

CWG Test Process

FINAL: V 1.0

Table of Contents

Introduction 3

UCIF Test & Certification Working Group Mission 3

Organization Structure 3

UCIF Test Program Process 4

Creation of Test Plans 5

Creation of Test Tools 5

Conduct of Test Programs by 3rd Party Test Labs 6

CWG Deliverables to the Test Lab Vendor 6

Responsibilities of the Test Lab Vendor 7

Scheduling 7

Execution 7

Recording results and reporting 8

Test Lab Vendor Deliverables to CWG 8

Test schedules 8

Interim test reports 8

Test result reporting 9

Final test reports 9

Post-Test Follow-up Process 9

Award of Certification Marks 9

Process in the Event of a Test Failure 10

Process for Dispute Resolution 10

Vendor Feedback 10

Funding of Test Programs 10

Appendix A – Glossary of Terms 11



Introduction

The Unified Communications Interoperability Forum (UCIF) is an open alliance of technology leaders working together to fully realize the potential of Unified Communications. Our vision is to enable interoperability of Unified Communications Hardware and Software across enterprises, service providers, and consumer clouds, as a means of generating incremental business opportunity for all stakeholders in the ecosystem.

The realization of UC interoperability requires a strong testing and certification program: it is the intent of the UCIF to execute on behalf of its members a certification process to provide assurance of interoperability. This part of the UCIF mission is fulfilled by the Test and Certification Working Group (CWG).

The goal of this document is to define the process by which verification of compliance with UCIF profiles is conducted.

Definitions of key terms used in this document can be found in Appendix A.

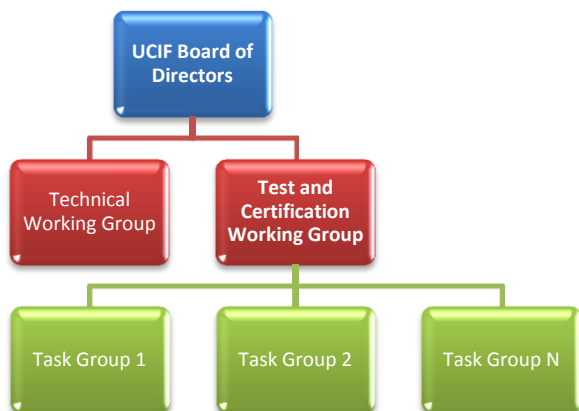
UCIF Test & Certification Working Group Mission

The CWG is responsible for defining and managing the certification and testing framework of the UCIF. This includes:

- 1) Development of programs for test and certification.
- 2) Promulgation of Test Plans to verify profiles.
- 3) Development of Test Tools to automate compliance and interoperability testing.
- 4) Management of 3rd party test lab vendors who will conduct the testing.
- 5) The award of UCIF certifications.

Organization Structure

The UCIF high level organizational structure is as follows:



Each Certification Program will be supported by a Task Group (TG) within the CWG.

Note that UCIF will produce test programs that are related to a diverse range of technology, for example:

- Endpoint devices such as USB 'telephones' or headsets;
- Software modules such as SIP Proxy servers;
- Software components such as video codecs.

UCIF Test Program Process

For each testing and/or certification program, a CWG Task Group will be created, comprised of CWG members who have expertise in the technology to be tested. The CWG Task Group will take as input profile(s) and test cases developed by a Technical Work Group (TWG) Task Group, or in some cases, a profile created by an external body, for which test cases need to be developed.

The CWG TG will create a test program based on the relevant input that will verify the compliance of vendor implementations with the test cases. Each test program will include:

- 1) The creation of test plans designed to validate specifications, based on the test cases provided with each profile.
- 2) The creation of appropriate test tools (as required) by 3rd parties, designed for the use of:
 - a) Test vendors authorized by UCIF to conduct testing to verify compliance with the test specifications;
 - b) Vendors who are candidates for the test program, either as:
 - i) An aid to their preparation for testing and as pre-validation of compliance;
 - ii) A self-testing mechanism (Tools that are sufficiently robust to accommodate self-testing will be evaluated and made available if deemed appropriate).

- 3) The sub-contracting of program work to pre-approved 3rd party test vendors. These companies operate under the direction of the CWG and will:
 - a) Be remunerated as defined in each test program and memorialized in the test program contract;
 - b) Only conduct testing on vendors as authorized by UCIF;
 - c) Report test results back to UCIF.
- 4) A post-test follow-up process:
 - a) The outcome of testing and award of certification (as required) is communicated to the vendor under test:
 - i) Where certification is awarded, a communication and recognition process (TBD – certification marks program postponed to 2012) will enable the vendor to use the certification within its marketing programs;
 - ii) In the event that the result of the test pass is 'Fail', the options for retest and required corrective actions will be presented to the vendor under test.
 - b) Where the result of a test cycle results in a dispute by the vendor under test (or any other party) the dispute will be resolved via a dispute resolution process to be defined later.

