THE *Open* GROUP

WAP Conformance Process and Certification Policy

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1. GENERAL INFORMATION

1.1 Purpose and Scope

This document defines the policy to be used in the operation of The Open Group Certification Program for WAP clients and servers.

Although this document is not intended to define how the policies are to be implemented, some implementation detail is included to aid understanding.

The Open Group WAP Certification Program is a voluntary program and is not a requirement for sale of any device.

1.2 Abbreviations

CA   Certification Authority

CCR   Class Conformance Requirements

CL   Connectionless

CO   Connection-oriented

DUT   Device Under Test

ICS   Implementation Conformance Statement

LA   License Agreement

OEM   Original Equipment Manufacturer

PR   Problem Report

SCR   Static Conformance Requirements

TSD   Test Suite Deficiency

TSMA   Test Suite Maintenance Authority

1.3 Definitions

The following definitions apply to this document.

Binary-compatible Family	Hardware and operating system platforms on which the server software run-time code runs unchanged.
Certification Agreement	The agreement between an applicant for certification and the CA.
Certification Authority (CA)	The organization providing the day-to-day management of the certification process.

Certified Product	A product that has successfully completed the certification process, the supplier of which has been notified by the CA to this effect.
Class Conformance Requirements (CCR)	Defines the list of features that are mandatory and optional for support by a conforming implementation.
Implementation Conformance Statement (ICS)	Defines the list of mandatory and optional features implemented by a certain product.
Interpretations	Decisions made by the Specification Authority that elaborate or refine the meaning of a WAP Specification or a standard or specification referenced by a WAP Specification.
License Agreement (LA)	The Open Group Certification Mark License Agreement under which The Open Group licenses the use of its trademarks for use in relation to Certified Products and in relation to conforming WAP content.
Problem Report (PR)	Questions of clarification, intent, or correctness concerning WAP Specifications or the WAP test suites which, if accepted by the Specification Authority, are resolved into Interpretations or TSDs.
REFPOOL	The complete set of devices available for WAP Certification testing.
REFPOOL Agreement	The agreement between the supplier of a product in the REFPOOL and the CA, which sets out the conditions attached to participation in the REFPOOL, including availability, accessibility, and confidentiality.
REFSET	A set of servers or clients against which a DUT will be tested for WAP Certification. The REFSET for a particular DUT will be selected from the REFPOOL by the CA.
Specification Authority	A group of technical experts responsible for providing consensus decisions regarding the meaning of conformance to the WAP Specifications.
Static Conformance Requirements (SCR)	The list of features which are mandatory and optional for support by an implementation for conformance to a given specification.
Test Campaign	The series of Test Sessions in which the DUT is tested against all of the members of the REFSET.
Test Session	A single run of the test suite(s) in which the DUT is tested against one member of the REFSET.
Test Suite Deficiencies (TSD)	Agreed errors in a test suite, which are causing it falsely to report failures. A TSD may allow certification to proceed in the presence of such errors in a test suite.
Test Suite Maintenance Authority (TSMA)	The organization(s) that maintain(s) the test suite(s).
WAP Certification Mark	The WAP Forum's certification logo or other marks as designated from time to time by the WAP Forum.
WAP Certified	A product is WAP Certified when it has been tested against the REFSET using the Test Campaign defined for it by the CA and the CA has accepted the Test Campaign Report as indicating that the product conforms to the relevant WAP Specifications.

WAP Software	Software, the modification of which may have a material effect on the compliance of a product to the WAP Specifications.
WAP Test Report	The document produced by the CA that shows which of the claimed features of the product were subject to testing during the certification process and the combined results of the Test Campaign.

2. CERTIFICATION PROCESS

WAP Certification for client and server products is made available for particular versions of the WAP Specifications known as a Conformance Release. The definition for the WAP 2.0 Conformance Release to which this program applies is available from the Open Mobile Alliance (www.openmobilealliance.org).

The set of applicable Class Conformance Requirements (CCR) and features against which a product is certified as a result of a certification Test Campaign is specified in the WAP Test Report for the Certified Product.

It is an explicit condition of WAP Certification that the supplier of a Certified Product warrants and represents that the Certified Product meets all of the conformance requirements applicable to the conformance requirements against which it is certified and which the supplier claims, in the Implementation Conformance Statement (ICS), that the Certified Product implements. Inclusion, by reference, of this policy into the Certification Agreement as well as the License Agreement (LA) means that this obligation applies to all suppliers of Certified Products in respect of their Certified Products, whether or not they choose to enter into the LA.

3.   LICENSE OF WAP CERTIFICATION MARK

3.1   License Agreement

Once a product has been certified, the applicant may choose to enter into The Open Group Certification Mark License Agreement in order to license the WAP Certification Mark. The License Agreement (LA) allows for the Certification Mark to be used only on or in relation to Certified Products.

If the supplier of a Certified Product does not enter into the LA, the supplier may not use the WAP Certification Mark on or in relation to the Certified Product or any other product.

For the avoidance of doubt, this Certification Program does not confer any rights for the use of any Open Mobile Alliance trademarks.

3.2   Removal of WAP Certification and the WAP Certification Trademark

The Certification Authority (CA) may at any time request suppliers of Certified Products to provide the CA with any information reasonably related to their Certified Product's conformance with the WAP Specifications.

