IN-FORCE
CONTRIB-22348

OD-469
USP Agent Certification Program Guidelines

Issue: 1
Issue Date: June 2020
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Issue History

<table>
<thead>
<tr>
<th>Issue Number</th>
<th>Issue Date</th>
<th>Issue Editor</th>
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</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

Comments or questions about these Broadband Forum Guidelines should be directed to help@broadband-forum.org.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>6</td>
</tr>
<tr>
<td>1  PURPOSE AND SCOPE</td>
<td>7</td>
</tr>
<tr>
<td>1.1 PURPOSE</td>
<td>7</td>
</tr>
<tr>
<td>1.2 SCOPE</td>
<td>7</td>
</tr>
<tr>
<td>2  REFERENCES AND TERMINOLOGY</td>
<td>8</td>
</tr>
<tr>
<td>2.1 CONVENTIONS</td>
<td>8</td>
</tr>
<tr>
<td>2.2 REFERENCES</td>
<td>8</td>
</tr>
<tr>
<td>2.3 DEFINITIONS</td>
<td>9</td>
</tr>
<tr>
<td>2.4 ABBREVIATIONS</td>
<td>9</td>
</tr>
<tr>
<td>3  PROGRAM MANAGEMENT</td>
<td>10</td>
</tr>
<tr>
<td>3.1 TESTING &amp; CERTIFICATION OVERSIGHT COMMITTEE</td>
<td>10</td>
</tr>
<tr>
<td>3.2 BROADBAND USER SERVICES WORK AREA</td>
<td>10</td>
</tr>
<tr>
<td>3.3 TEST AGENCY</td>
<td>10</td>
</tr>
<tr>
<td>3.4 PROGRAM LIFECYCLE</td>
<td>10</td>
</tr>
<tr>
<td>3.4.1 Program Documentation Maintenance and Release Process</td>
<td>10</td>
</tr>
<tr>
<td>3.4.2 Beta Program</td>
<td>11</td>
</tr>
<tr>
<td>4  ADMINISTRATION</td>
<td>12</td>
</tr>
<tr>
<td>4.1 APPLICATION ADMINISTRATION</td>
<td>12</td>
</tr>
<tr>
<td>4.1.1 Application to Certification Program</td>
<td>12</td>
</tr>
<tr>
<td>4.1.2 Registry of Certified Products</td>
<td>12</td>
</tr>
<tr>
<td>4.2 LOGO USAGE</td>
<td>13</td>
</tr>
<tr>
<td>5  SIMILARITY POLICY</td>
<td>13</td>
</tr>
<tr>
<td>5.1 OEM USAGE</td>
<td>14</td>
</tr>
<tr>
<td>5.2 SIMILARITY CERTIFICATION REQUEST FORM</td>
<td>15</td>
</tr>
<tr>
<td>6  PRODUCT REQUIREMENTS</td>
<td>17</td>
</tr>
<tr>
<td>7  CERTIFICATION TESTING REQUIREMENTS</td>
<td>17</td>
</tr>
<tr>
<td>8  CERTIFICATION TESTING TOOL REQUIREMENTS</td>
<td>17</td>
</tr>
<tr>
<td>8.1 CERTIFICATION TEST TOOL VALIDATION</td>
<td>17</td>
</tr>
<tr>
<td>8.2 RESULTS &amp; REPORTING REQUIREMENTS</td>
<td>18</td>
</tr>
<tr>
<td>8.2.1 Results integrity and protection</td>
<td>18</td>
</tr>
<tr>
<td>9  ESCALATION PROCEDURE</td>
<td>19</td>
</tr>
</tbody>
</table>
Executive Summary

This document outlines the requirements for the Broadband Forum USP Agent Certification Program and provides the guidelines for companies wanting to participate in the program with their products or networks.

For equipment and software providers, this document defines the requirements for participating in the program, submitting samples for testing, testing requirements, and usage of the certification test plan TP-469 [1], whereby this document only references how the test plan SHALL be applied to achieve certification and does not define any test cases.

For network operators and service providers, this document lists the requirements met by products achieving certification and provides a set of guidelines for how their deployments can leverage high quality products that have achieved certification.
1 Purpose and Scope

1.1 Purpose

The purpose of this document is to define the requirements for products participating in the Broadband Forum USP Agent Certification Program. The document does not define specific test cases, but rather, referencing how the test cases defined in Broadband Forum TP-469 [1] SHALL be used to achieve certification.