Note that on-site lab-based testing is not the only test topology. To limit the cost of testing, it is the goal of the CWG that remote testing is facilitated where possible over secure test networks, and that test tests are fully automated where possible. Ultimately, robust test tools will be procured that will enable vendors to self-certify; possibly with support from a Test Lab Vendor.

Creation of Test Plans

The CWG TG will be responsible for the creation of a test plan based on the test cases. Each test plan will comprise:

- 1) What use cases and scenarios will be tested;
- 2) The required test topology;
- 3) The test cases for each;
- 4) The expected results.

Each test plan will be reviewed by the CWG and the corresponding TWG TG (if applicable) before being approved.

Creation of Test Tools

Automated test tools may be required to implement the part, or all, of the test plan in a repeatable and economical manner. The CWG TG will be responsible for the definition, creation and provision of test

tools. The actual creation of a test tool will be sub-contracted to appropriate 3rd parties if no suitable tools are available. The test tool will be defined in a functional specification (created by the CWG TG) that will be based on the test cases and other relevant information in the test plan.

A contract will be drawn up for the creation of each test tool between UCIF and the Test Tool Vendor, defining relevant terms and conditions, including but not limited to acceptance criteria and intellectual property rights.

It is possible, that the Test Tool Vendor and the Test Lab Vendor could be the same entity. It is also likely that the default test network topology will be remote testing from a test vendor's network to the vendor under test network: therefore secure connections between the two networks must be established.

The ultimate goal is the creation of a set of test tools that can be conducted by the vendor under test. This will need careful planning to ensure that the tools are of product quality, i.e.:

- Have appropriate levels of documentation, support and training (as required);
- Provide appropriate levels of feedback/diagnosis on test failure;
- Provide secure output that cannot be 'amended' by vendors under test.

For funding of test tool creation, see the section on Funding elsewhere in this document.

Conduct of Test Programs by 3rd Party Test Labs

Some (but not necessarily all) UCIF certification programs will utilize a Test Lab within their certification process. For example, it is possible that some systems (such as room-size telepresence systems) may not be amenable to transport and testing within a Lab environment. Therefore this section only applies to test and certification programs for which use of a Test Lab is feasible. Where use of a Test Lab is judged infeasible, other approaches (such as testing over the Internet) will be explored.

Test Lab Vendors eligible for the allocation of test programs will be identified via an RFP process according to their areas of expertise and response to the RFP. The CWG is responsible for the allocation of a test program to approved 3rd party Test Lab Vendors.

CWG Deliverables to the Test Lab Vendor

The CWG is responsible for providing the test vendor the following:

- Test program definition;
- Test Plan;
- Test Tools (as applicable);

- A contract defining the business agreement related to the test program.

Responsibilities of the Test Lab Vendor

The Test Lab Vendor will be responsible for:

- Hiring and training staff with relevant skills;
- Establishing a test lab infrastructure with all the prerequisite equipment and software required to conduct the test plan (with the exception of the Test Tools described elsewhere in this document);
- Defining processes for:
 - The scheduling of Vendors under test;
 - The installation, configuration and safe custody of vendor equipment within the test lab;
 - The conduct of testing in a repeatable and consistent manner according to the Test Plan;
 - Recording and archiving of test results;
 - Communicating test results and providing reports to the CWG as defined below.

See also the section on 'Funding' elsewhere in this document.

Scheduling

Vendors will make requests for testing to the CWG PM and those will be communicated to Test Lab Vendors. Test Lab Vendors must engage with the Vendor within 48 hours of being presented with a request for testing to schedule a test cycle. Within 1 week Vendor and Test Lab Vendor must mutually agree on dates for a test cycle, which shall in any case be within 90 days of the original request for testing. If no mutually agreeable date is defined, Test Lab Vendor must explain to the CWG Program Manager the reason and be prepared to reassign resources to accommodate the Vendor.

Execution

Each test program shall be conducted according to the Test Plan and the contract defined between UCIF and the Test Lab Vendor. What follows is a set of general guidelines for the execution of test programs:

- In general, for each test program, the time allowed for completion of a single test cycle shall be defined in the contract (e.g. 10 business days). Test Lab Vendors shall complete a Vendor Test Cycle within the time allowed for at least 50% of the test cycles. The maximum allowable over-run on test cycles is 125% of the time allowed (e.g. 12.5 business days).
- The maximum allowable delay of a test cycle due to Test Lab Vendor equipment downtime is 1 day per test cycle and this time shall not be chargeable to the Vendor (i.e. the time allowed for the test cycle shall be extended by the amount of Test Lab Vendor equipment downtime). Any downtime on Vendor equipment shall be rectified by the Vendor and no extension of the test

cycle will be required, unless by mutual agreement between the Vendor and the Test Lab Vendor.

- For each individual test case that fails, the Test Lab Vendor must debrief the Vendor on the outcome of the test within 24 hours and give the Vendor the opportunity to ensure that the equipment under test was configured correctly. At no-time will the Test Lab Vendor be responsible for troubleshooting Vendor equipment in the case of a test failure. If the failure is as a result of misconfiguration, the Vendor shall be allowed **one** retest of the test case in question, once the equipment has been correctly configured. However, in the event that the Vendor fails to reconfigure the equipment and submit to a retest of the failed test case before the scheduled end of the test cycle, the original test result will be recorded as a final result.