If a Certified Product is found by any means to be no longer conformant with the WAP Specifications, the CA will notify the supplier who shall do one of the following:

1.   Within 90 days, rectify the non-conformity and satisfy the CA of the efficacy of the rectification.

2.   Within 90 days, satisfy the CA that there is no non-conformity in the Certified Product.

3.   Within 90 days, cease any claims of conformance.

4.   Within 90 days, cease use of the WAP Certification Mark in respect of the Certified Product.

5.   Within 45 days, invoke the Appeals Process as described in Section 8 (Appeals Process).

If option (5) is selected, the supplier will have 45 days from the completion of the Appeals Process to implement the decision or cease claims of conformance and use of the trademark in respect of the Certified Product.

If a product ceases to be Certified Product, any and all rights the supplier may have had to use the WAP Certification Mark on or in relation to that product cease immediately.

Once the WAP Certification Mark has been removed, any future use of the WAP Certification Mark in respect of that product will require re-testing and re-certification and entering into another LA.

4. TESTING

4.1 Test Suites

From time to time, the Certification Authority (CA) may introduce new test suites, either as replacements for existing suites or as part of a continuing policy of extending test suite coverage within the Certification Program.

Test Suite Maintenance Releases will take place to reflect Interpretations, or other agreed Test Suite Deficiencies (TSDs). Test Suite Maintenance Releases will have a two-week beta testing period open to all on-line users of the test suite. Certification will be available using the new version after any faults found in the beta test have been rectified and a revised version made available which has been accepted for use in the Certification Program. Test Suite Maintenance Releases will replace existing releases in use for certification testing after a three-month overlap period.

Test Suite Enhancement Releases will take place to reflect entirely new test suites or major enhancements to existing test suites. Test Suite Enhancement Releases will have a three-month beta testing period open to all on-line users of the test suite. Certification will be available using the new version after faults found in the beta test have been rectified and a revised version made available which has been accepted for use in the Certification Program. Test Suite Enhancement Releases will replace existing releases in use for certification testing after a nine-month overlap period.

4.2 Test Process

4.2.1 ICS and WAP Test Report Overview

Based on the Class Conformance Requirements (CCR) document and the Static Conformance Requirements (SCRs) of individual specifications, an Implementation Conformance Statement (ICS) Proforma is made available to applicants on the CA's web site.

The ICS Proforma is a series of questions about the set of features (SCRs), both mandatory and optional, that have been implemented.

The completed ICS Proforma is the ICS, which is the documented set of claims for static conformance. The ICS is printed and signed by the applicant and delivered to the CA as part of the application package for certification.

The ICS is the property of the applicant.

If the supplier wishes to change administrative details such as contact names, addresses, etc., the CA must be informed.

The WAP Test Report is produced by the CA when certification is complete.

4.2.2 Static Review and Scope of Certification

The testing part of the certification process starts with a static conformance review by the CA.

The applicant's ICS will be examined with respect to the WAP Specification. If there is any inconsistency with the conformance requirements or other suspected error in the ICS, the applicant will be informed and the certification process will halt.

All mandatory and optional features marked as supported in the applicant's ICS are within the scope of certification.

4.2.3   REFSET

4.2.3.1   REFSET Selection

The CA will use best judgment in selecting the REFSET members such that testing coverage of optional features and interoperability is maximized and will use the following rules:

1.   The CA shall select the particular REFSET devices from the REFPOOL for each Device Under Test (DUT) submitted.

2.   The standard number of devices in the REFSET is three (3). The minimum number of devices in the REFSET is two (2) if the REFPOOL is limited.

3.   The REFSET devices must have different WAP technology components (such as stack, interpreter, etc.) amongst them. The only possible exception is to cover testing of optional features where it may be necessary to increase the size of the REFSET duplicating the technology components of the mandatory features. This situation must be avoided whenever possible. The maximum number of devices in the REFSET is five (5).

4.   The optional features must be tested against either three (3) members of the REFSET, or two (2) members if the REFSET is limited, in order to mark the feature as tested in the WAP Test Report. The size of the REFSET may be increased as necessary to enable this; however, it is expected that the size of the REFSET will be kept to the absolute minimum necessary.

5.   Manual tests of the browser are required to be performed only once, regardless of the size of the REFSET.

6.   The DUT can share WAP technology components with at most one (1) of the REFSET devices (except where the REFSET is greater than three (3) as noted above for optional features).

The applicant has no choice in the selection of the REFSET members and must run a complete Test Session against each of them.

The CA will provide contact details to the applicant for each of the products against which they will test, but the CA will not provide any detailed logistics support such as booking time, facilities, transport, or communications.

The CA will inform the suppliers of the products in the chosen REFSET that their product has been selected for inclusion in a new REFSET, and will also say in how many REFSETs the product is now included. When a Test Campaign is completed and results are submitted for certification, the CA will inform the suppliers of the products in the REFSET of the revised number of REFSETs in which their products are included.

If it is not possible for the CA to enable the start of certification testing for the DUT within the stipulated time of four (4) working days, the CA will inform the applicant that testing cannot be started.

Applicants who cannot begin testing will be provided with a reason along with a CA notification indicating why testing cannot commence.

