FCC Speed & Latency Testing

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FCC Mandated Speed & Latency Reporting

**Who** – ISPs who are CAF Phase II, ACAM, Price-cap, Rate-of-return, Alaska plan & Rural Broadband Experiment

**What** – FCC mandated speed & latency testing

- Test traffic flow through one of 16 FCC designated IXPs
- Speed test must run hourly from 6pm to midnight, one week per quarter
- Latency tests – 60 per hour from 6pm to midnight, one week per quarter
- FCC/USAC selected test locations
- Certification standards
  - Speed – 80% of tests meet 80% of speed level offered
  - Latency – 95% of all tests must be below 100ms
## FCC Mandated Speed & Latency Reporting

<table>
<thead>
<tr>
<th>Program</th>
<th>Pre-testing start date</th>
<th>Testing start date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAF Phase II (Price-cap carrier)</td>
<td>January 1, 2020</td>
<td>July 1, 2020</td>
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<tr>
<td>Rural Broadband Experiment</td>
<td>January 1, 2021</td>
<td>January 1, 2022</td>
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<td>Alaska Plan</td>
<td>January 1, 2021</td>
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<td>A-CAM I</td>
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<td>A-CAM I Revised</td>
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<td>ACAM II</td>
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<td>Legacy Rate of Return</td>
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<td>CAF II Auction</td>
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<tr>
<td>New NY Broadband Program</td>
<td>January 1, 2022</td>
<td>January 1, 2023</td>
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</tbody>
</table>
RDOF Requirement

Support recipients must also test and certify compliance with the relevant performance requirements in accordance with the uniform framework that has been adopted for measuring and reporting on the performance of high-cost support recipients’ service.*

USAC Process

• Performance Measures Module
  • Carriers identify locations deployed with active subscriber
  • Generates random samples for location to test
  • Collects speed & latency test results

• Process completed biannually

• Dependent on HUBB data
  • High Cost Universal Broadband
  • Latitude/longitude coordinate data
Service Provider

- HUBB data
- Subscriber ID
- Testing System

USAC

- HUBB
- PMM
- PMM

- Locations Deployed
- Active Service Locations
- Random Test Locations
- Test Results
Testing Methodology

USAC options for speed & latency testing
1. Measuring Broadband America
2. Existing management systems & tools
3. Self-testing configuration using software installed on subscriber gateways or in equipment attached to subscriber gateways
Testing Methodology

- Broadband Forum Standards
  - Supported by most gateways
  - TR-69 – CPE* Management
  - TR-143 – Performance Testing

*CPE – Customer Premise Equipment
Testing Challenges

- Location selected not purchasing funded speed tier
  - Upgrade service during testing interval
  - Should customer be notified of service upgrade?
- Location does not have necessary CPE
  - Deploy or replace CPE
  - Customer owned equipment
- Location selected no longer receiving service
  - “New” location from USAC
  - Update PMM
Testing Trials

• Location funded for 10/1 or 25/3
  • Customer ordered speed exceeds base
  • Tested speed exceeds base
  • Tested speed not matching ordered speed
    • Service provisioned incorrectly
    • Network issues
    • CPE equipment
Testing Trials

- Location funded for 1 GB
  - Service provisioned correctly
  - Utilize TR-143 specifications
- CPE equipment
  - Chipset requirements
  - Additional features – WiFi 6
- Speed test > 800 mbps
# Device Results

<table>
<thead>
<tr>
<th>Brand</th>
<th>Model</th>
<th>Firmware</th>
<th>Download (Mbps)</th>
<th>Upload (Mbps)</th>
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<tbody>
<tr>
<td>Comtrend</td>
<td>WR-6895</td>
<td>RM51-416CTU-C08_R02_TTS6886_2</td>
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<td>Comtrend</td>
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</tbody>
</table>

**NISC Community – Supported Customer Premise Equipment – 29 June 2020**
Testing Results

• USAC specified file format
• CSV file for speed test results
  • HUBB location, Subscriber ID, Speed Type, IP Target, Start Test, End Test, Bytes, Test Status, Comment
• CSV file for latency test results
  • Subscriber ID, HUBB locations, Start Test, IP Target, Latency, Packets Sent, Packets Received, Test Status, Comment
Recommendations

• Proactive Targeted Testing
  • Schedule test for a neighborhood
  • Schedule test for a node
  • Schedule the time & frequency
  • Proactively identify subscribers that are having issues
  • Identify equipment issues
  • Identify configuration Issue

• Prepare to allow for extra time
  • Address network issues
  • CPE availability
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