This document also defines other operational aspects of the USP Agent Certification Program, such as certification of similar products, maintenance of the program test plans and documentation, and how the certification logo and documentation may be used by companies with certified products.

1.2 Scope

This document applies only to the operational aspects of the certification program, such as:

1. What information, equipment, and support is required by companies submitting products for certification.
2. Features, test modes, and interfaces required on/for products being submitted for certification testing.
3. How companies may certify similar equipment, such as derivative works or models with a subset of features.
4. How companies with certified products may use the certification logo and other documentation about the certification program.
5. How the test plan and program documents will be maintained and updated.

This document does not:
1. Define specific test cases used for certification testing, those are defined in Broadband Forum document TP-469 [1].
2. Define the costs for certification testing.
3. Type, design, or optional features of products being submitted for certification testing.
2 References and Terminology

2.1 Conventions

In these Guidelines, several words are used to signify the requirements of the specification. These words are always capitalized. More information can be found in RFC 2119 [3].

**SHALL** This word, or the term “REQUIRED”, means that the definition is an absolute requirement of the specification.

**SHALL NOT** This phrase means that the definition is an absolute prohibition of the specification.

**SHOULD** This word, or the term “RECOMMENDED”, means that there could exist valid reasons in particular circumstances to ignore this item, but the full implications need to be understood and carefully weighed before choosing a different course.

**SHOULD NOT** This phrase, or the phrase “NOT RECOMMENDED” means that there could exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications need to be understood and the case carefully weighed before implementing any behavior described with this label.

**MAY** This word, or the term “OPTIONAL”, means that this item is one of an allowed set of alternatives. An implementation that does not include this option SHALL be prepared to inter-operate with another implementation that does include the option.

2.2 References

The following references are of relevance to these Guidelines. At the time of publication, the editions indicated were valid. All references are subject to revision; users of these Guidelines are therefore encouraged to investigate the possibility of applying the most recent edition of the references listed below.

A list of currently valid Broadband Forum Technical Reports is published at www.broadband-forum.org.

<table>
<thead>
<tr>
<th>Document</th>
<th>Title</th>
<th>Source</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] TP-469</td>
<td><em>Conformance Test Plan for User Services Platform Agents</em></td>
<td>BBF</td>
<td>2019</td>
</tr>
<tr>
<td>[2] TR-369</td>
<td><em>User Services Platform (USP) [Issue 1 Corrigendum 2]</em></td>
<td>BBF</td>
<td>2019</td>
</tr>
<tr>
<td>[3] RFC-2119</td>
<td><em>Key words for use in RFCs to Indicate Requirement Levels</em></td>
<td>IETF</td>
<td>1997</td>
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2.3 Definitions

The following terminology is used throughout these Guidelines.

**Registry of Certified USP Products**

Public registry on Broadband Forum website for each certified USP product. The registry SHALL include detailed information about the product manufacturer, model, and software/firmware versions used for the certification testing.

**Conditional Test**

Test case that is conditional upon some external criteria. Any product meeting the condition SHALL treat the test case as a Mandatory Test.

**Derivative Product**

USP Agent product listed as a certified product in the public certification registry, which was not directly tested by the Test Agency, but is declared as similar to another certified product by the same product manufacturer.

**In-Force**

Refers to the status of the certification phase, where testing is conducted according to the applicable test plan version.

**Mandatory Test**

Test case that SHALL be passed by the product applying for the certification or certification testing.

**Optional Test**

Test case that is optional and therefore not required to achieve certification. Optional test cases might be based on optional features within the standard, which might not be implemented on all products. Products passing optional test case(s) MAY include the optional feature(s) in their certification listing.

**Primary Product**

Product listed as a certified product in the public registry of certified products, where testing was completed on the product by the Test Agency.

**Retired**

Refers to the status of a certification phase, where new certifications are no longer being accepted by the Broadband Forum for testing conducted according to the retired test plan version.

**Test Agency**

Test laboratory appointed by the Broadband Forum, responsible for the operation and execution of certification testing for this program.

**USP**

The User Services Platform, specified by BBF TR-369[2]

**USP Agent**

An implementation of the Agent described in USP, i.e., the Endpoint Under Test (EUT).