4.2.3.2 REFSET Changes

If the supplier of a product that is included in a REFSET voluntarily withdraws it from the REFPOOL, the REFSET will not change.

If a product included in a REFSET is removed from the REFPOOL for any of the reasons described in Section 4.3 (REFPOOL), the applicant may do one of the following:

1.   Continue with the original REFSET.

2.   Request the CA to replace that product in the REFSET with another.

3.   Abandon the Test Campaign and certification attempt.

4.2.4   Dynamic Testing

The complete set of Test Sessions between the DUT and each member of the REFSET is called the Test Campaign.

Once the REFSET has been determined, the applicant will run the test suite in a pair-wise fashion against each of the members of the REFSET in turn.

The central test suite(s) and server operated and maintained by the CA must be used to perform all formal Test Sessions for certification. The approved test suite server provides features to capture Test Session results and to enable applicants to submit the results of a formal Test Session to the CA for certification.

The rules for deriving application layer test results for a Test Campaign from multiple Test Session results are as follows:

```
Pass + Fail = Fail
Pass + Pass = Pass
```

The rules for deriving the protocol test results for a Test Campaign from multiple Test Session results are as follows:

```
Fail + Inconclusive = Fail
Pass + Inconclusive = Pass
Pass + Fail = Fail
Inconclusive + Inconclusive = Inconclusive
```

that is, "Fail" has precedence over "Pass" which has precedence over "Inconclusive".

The precedence rules for deriving the protocol test results for each test in a single Test Session are as follows:

```
Fail + Inconclusive = Fail
Pass + Inconclusive = Pass
Pass + Fail = Fail
Inconclusive + Inconclusive = Inconclusive
```

that is, "Fail" has precedence over "Pass" which has precedence over "Inconclusive".

A single Fail for any application or protocol test in a Test Session means that the Test Session is failed.

Test Sessions must be run in an end-to-end black box environment, where one end is the DUT. Note that the end-to-end environment may be a simulated or real network environment. Client/server end-to-end Test Sessions must happen over the DUT bearer Radio Frequency (RF) interface.

At this time there are no other conditions that must be met by an applicant with respect to how and where formal testing takes place. As and when additional test suites are introduced, the CA may introduce additional requirements upon how and where testing takes place.

The test suite must be configured and parameterized to match the scope of the intended certification. Applications and Test Campaign results will be kept confidential to the applicant and the CA, and will be archived for six (6) years.

4.2.5   Test Session Scope

Appendix A (Test Session Scope) outlines which tests have to be performed depending on what features the client has implemented and how many bearers it supports.

The decision of which bearer should be the primary one – that is, which bearer all applicable tests should be performed against – will be decided by the CA.

The primary bearer should be selected by the CA on the following priorities:

1.   To secure maximum coverage of functionality

2.   To secure economy and minimum time consumption for certification testing

If the device supports more than one class of Wireless Transport Layer Security (WTLS), the most extensive class across all REFSET members should be used when WTLS is active.

4.2.6   Disclosure of Certification Information

Certification Information is the fact of certification, the description of the Certified Product, the ICS, and the WAP Test Report relating to a Certified Product.

Suppliers of Certified Products are required to make Certification Information available free-of-charge prior to sale of Certified Products, for pre-sale consultation, and inspection by prospective customers on request.

The CA will not disclose any Certification Information to any third party without the written permission of the supplier.

On receipt of a written request by the supplier of a Certified Product, the CA will make Certification Information available to a third party.

The CA will make the Certification Information publicly available if so requested in writing by the supplier of a Certified Product.

The CA will always hold confidential any information regarding unsuccessful applications for certification.

4.2.7   Independent Testing

Suppliers may independently contract and utilize laboratories for WAP testing. The CA will in no way be held liable or accountable for the independent arrangements made by and between suppliers and laboratories.

4.3   REFPOOL

REFPOOL membership is a commitment to make a device available for use in testing in a timely manner. Failure to make a device available will result in the product being removed from the REFPOOL.

Any company who is willing to submit a product into the REFPOOL enters into a REFPOOL Agreement with the CA that commits them to make their product accessible/available to others for formal testing and includes provisions for confidentiality. The product's ICS is included as an Appendix to the REFPOOL Agreement.

Certification is not a prerequisite for REFPOOL membership.

A supplier may voluntarily withdraw their product from the REFPOOL subject to the terms of the REFPOOL Agreement, and must immediately inform the CA.

If a product is withdrawn from the REFPOOL, it will not subsequently be selected for inclusion in any REFSETs.

Upon voluntary withdrawal of a product from the REFPOOL, any prior obligations for participation in any REFSET survive and the supplier is required to make the product available for testing but only within those REFSETs.

Upon involuntary withdrawal from the REFPOOL, any prior obligations for participation in any REFSET(s) may survive at the discretion of the applicant(s); see Section 4.2.3.2 (REFSET Changes).

The requirement for applicants for certification to test their products against members of the REFSET means that suppliers of products in the REFPOOL will learn in advance of other company's plans for certification. The REFPOOL Agreement will include confidentiality requirements.

Applicants for certification are advised to ensure appropriate non-disclosure agreements are in place between themselves and the suppliers of the products in their REFSET, as the CA does not accept any responsibility for information obtained by applicants or REFSET product suppliers about each others' products or any other matter during a Test Campaign.