Execution standards and metrics, including remedies and sanctions for non-compliance with the execution standards, will be defined in the test program contract.

Recording results and reporting

Results of the test passes each day will be made available to the Vendor.

Note the requirements in the 'Test Lab Vendor Deliverables' section later in this document.

Note also that test results must be securely archived and may be audited by UCIF at any time after 5 days' notice of the audit has been provided to the Test Lab Vendor.

Test Lab Vendor Deliverables to CWG

For each test program awarded to a Test Lab Vendor, the following deliverables will be required. All deliverables shall be made to the UCIF CWG Program Manager via email.

Test schedules

Each month, an updated summary of the current test schedule shall be issued. This will include the test dates for Vendors who have confirmed their test schedule at any time in the future and any changes to the test schedule since the last monthly report.

Interim test reports

For each vendor under test, at the end of each week of testing, a report shall be submitted to the CWG PM and to the Vendor with the following:

- Tests completed: number and % of total;
- Tests passed;
- Tests failed;
- Completed retests;
- Estimated time to completion of test pass;

- Vendor equipment downtime (if any);
- Test Lab Vendor equipment downtime (if any).

Test result reporting

Immediately on completion of a Vendor test pass, the Test Lab Vendor must send a status report to the CWG Program Manager advising of the overall test result.

Final test reports

Within one week of completion of a vendor test pass, the Test Lab Vendor must send a full report of the results of the test pass, as defined in the test plan, to the CWG Program Manager.

Within 5 business days after the completion of each test cycle, a final report will be submitted to the CWG PM and the Vendor:

- Tests passed;
- Tests failed: for each the following information will be provided:
 - Test result & expected test result;
 - All traces, logs and other test output supporting the test result;
 - A summary diagnosis of the cause of the test failure.
- Completed retests: for each test that was repeated, the following information will be provided:
 - Initial test result & expected test result;
 - All traces, logs and other test output supporting the initial test result;
 - A summary diagnosis of the cause of the test failure;
 - What corrective action was applied by the Vendor or the Test Lab Vendor that resulted in the successful retest.
- Vendor equipment downtime (if any);
- Test Lab Vendor equipment downtime (if any).

If the overall result of the test pass is 'Fail', then see the section on 'Corrective Actions' elsewhere in this document.

Post-Test Follow-up Process

Award of Certification Marks

Upon final approval by the UCIF Board, a certification mark will be awarded to successful Vendors.

The definition of the certification mark program is TBD (definition program postponed until 2012).



Appropriate publicity and recognition programs will be defined and conducted by the Marketing Working Group.

Process in the Event of a Test Failure

Within 1 week of a Vendor completing a verification pass that results in a 'Fail' grade (according to standards to be defined in the test plan document) the Test Lab Vendor must send the Vendor and the CWG PM a detailed test result highlighting required corrective action (see 'Test Lab Deliverables' elsewhere in this document). A re-test may be scheduled at the discretion of the Vendor.

Process for Dispute Resolution

In the event that a Vendor does not agree with the outcome of a test pass (based on the contents of the detailed test result and corrective action report), there will be a review process to be defined later.

Vendor Feedback

Each vendor will be required to provide their own feedback to the CWG Program Manager on each test cycle conducted by the Test Lab Vendor. The CWG Program Manager will share that feedback with the Test Lab Vendor at his discretion.

Funding of Test Programs

Overall, UCIF will fund a portion of CWG costs from annual member fees. However, over the long-term it is the expectation that the Certification Programs shall be self-sustaining. A budget for each Certification Program will be developed within each CWG TG as an initial milestone, and will be approved by the UCIF Board prior to expenditure of funds. This budget will include an estimate of startup costs for the group, the creation our sourcing of applicable test tools as well as a plan for the recovery of incurred and ongoing costs based on participation.



Appendix A – Glossary of Terms

Vendor – a firm that is submitting equipment to be tested within a UCIF test program.

Test Lab Vendor – a firm with expertise in the testing and certification of software and hardware, particularly in the Unified Communications domain, and which is a member of the UCIF list of approved test laboratories.

Test Tool Vendor – a firm with expertise in the creation of tools for the testing and certification of software and hardware, particularly in the Unified Communications domain. The Test Tool Vendor may also be a Test Lab Vendor if it is a member of the UCIF list of approved test laboratories.

CWG – the UCIF Test and Certification Working Group: the group responsible for creating and managing interoperability test programs and the issuer of this document.

TG – a Task Group of the CWG or the TWG formed to work on a specific interoperability profile or test program.

TWG – the UCIF Technical Working Group: the group responsible for creating interoperability profiles and interoperability test criteria.

Test cycle – a single execution of a test plan as part of a test program. This includes specific test case retests as defined elsewhere in this document.