required upload speed (evaluated separately from download)	Policy Notice §§ 3.12, 5
Latency	95% of all latency tests at or below 100 ms round trip; lost-packet tests count as failing tests	Policy Notice § 3.11; Contract Ex. A ¶2.B
Availability	Average outage across BEAD locations below 48 hours per 365 days (99.45% uptime), net of permitted exclusions	Policy Notice § 3.13; Contract Ex. A ¶2.C

3. Sample Sets and Sample Size

A sample set is all test subjects in Oregon served by CPI using the same FCC technology code at the same committed speed tier. Both projects are Fiber to the Premises (FCC technology code 50) at a single committed tier, so CPI expects one sample set statewide. Only active subscribers on plans at or above the committed tier are eligible; subscribers on lower-speed plans, if any are offered, are excluded. Per Policy Notice § 3.2, active subscribers are counted across both projects combined, not per project.

Active subscribers in sample set	Locations tested
5 or fewer	All active subscribers
6 to 50	5
51 to 500	10% of active subscribers (rounded up)
More than 500	50

4. Random Selection of Test Subjects

CPI selects test subjects by a simple random draw from all active subscribers on plans at or above the committed tier, at BEAD locations on the FCC Broadband Data Collection list as of June 30 (seven months before the January Semi-Annual Report).

CPI also draws a few alternates and uses them in order only if a selected subscriber disconnects before the test week. Each submission includes the selected locations, alternates, any substitutions, and the seed.

5. Test Infrastructure and Test Path

Platform. CPI performs active measurements using Calix Speed and Performance Insights within Calix Cloud. The platform consists of a test controller that schedules tests, a software test client embedded in the Calix ONT or residential gateway and managed via TR-069/TR-369 (with TR-143 diagnostics), and a report builder that exports per-test records. No in-home hardware is installed because subscribers use a CPI-supplied Calix gateway or ONT that runs the test client.

Test path and server. Each test runs from the test subject's premises, across the Calix access network, CPI's transport and core/edge network, and upstream transit to a remote test server located at, or reached by passing through, an FCC-designated Internet exchange point (IXP). Each submission identifies the server(s) used and any mid-week change. Test clients and servers are synchronized to NTP so timestamps are accurate to the millisecond.

No prioritization. Test traffic receives the same priority as all other subscriber traffic and traverses the same path as non-test traffic to the same IXP. CPI does not alter routing for test traffic or provision selected subscribers differently from other subscribers.

6. Test Schedule and Parameters

Parameter	Value
Measurement period	One week (seven consecutive days including the weekend) per sample set, at least once per year during the period of performance and again before close-out. All locations in a sample set are tested in the same week.
Testing hours	6:00 p.m. to 12:00 a.m. Pacific local time each day (six testing hours per day)
Speed tests	At least one download and one upload test per testing hour, each starting at the beginning of the hour and lasting at least 15 seconds
Cross-traffic rule	If subscriber traffic exceeds 10% of the committed speed in the test direction, the test is deferred one minute and re-checked; retries continue at one-minute intervals until the test runs or the hour ends. An hour with no completed test is recorded with status 2 (cross-traffic).
Latency tests	One test per minute for every testing hour (60 per hour), using UDP or a group of three ICMP/UDP packets. No cross-traffic deferral applies (loaded latency).
Expected records per location per week	42 download, 42 upload, 2,520 latency
Expected records at 50 locations	2,100 download, 2,100 upload, 126,000 latency

Before each official test week CPI runs an internal dry run on a small set of non-sampled locations to validate the test client, server selection, time synchronization, and export format. Dry-run results are not part of the official submission.

7. Data Integrity

CPI does not delete, trim, edit, or exclude any test measurement. Every latency test, including tests with lost packets, is recorded and counted. If CPI knows or suspects that the test infrastructure failed or affected results, the complete results are still submitted, with separate evidence of the failure in enough detail for OBO to decide whether any results should be adjusted.

Raw measurement data, sampling records, and outage records are retained and made available to OBO and NTIA on request for the period of performance and for any longer period the Contract's records-retention provisions require. Additionally, aggregated test results for each sample set will be posted to CPI's website.

8. Compliance Calculation

For each sample set CPI computes four results:

- The share of download tests at or above 80 percent of the required download speed
- The share of upload tests at or above 80 percent of the required upload speed
- The share of latency tests at or below 100 ms, with lost-packet tests counted as failing
- Average outage hours per BEAD location

Tests with status 2 or 3 are reported in full. Speed percentages are computed over completed tests, and the number of testing hours with no completed test is disclosed in the aggregate results so the completion rate is visible.

9. Availability and Outage Measurement

Availability is measured for all BEAD-funded locations, not only the test sample. Outage events are compiled from Calix network alarms (ONT loss of signal and loss of communication), CPI network monitoring, and customer trouble tickets. An outage starts at the earlier of the customer report or CPI's first determination that the outage is CPI's responsibility, and ends when service is restored. Each event is recorded with the affected Location IDs, start and end times, cause, and any exclusion applied.

Excluded from outage time:

- Loss of commercial power at the subscriber premises (identified by ONT dying-gasp alarms)
- Subscriber disconnection or powering-down of equipment
- Standing maintenance windows published on CPI's network management practices page, and other maintenance announced to affected subscribers in advance
- Outages during an FCC Disaster Information Reporting System activation and for one month after it ends
- Outages during a FEMA declared-disaster incident period
- Other force majeure events

CPI calculates average outage hours per location over a 365-day period ending no more than 30 days before each report. The report lists any location with more than 48 hours of outage and the cause.

10. Reporting and Submission

Per-location files. For each round of testing CPI submits a completed OBO BEAD Active Subscriber Test Template for each sample set (Project Information, Service Information, Speed Test Results, and Latency Test Results tabs), with every test record for every tested location. Timestamps are ISO 8601 with milliseconds and UTC offset, the IP target is the designated IXP test server, and test status uses OBO's codes (1 success, 2 not run due to cross-traffic, 3 not run for other reason). Latency rows with total packet loss are recorded with zero packets received and identified in the comment field as failing tests.

On request CPI will also provide the data in the USAC PMM CSV format, with the FCC Location ID in the first column and one file per technology and committed tier. For milestone submissions, delivered speed and latency results are also carried into the Location List template.

Submission contents. Each submission includes this methodology with its change log, the sampling record from Section 4, aggregate results by sample set, the availability report, any test-infrastructure failure evidence, and the officer certification.

Certification. Each measurement report is certified for accuracy by a corporate officer of CPI with supervisory and budgetary authority over network operations in the project areas, using the Certification of BEAD Performance Measurement Report.

Public disclosure. Within 30 days after each submission to OBO, CPI updates its network management practices page with the current methodology, standards, and parameters and the aggregate results for each sample set tested.

11. Non-Compliance

If any threshold is missed, CPI will notify OBO in writing within 15 days of completing the measurement cycle and will correct the problem and retest as OBO directs.

12. Change Log

Version	Date	Change
1.0	October 28, 2026	Initial methodology.