5.   SCOPE, RE-TEST, AND RE-CERTIFICATION OF PRODUCTS

Certification applies not just to a single instance of a product, but to the production run and to some families of related products, as described below.

5.1   Maintenance Releases of WAP-Related Software

For both clients and servers, maintenance releases and field upgrades to WAP Software may take place throughout the life of the product.

To require full, formal re-test and certification for each bug fix release or patch would generate a high volume of activity, and it is doubtful whether the improvement in conformance and interoperability, if any, would justify the cost.

The supplier of a Certified Product is required to test each commercial maintenance release of WAP-related software to market against the WAP Forum approved test suite maintained by the Certification Authority (CA). Section 4.2 (Test Process) applies to this testing, with the following differences:

1.   The applicant can simply reference the ICS they have previously supplied when applying for this testing to the CA since this is a maintenance release for an existing Certified Product.

2.   Only one (1) REFPOOL member is required in the REFSET selected by the CA for this testing.

The results of such testing will be archived by the CA. The archives will be kept for six (6) years to provide an auditable trail.

	Test Requirement	Certification Requirement
Servers	One Test Session for each commercial maintenance release of WAP-related software against one REFPOOL member specified by the CA.	No re-certification required.
Clients	One Test Session for each commercial maintenance release of WAP-related software against one REFPOOL member specified by the CA.	No re-certification required.

5.2   New WAP Software Versions

A major change in the WAP Software constitutes a new product with respect to testing and certification. A major change in the WAP Software is defined as an upgrade to a new version of the WAP Specification, or a version with new WAP features, or a major restructuring of the WAP Software.

	Test Requirement	Certification Requirement
Servers	Full Test Campaign.	Full Certification.
Clients	Full Test Campaign.	Full Certification.

5.3   Reduced Feature Versions

A client or server device, certified with a number of optional features, may also be sold, perhaps under a different model name, with a reduced number of features.

If there has been any major change to the WAP Software, the device shall be subject to the full testing and certification, irrespective of its relationship to previously certified devices, as described for new software versions; see Section 5.2 (New WAP Software Versions).

If the reduced features have not resulted in restructuring of the software, then the device may be re-tested and re-certified as described for bug fix releases of software; see Section 5.1 (Maintenance Releases of WAP-Related Software).

If the optional features are configurable after manufacture without requiring modification to the software, then no retest shall be required.

5.4   Different Platform Version

Different platform versions of clients constitute new products and must be subject to full test and certification, irrespective of the origin of the software.

For servers, the applicant will at the time of applying for certification, define the intended scope of certification in terms of the hardware and operating system environments.

In some cases, this may involve several different hardware and operating system platforms on which the server software will run unchanged.

At the time of certification, the applicant may define a binary-compatible family on the application form. The definition may be by enumeration or by description.

When selecting the REFSET, the CA will select, from the defined family, a representative platform for formal testing.

After a product has been certified, the applicant may add platforms to the scope of certification, subject to self-certification of binary-compatibility and a formal change of product details; see Section 5.5 (Changes to Product Details).

	Test Requirement	Certification Requirement
Servers	None within the same binary-compatible family.	Change/addition to certification details in register.
Clients	Full Test Campaign.	Full Certification.

5.5   Changes to Product Details

If a certified client or server is to be re-named or other details in the register altered with no change to the Certified Product's software or hardware operating environment, the CA will, on request, change the details in the register and supply new certificates.

The applicant will be required to indicate that there have been no material changes to the Certified Product other than the details given.

	Test Requirement	Certification Requirement
Servers	None.	No re-certification required.
Clients	None.	No re-certification required.

5.6   Re-Badged or OEM'ed Products

If technically identical products are to be shipped by more than one applicant, each applicant will have to go through the certification process. Each applicant will take on the commitment to conformance, but since the products are technically the same, there will only need to be one Test Campaign.

So, if the baseline product is already certified, an Original Equipment Manufacturer (OEM) may use the test results from the original certification of the baseline product when applying for certification for the derived product.

The OEM will have to self-certify that the original Certified Product is unchanged and that only the "badge" and name are different.

The supplier of the original Certified Product will also be required to agree for the original (confidential) test results to be used to support the OEM's application for certification.

Suppliers who re-badge their own products may certify such "clones" under these same conditions.

Clones may be certified at the same time as the baseline product.

	Test Requirement	Certification Requirement
Servers	Refer to original test results.	Full Certification.
Clients	Refer to original test results.	Full Certification.

5.7   Other Variants

Except where specifically stated in this document, any other variant of a Certified Product (client or server) which may have a material affect on the compliance of a product to the WAP Specifications constitutes a new product, which will be subject to full testing and certification.

5.8   Duration of Certification

Certification lasts for 12 months from the date at which the CA informs the supplier that certification has been achieved.

The supplier is required to renew certification annually, and 60 days before the anniversary of certification the CA will notify the supplier that renewal is due.

At renewal, the CA will check any archived Test Session reports and the current WAP Software version together with any additional information the CA may reasonably require related to conformance of the

Certified Product to the WAP Specifications. If there are no discrepancies, the CA will renew certification for 12 months and inform the supplier.