2.4 Abbreviations

These Guidelines uses the following abbreviations:

- **BUS** Broadband User Services
- **EUT** Endpoint Under Test
- **USP** User Services Platform
3 Program Management

3.1 Testing & Certification Oversight Committee

The Testing & Certification Oversight Committee (TCOC) is a Broadband Forum Board of Directors subcommittee, responsible for the creation, definition, and operation of testing and/or certification programs within the Broadband Forum. Recommendations of the committee are submitted to the Board of Directors for ratification.

The TCOC SHALL be responsible for the oversight and maintenance of this document.

3.2 Broadband User Services Work Area

The Broadband User Services (BUS) is a Work Area (WA) within the Broadband Forum technical committee, responsible for the development and maintenance of test plans and standards relating to the connected home.

The BUS WA SHALL be responsible for the creation and maintenance of test plans supporting this program.

3.3 Test Agency

The Test Agency SHALL be responsible for providing testing services for this certification program and providing final review of results submitted by participants completing self testing. The Test Agency (testing laboratory) SHALL treat all program participants in a fair and nondiscriminatory manner.

3.4 Program Lifecycle

It is expected the USP Agent certification program will evolve over time, to keep pace with changes and advancements within the industry. Changes to the program will be captured within updates to this document.

3.4.1 Program Documentation Maintenance and Release Process

The documents defining this program SHALL follow the following processes when being revised/updated by the Broadband Forum.

3.4.1.1 Program Guidelines

This document SHALL be maintained by the TCOC. Updates to this document SHALL be recommended by the committee and approved by the Broadband Forum Board of Directors.
Changes to this document SHALL NOT cause a previously certified product to “lose” its certification. However, future revisions of this document MAY place additional requirement(s) on products being certified according to the future revision(s) of the program.

The program bases certification on testing against at least one USP Agent product (see Section 7).

### 3.4.1.2 Test Plan

The test specification, TP-469 [1], SHALL follow the normally defined processes. The TCOC SHALL decide if the updates require a Beta Program, as defined in Section 3.4.2.

Once the updated test plan has completed the required Broadband Forum balloting process, the document SHALL be considered as “In-Force.” The TCOC SHALL then decide the timelines for certification testing to be performed per the updated or previous version of the test plan, and these dates SHALL be published as an update to this document. These timelines MAY allow for overlap within these dates, where the company MAY perform testing using any “In-Force” version of the test plan.

Amendments and corrigenda documents, related to a test plan, which are “In-Force” at the time of a certification test run SHALL be applied to the applicable test plan.

### 3.4.1.3 Test Plan and Certification Program Status

The following certification phases and their associated status are defined by the Broadband Forum at the publication time of this document. Future phases might be under development and their exclusion from this list does not prevent that work from occurring within the forum.

<table>
<thead>
<tr>
<th>Certification Phase</th>
<th>Status</th>
<th>Test Plan(s) Issue / Version</th>
<th>Launch Date</th>
<th>Retired Date</th>
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<tr>
<td>Phase-1</td>
<td>In-Force</td>
<td>TP-469 Issue 1 (version 1.0.2)</td>
<td>June 2020</td>
<td>TBD</td>
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</tbody>
</table>

### 3.4.2 Beta Program

The term “Beta Program” refers to the initial testing required for the launch or update of a certification testing program, and could be considered as a form of an acceptance testing period of the certification test plan, Test Agency, and the first certified products. The beta testing period exists only for a limited time, as required at the start of the certification program, or as requested by the TCOC due to a change in the program or test plan.

The TCOC SHALL set the timeline for each beta program period. Each beta program period SHALL follow the following process.
1. The TCOC will issue a call for beta participants to the members of the Broadband Forum. The call for participants will include any additional information required within the response.

2. Any Broadband Forum member company MAY respond to the call, and SHALL provide all required/requested information.

3. The TCOC is responsible for the final selection of the products for the beta program, with selection made via random draw between similar products, if required. The process SHALL establish an ordered list that can be used to create an “alternates list” within the program, if required. The selection will maximize the number of participating companies. The TCOC will provide a notice to both the selected and non-selected participants and the Test Agency, indicating their status within the program.