6. PROBLEM REPORTS

6.1 Overview

Errors or ambiguities may be discovered in either:

- The WAP Specifications
- The underlying standards referenced by the WAP Specifications

Errors may also be found in either:

- The WAP test suites
- Other test suites used in the program (if any)

Problem Reports (PRs) may be filed with the Certification Authority (CA) to obtain resolution to such issues.

PRs will go through a review by the Specification Authority. The preliminary review will provide an initial response to the applicant. If the preliminary review does not resolve the issue, a more detailed review will be undertaken.

Possible outcomes of the review process are that a PR is either accepted as an error in the WAP Specifications (an Interpretation) or the WAP test suites (a Test Suite Deficiency (TSD)), or rejected.

There are two principles that will be observed in assessing PRs. Decisions will seek always to deliver improved:

- Interoperability between clients and servers
- Portability of content across devices

The CA will publish an up-to-date list of PR resolutions that may be cited in support of applications for certification.

If the applicant is not satisfied with the result, review and appeals processes will be available.

6.2 Problem Report Resolution Process

The process is outlined in the following diagram.

The key element of the review process is a deterministic timeline for a formal resolution to the PR. The preliminary review stage allows simple problems to be dealt with expeditiously within six (6) working days. The detailed review stage should result in a final resolution for more complicated issues within a further 15 working days. In exceptional circumstances, final resolution may take longer, in which case the PR will be resolved sufficiently within the 15 days to allow the certification process to proceed.

The Specification Authority may retain independent experts to offer guidance in the preliminary and detailed review stages to help meet the response time.

In the case of problems related to a test suite, the Test Suite Maintenance Authority (TSMA) will be required to express an opinion to the Response Group within three (3) working days to aid the review process.

```
┌─────────────────────┐
│   Applicant files a │
│   Problem Report    │
└─────────────────────┘
           │
           │──Test Suite or Certification System issues
           │
           ▼
┌─────────────────────┐        ┌─────────────────────┐
│  Preliminary Review │◄───────│  Opinion Submitted  │
│  by Specification   │ 6 days │        by           │
│     Authority       │  max   │     TSMA or CA      │
└─────────────────────┘        └─────────────────────┘
 6 days    │
  max      │
           ▼
      ◇ Initial PR
        response ◇────────── Resolution
           │                (INT, TSD, CSD,Rejected)
           │
   Further consideration
           │
           ▼
┌─────────────────────┐
│  Detailed Review by │ 15 days
│         SA          │  max
└─────────────────────┘
           │
           ▼
      ◇  Final
        Resolution ◇──Yes──┐
           ?                │
           │No              ▼
           │         ┌─────────────────────┐
           │         │ CA Notifies Applicant of │
           ▼         │      Resolution     │
┌─────────────────────┐ └─────────────────────┘
│ Provide preliminary │            │
│ resolution to Applicant │        ▼
│    (if possible)    │      ◇ Resolution
└─────────────────────┘       equals ◇──No──┐
                             Rejected?       │
                                │            ▼
                               Yes    ┌─────────────────────┐
                                │     │    CA Publishes     │
                                ▼     │   Problem Report    │
                          ◇ Applicant │                     │
                            satisfied? ◇──Yes──────┘
                                │
                               No
                                │
                                ▼
                        ┌─────────────────────┐
                        │  Applicant invokes  │
                        │ appeals process as  │
                        │  specified in the   │
                        │       policy        │
                        └─────────────────────┘
```
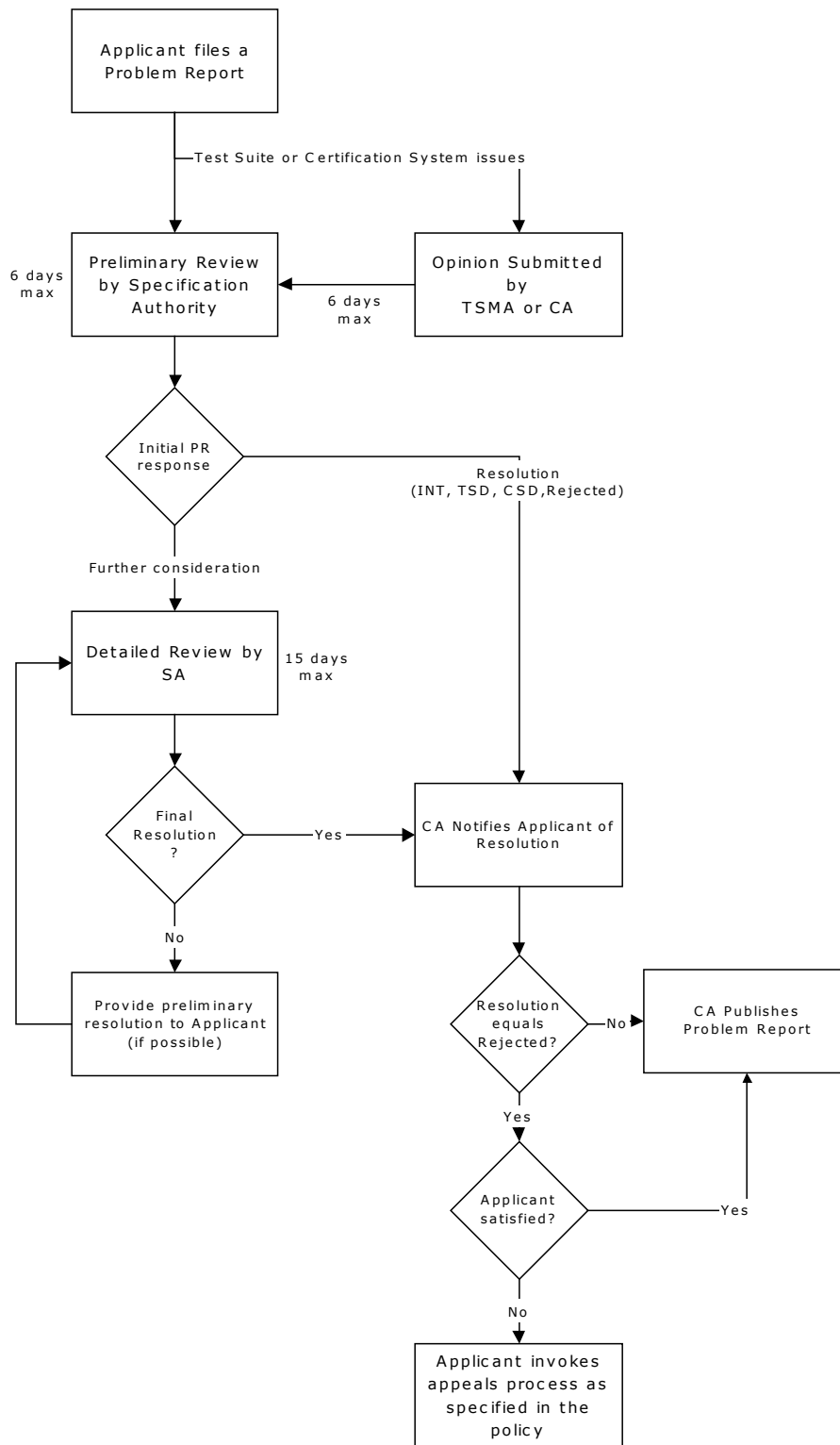
Figure 1: Problem Reporting Process

6.3   Rules for Problem Reports

Interpretations are permanent against the version of the specification to which they apply.

TSDs are permanent against the version of the test suite(s) to which they apply. However, the Specification Authority reserves the right to change the ruling on a PR.

In all circumstances, the complete test suite or set of test suites must be run during a Test Campaign. The existence of any TSD with respect to a test suite does not absolve an applicant from running the test in question, or any part thereof.

An applicant may cite an Interpretation or a TSD to resolve discrepancies in test reports or to support their application for certification in any other way, irrespective of the origin of the PR that gave rise to it.

The PR web repository will be publicly accessible. The accessible information will contain the technical details, such as the nature of the problem and its current status of resolution, but will not contain sections reserved for applicant and product details.

The effective date for a PR resolution is the date recorded for the final opinion in the PR system. PR resolutions apply to all certification applications that are not yet complete.

Neither Interpretations nor TSDs can cause previously Certified Products to be "un-certified".

Interpretations of WAP Specifications will never result in product behavior that was previously considered to be conformant being declared non-conformant, at a given revision level of the WAP Specifications. Interpretations may only result in product behavior that was previously considered to be non-conformant being declared to be conformant.

Applications for certification by any applicant will require the applicant to demonstrate that the product in question meets the WAP Specifications as interpreted at the time the REFSET is defined.

Interpretations remain in force until the WAP Specification is updated, which means that they are permanent against a particular issue of a WAP Specification.

Interpretations are always against a particular version of a WAP Specification. Therefore, PRs with respect to a specification that include rationale citing conflict with a previous or subsequent version of the specification will be assessed without reference to such rationale. In particular, conflict with another version of the same WAP Specification does not in itself form grounds for granting an Interpretation.

The Specification Authority is responsible for deciding the meaning of conformance to normative referenced specifications in the WAP context, such as IETF RFCs. PRs regarding such underlying or referenced specifications in the context of WAP will be processed as normal. PRs regarding underlying or referenced specifications in any other context will be rejected.

The PR resolution process will allow the requester to remain anonymous, so pre-certification activity is kept entirely confidential.

7. APPLICATION PROCESS

The Certification Authority's (CA) web site describes how applicants go about applying for and achieving WAP Certification.

Applicants have 90 days from receipt of the REFSET definition after applying for certification to complete the process and submit Test Campaign results to the CA.

When applying to retest a maintenance release, applicants will have 45 days from receipt of the REFSET definition to complete the process and submit Test Campaign results to the CA.

8. APPEALS PROCESS

Applicants may appeal decisions made by the Specification Authority or the Certification Authority (CA). The occasions that may give rise to an appeal include, but are not limited to, the following:

- The applicant disagrees with the Specification Authority's resolution of a Problem Report (PR).

- The applicant disagrees with the CA's grounds for denying the award of certification.

- The applicant disagrees with a formal notification of the need to rectify a non-conformance.

Appeal requests should be made to the CA.

There are two levels of appeal: a Technical Review and a Board Review. Review decisions will be made in accordance with The Open Group policies.