4. The selected participants and Test Agency will work during the testing period to complete the required testing for each product.
   a. The beta period will likely correspond to the straw ballot period of the associated test plan, allowing the beta participants and Test Agency to submit comments and corrections to the test plan as required.
   b. It is anticipated the test plan can and will likely change during the beta period, due to comments or corrections requested by the participants and Test Agency.

5. At the conclusion of the testing, all participating products passing the final round of testing will be considered certified products, as defined within this program.

4 Administration

4.1 Application Administration

4.1.1 Application to Certification Program

Products applying for certification SHALL meet the following requirements:

1. Company submitting the application SHALL be a member of the Broadband Forum in good standing at the time of the application.
2. A completed registration form SHALL be provided to the Broadband Forum.
3. Product SHALL meet all testing requirements defined in Section 7 of this document.

4.1.2 Registry of Certified Products

Certified products MAY be listed in a global product registry on the Broadband Forum’s public website. The company completing certification MAY request their certified product not be listed within the public registry. The Broadband Forum SHALL be solely responsible for the maintenance and operation of the certified product registry. The Broadband Forum MAY delegate this responsibility to a trusted 3rd party at its discretion. The certified product SHALL only be listed within the public registry so long as the company maintains a membership in the Broadband Forum. The certified product listing SHALL indicate if the product was certified as a Primary Product (testing performed directly on the product) or a Derivative Product (certified through similarity), per the policies described in Section 5.
4.1.2.1 Approved Product Listing Modification Procedures

The following section describes the procedures and requirements to request a modification to the information listed within the Broadband Forum’s “Registry of Certified USP Products”:

1. All requests for modifications to information in the listing SHALL be made in writing to the Broadband Forum TCOC.
2. All requests SHALL be made by the company responsible for the product described in the listing.
3. All requests SHALL include the following details:
   a. Item/text to be changed as it appears in the listing at the time of the request
   b. Proposed new text
   c. Detailed description and reason for the need/cause of the change.
4. All requests SHALL be reviewed by the Broadband Forum TCOC within 30 business days. Upon approval, the change to the listing SHALL be made within 5 business days. If the TCOC does not approve the change, a written response SHALL be provided.

4.2 Logo Usage

A company successfully certificating a product is entitled to use the Broadband Forum Certified Logo. Any company wishing to use the logo SHALL agree to abide by the “THE BROADBAND FORUM, INC. TRADEMARK USAGE GUIDELINES,” which may be obtained by contacting the Broadband Forum, info@broadband-forum.org.

5 Similarity Policy

A manufacturer MAY submit a request for certifying a product (termed Derivative Product) based on its similarity to another product (termed Primary Product) from the same manufacturer, which has been previously certified via a complete testing cycle completed within the time limits designated below. Certification as a Derivative Product SHALL be permitted only when the product manufacturer has only made changes that would not, if made to the Primary Product, cause that product to fail the certification tests. Examples of impermissible include, but not limited to, a change of the number of interfaces within a derivative model of a product family; an upgrade or a change to the system software that does not alter the USP software stack or its integration with the underlying system or APIs.

The certification by similarity essentially establishes a link between the Primary Product and the Derivative Product, where the USP Agent implementation of the Derivative Products is expected to operate in a manner similar to the Primary Product. The follow requirements govern the application and certification of products via similarity.

1. The approval or rejection of a certification by similarity SHALL be made by the Test Agency.
2. The product manufacturer SHALL submit a completed “Similarity Certification Request Form,” and the form SHALL be filled out in its entirety. Incomplete forms or requests SHALL be rejected without further review.

3. The product manufacturer SHALL be the same for both the Primary Product and the Derivative Product.

4. The Primary Product SHALL have successfully completed a full round of certification testing (in other words, a Derivative Product cannot later be used as a Primary Product for a second Derivative Product).

5. The certification for the Primary Product SHALL have been awarded within the previous 6 months preceding the submission of the related similarity application.

6. The changes to the USP software stack within the Derivative Product SHALL NOT adversely impact the operation of the USP Agent as compared with the Primary Product.

7. The certification listing of the Derivative Product SHALL reference all of the following: the certification type (similarity), the certification ID/listing of the Primary Product, and the version number of the test plan to which the Primary Product was certified.

8. Ensuring the accuracy and completeness of the information in the Similarity Certification Request Form (the “Information”) is the vendor’s sole responsibility. If the Broadband Forum approved Test Agency concludes that any information is inaccurate, and this determination is accepted by the Broadband Forum Board of Directors, the following actions SHALL be taken:
   a. The Derivative Product(s) to which the inaccurate or incomplete Information relates SHALL be removed from the public registry of certified products.
   b. The manufacturer MAY reapply for certification of the Derivative Products in question for full testing as Primary Products via the Test Agency.
   c. The manufacturer SHALL NOT be eligible to apply for certification via similarity for a period of time to be determined by, and in the sole discretion of, the Broadband Forum Board of Directors, giving weight to the number of submitted Similarity Certification Request Forms determined to be inaccurate and/or incomplete and the degree of deficiency determined.

The specific cases of disqualifying changes included above are by way of example only. A manufacturer SHALL believe in good faith that a Derivative Product submitted for certification by similarity would, if submitted for certification as a Primary Product, pass certification testing without further modification.

The decision of the Test Agency determining that the Information is inaccurate, SHALL be notified in writing to the manufacturer. The manufacturer SHALL be granted a period of not less than fifteen (15) business days to submit written observations and all documents it considers to be relevant in defense of the accuracy of the Information from the date of such notification. The Test Agency SHALL review such submissions, if any, and inform the manufacturer of its final conclusion within fifteen (15) business days.

5.1 OEM Usage

It SHALL be possible for an Original Equipment Manufacturer (OEM) to submit a product for certification on behalf of the final vendor company. The product SHALL be submitted for testing in its final, branded, and commercial form (i.e. no bare circuit boards). The OEM SHALL supply a
contact (name, email, and phone number) within the final vendor company to verify the product information and branding. The Test Agency SHALL verify this product and branding information before any certification listing is published on the public Registry of Certified Products.

5.2 Similarity Certification Request Form

This form will be made available once the formal certification program is launched, at the conclusion of the beta program defined in Section 3.4.2.
USP Agent Similarity Certification Request Form

Per the information provided below, the product manufacturer requests the Test Agency to certify the derivative product by similarity to the primary product.

**Information common to the primary and derivative product**

| Product manufacturer |

**Information specific to the primary product**

| Product model |  |
| Product name |  |
| System software version |  |
| Identifier of certificate |  |
| Date of certification |  |
| Version of test plan used for certification |  |
| Supported “Feature IDs” |  |

**Information specific to the derivative product**

| Product model |  |
| Product name |  |
| System software version |  |

The product manufacturer hereby acknowledges reviewing and hereby accepts the terms and conditions of the Similarity Policy defined in the USP Agent Certification Program Guidelines, including the requirements for accuracy of the information provided in this form and the potential actions taken by the Broadband Forum Board of Directors due to inaccuracies.

The product manufacturer believes in good faith that the Derivative Product submitted for certification by similarity would, if submitted for certification as a Primary Product, pass certification testing without further modification.

IN WITNESS WHEREOF, the product manufacturer has executed this Submission Form through its duly authorized Representative.

Name: [Name]  
Signature: [Signature]  
Title: [Title]  
Date of request: [Date]

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June 2020

16 of 19
6 **Product Requirements**

Products applying for certification with the Broadband Forum approved Test Agency SHALL meet the following requirements to participate within the testing:

1. Product SHALL support the USP protocol, acting as a USP Agent.
2. The Product SHALL meet the requirements for Mandatory and Conditional test cases as specified in the section “Endpoint Requirements and Metadata Collection” of TP-469.
3. If implementing firmware update features (feature ID’s 26 and/or 27 in TP-469 [1]), the Product SHALL use a second firmware build, that, though identical in code base to the EUT, has a version number changed to trigger the test metrics.

7 **Certification Testing Requirements**

Any product manufacturer or vendor MAY apply for certification according to a certification phase, so long as the certification phase request is considered “in-force” by the TCOC.

Products applying for certification SHALL meet all requirements defined in this section and its subsections.

1. Product SHALL pass all Mandatory test cases defined in the TP-469 [1] test plan.
2. Product SHALL pass all Conditional test cases, where the product meets the condition specified within the TP-469 [1] test plan.
3. Testing SHALL be completed using an approved USP Agent Certification Testing Tool (refer to section 8).
4. Testing results SHALL NOT have been tampered with or altered in any way.
5. Testing results SHALL be reviewed and approved by the Broadband Forum’s Test Agency.
6. Testing MAY be completed by the Test Agency or any 3rd party, according to the same guidelines.