At each level of appeal, the applicant has the right to representation at the review meeting to make the technical case, though is not required to do so. The Appeals Process will be anonymous if the applicant does not wish to be represented at the review meetings. In such case, the CA will remove the details of the applicant and product from all information provided for the Technical and Board Reviews.

An applicant wishing to dispute a Specification Authority or CA decision may request a Technical Review. Technical Review requires the responsible expert group to consider the matter and produce a response with a recorded vote according to its voting rules, within 21 calendar days of the request. The responsible expert group may commission reports from independent experts, and may seek input from other committees within The Open Group as it sees fit.

If the applicant is not satisfied with the outcome of the Technical Review, the applicant may request an appeal to The Open Group WAP Certification Review Board within 14 calendar days of being notified in writing by the CA of the results of the Technical Review. The Review Board is an independent panel of experts appointed by The Open Group. It may ask for technical reports from the relevant working groups and may also ask for reports from independent experts. The Board Review will be completed within 30 calendar days of the applicant's written request for a Board Review. The results of a Board Review are final and cannot be further appealed.

APPENDIX A: TEST SESSION SCOPE

This is a normative section that describes the testing requirements for WAP 2.0 Certification.

A Test Campaign will be issued to a customer for each device being certified based on the requirements below. The standard Test Campaign will involve testing a device against three (3) different REFSET members with a minimum of two (2) if the REFPOOL is limited.

The testing requirements are the minimum needed for assurance of conformance to the WAP 2.0 Specifications. Browser manual tests need to be done only once. Full testing of the underlying layers will be required with every REFSET member so fully testing interoperability.

Where both the HTTP and WAP stack are supported, the full testing for each as described is required.

WAP Stack

CL 1 Bearer

CL with Multiple Bearers

CL 1 Bearer and WTLS

CL with Multiple Bearers and WTLS

CO 1 Bearer

CO with Multiple Bearers

CO 1 Bearer and WTLS

CO with Multiple Bearers and WTLS

CO and CL with one Bearer

CO and CL Multiple Bearers

CO and CL Multiple Bearers and WTLS

Two or more Bearers (each with only CL or CO implemented, but both CO and CL present in the product)

Two or more Bearers (each with only CL + WTLS or CO + WTLS implemented, but both CO and CL present in the product)

HTTP Stack

HTTP without TLS Security

HTTP with TLS Security

CL 1 Bearer

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	N/A	1
Bearer 1	CL	Auto	N/A	2
Bearer 1	CL	Auto	N/A	3

Passive Protocol Tests

Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3

Active Protocol Tests (gateways only)

Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3

CL with Multiple Bearers

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	N/A	1
Bearer 1	CL	Auto	N/A	2
Bearer 1	CL	Auto	N/A	3
Bearer 2	CL	Auto	N/A	1
Bearer 2	CL	Auto	N/A	2
Bearer 2	CL	Auto	N/A	3

Passive Protocol Tests

Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3
Bearer 2 if UDP	CL	CL tests	N/A	1
Bearer 2 if UDP	CL	CL tests	N/A	2
Bearer 2 if UDP	CL	CL tests	N/A	3

Active Protocol Tests (gateways only)

Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3

Additional Bearers as for Bearer 2.

CL 1 Bearer and WTLS

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	Off	1
Bearer 1	CL	Auto	Off	2
Bearer 1	CL	Auto	Off	3
Bearer 1	CL	Auto	On	1
Bearer 1	CL	Auto	On	2
Bearer 1	CL	Auto	On	3

Passive Protocol Tests

Bearer 1 if UDP	CL	CL tests	Off	1
Bearer 1 if UDP	CL	CL tests	Off	2
Bearer 1 if UDP	CL	CL tests	Off	3
Bearer 1 if UDP	CL	CL + WTLS	On	1
Bearer 1 if UDP	CL	CL + WTLS	On	2
Bearer 1 if UDP	CL	CL + WTLS	On	3

Active Protocol Tests (gateways do all tests; phones only do the CL + WTLS sessions)

Bearer 1 if UDP	CL	CL tests	Off	1
Bearer 1 if UDP	CL	CL tests	Off	2
Bearer 1 if UDP	CL	CL tests	Off	3
Bearer 1 if UDP	CL	CL + WTLS	On	1
Bearer 1 if UDP	CL	CL + WTLS	On	2
Bearer 1 if UDP	CL	CL + WTLS	On	3

CL with Multiple Bearers and WTLS

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	Off	1
Bearer 1	CL	Auto	Off	2
Bearer 1	CL	Auto	Off	3
Bearer 2	CL	Auto	On	1
Bearer 2	CL	Auto	On	2
Bearer 2	CL	Auto	On	3
Bearer 2	CL	Auto	Off	CA's choice

Passive Protocol Tests

Bearer 1 if UDP	CL	CL tests	Off	1
Bearer 1 if UDP	CL	CL tests	Off	2
Bearer 1 if UDP	CL	CL tests	Off	3
Bearer 1 if UDP	CL	CL + WTLS	On	1
Bearer 1 if UDP	CL	CL + WTLS	On	2
Bearer 1 if UDP	CL	CL + WTLS	On	3
Bearer 2 if UDP	CL	CL + WTLS	On	1
Bearer 2 if UDP	CL	CL + WTLS	On	2
Bearer 2 if UDP	CL	CL + WTLS	On	3
Bearer 2 if UDP	CL	CL tests	Off	CA's choice

Active Protocol Tests (gateways do all tests; phones only do the CL + WTLS sessions)

Bearer 1 if UDP	CL	CL tests	Off	1
Bearer 1 if UDP	CL	CL tests	Off	2
Bearer 1 if UDP	CL	CL tests	Off	3
Bearer 1 if UDP	CL	CL + WTLS	On	1
Bearer 1 if UDP	CL	CL + WTLS	On	2
Bearer 1 if UDP	CL	CL + WTLS	On	3

Additional Bearers as for Bearer 2.