8 **Certification Testing Tool Requirements**

Certification testing SHALL be completed using an approved USP Agent Certification Testing Tool. The testing tool SHALL be considered as the combination of the Traffic Generator, Analyzer, and any software utilized to control these products for the purpose of USP Agent testing. The Broadband Forum SHALL maintain a list of approved certification testing tools. This list SHALL indicate the version of the approved certification testing tool and the version of the TP-469 [1] test plan for which the tool is approved.

8.1 **Certification Test Tool Validation**

Approved USP Agent Certification Testing Tools SHALL be validated by the Broadband Forum’s Test Agency, where such validation SHALL ensure the tool properly performs the certification testing, as defined within TP-469 [1] test plan and meets the additional requirements defined within this section. To complete the validation, the Test Agency SHALL perform the TP-469 [1] testing.
utilizing the tool, against the latest available release of the Open Broadband USP Agent (https://github.com/BroadbandForum/obuspa) and at least one (1) other “known” reference products. Where the reference products MAY include some test cases which do not pass.

This validation SHALL be specific to both the version of the TP-469 [1] test plan and the major release version of the USP Agent Certification Testing Tool. The validation SHALL be valid for a term of one (1) year.

The supplier of the USP Agent Certification Testing Tool SHALL be responsible to resubmit the tool for validation if any changes to the tool are made that might impact the outcome of the USP Agent testing. If the supplier fails to submit a change for validation and the change is found to negatively impact the USP Agent testing, the Broadband Forum MAY remove the tool, for any or all versions, from the list of approved certification testing tools.

### 8.2 Results & Reporting Requirements

The results and report output from the certification testing tool SHALL meet the following requirements.

1. The results SHALL include information about the product under test, including at least the product manufacturer, product model, product serial number, and product software version.
2. The results SHALL indicate the TP-469 [1] version implemented by the test tool and used during the testing.
3. The results SHALL indicate which features defined in “Endpoint Requirements and Metadata Collection” of TP-469 [1] were supported by the EUT.
4. The results SHALL use the same test case label and number as defined in TP-469 [1].
5. Each test case, as defined in TP-469 [1], SHALL indicate a cumulative/overall pass/fail result (Logical AND of all test metrics).
6. Each test metric within a test case, as defined in TP-469 [1], SHALL indicate its associated pass/fail result.
7. The results or logs for each test case SHALL include a log of the USP messages and their content exchanged during the test case.
8. Each test case SHOULD include some logging or explanation of the result.
9. The entirety of the report and results, including all product information, test results, packet captures, and analysis or log output SHALL be protected against modification or tampering utilizing the method(s) described below in Section 8.2.1.
10. The results SHOULD include notes entered or provided by the tester during testing.
11. The results SHOULD be as transportable as possible, and SHOULD NOT require the testing tool to open, view or parse. The testing tool MAY provide a better user experience to view or explore into the results.

#### 8.2.1 Results Integrity and Protection

The following additional test tool requirements are intended to ensure the integrity and validity of results submitted to the Test Agency.

- The test tool SHALL provide traceability to which version of the validated test plan was run.
• The test tool SHALL provide traceability to which version of the test scripts were run.
• The test tool SHALL implement an integrity check to provide assurance that the results have not been modified. The tool supplier MAY select any digital signature mechanism, such as gnupg (https://gnupg.org/). The tool supplier SHALL provide the Test Agency with the appropriate results viewer and key to validate the results.

9 Escalation procedure

In the process of applying for certification, a company might be of the opinion that the Test Agency has not acted in a fair and non-discriminatory manner. In this event, that company MAY submit a complaint with the CEO of the Broadband Forum.

The CEO SHALL determine within 1 month whether or not he believes the complaint is justified. During this time, the CEO MAY interact with the concerned company and the Test Agency.

If the CEO determines that a complaint is justified, the CEO SHALL inform the Test Agency of the justified complaint and request corrective action by the Test Agency. Corrective actions can occur within the relationship of the Broadband Forum and the Test Agency or can occur in the relationships of the Test Agency with the individual company making the complaint.