CO 1 Bearer

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CO	Full	N/A	1
Bearer 1	CO	Auto	N/A	2
Bearer 1	CO	Auto	N/A	3

Passive Protocol Tests

Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3

Active Protocol Tests

Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3

CO with Multiple Bearers

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CO	Full	N/A	1
Bearer 1	CO	Auto	N/A	2
Bearer 1	CO	Auto	N/A	3
Bearer 2	CO	Auto	N/A	1
Bearer 2	CO	Auto	N/A	2
Bearer 2	CO	Auto	N/A	3

Passive Protocol Tests

Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3
Bearer 2 if UDP	CO	CO tests	N/A	1
Bearer 2 if UDP	CO	CO tests	N/A	2
Bearer 2 if UDP	CO	CO tests	N/A	3

Active Protocol Tests

Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3

Additional Bearers as for Bearer 2.

CO 1 Bearer and WTLS

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CO	Full	Off	1
Bearer 1	CO	Auto	Off	2
Bearer 1	CO	Auto	Off	3
Bearer 1	CO	Auto	On	1
Bearer 1	CO	Auto	On	2
Bearer 1	CO	Auto	On	3

Passive Protocol Tests

Bearer 1 if UDP	CO	CO tests	Off	1
Bearer 1 if UDP	CO	CO tests	Off	2
Bearer 1 if UDP	CO	CO tests	Off	3
Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3

Active Protocol Tests

Bearer 1 if UDP	CO	CO tests	Off	1
Bearer 1 if UDP	CO	CO tests	Off	2
Bearer 1 if UDP	CO	CO tests	Off	3
Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3

CO with Multiple Bearers and WTLS

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CO	Full	Off	1
Bearer 1	CO	Auto	Off	2
Bearer 1	CO	Auto	Off	3
Bearer 2	CO	Auto	On	1
Bearer 2	CO	Auto	On	2
Bearer 2	CO	Auto	On	3
Bearer 2	CO	Auto	Off	CA choice

Passive Protocol Tests

Bearer 1 if UDP	CO	CO tests	Off	1
Bearer 1 if UDP	CO	CO tests	Off	2
Bearer 1 if UDP	CO	CO tests	Off	3
Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3
Bearer 2 if UDP	CO	CO + WTLS	On	1
Bearer 2 if UDP	CO	CO + WTLS	On	2
Bearer 2 if UDP	CO	CO + WTLS	On	3
Bearer 2 if UDP	CO	CO	Off	CA's choice

Active Protocol Tests

Bearer 1 if UDP	CO	CO tests	Off	1
Bearer 1 if UDP	CO	CO tests	Off	2
Bearer 1 if UDP	CO	CO tests	Off	3
Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3

Additional Bearers as for Bearer 2.

CO and CL with 1 Bearer

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	N/A	1
Bearer 1	CL	Auto	N/A	2
Bearer 1	CL	Auto	N/A	3
Bearer 1	CO	Auto	N/A	1
Bearer 1	CO	Auto	N/A	2
Bearer 1	CO	Auto	N/A	3

Passive Protocol Tests

Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3
Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3

Active Protocol Tests (CL Test Sessions for gateways only)

Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3
Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3

CO and CL with Multiple Bearers

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	N/A	1
Bearer 1	CL	Auto	N/A	2
Bearer 1	CL	Auto	N/A	3
Bearer 1	CO	Auto	N/A	1
Bearer 1	CO	Auto	N/A	2
Bearer 1	CO	Auto	N/A	3
Bearer 2	CL	Auto	N/A	1
Bearer 2	CL	Auto	N/A	2
Bearer 2	CL	Auto	N/A	3
Bearer 2	CO	Auto	N/A	1
Bearer 2	CO	Auto	N/A	2
Bearer 2	CO	Auto	N/A	3

Passive Protocol Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3
Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3
Bearer 2 if UDP	CL	CL tests	N/A	1
Bearer 2 if UDP	CL	CL tests	N/A	2
Bearer 2 if UDP	CL	CL tests	N/A	3
Bearer 2 if UDP	CO	CO tests	N/A	1
Bearer 2 if UDP	CO	CO tests	N/A	2
Bearer 2 if UDP	CO	CO tests	N/A	3

Active Protocol Tests (CL Test Sessions for gateways only)

Bearer 1 if UDP	CO	CO tests	N/A	1
Bearer 1 if UDP	CO	CO tests	N/A	2
Bearer 1 if UDP	CO	CO tests	N/A	3
Bearer 1 if UDP	CL	CL tests	N/A	1
Bearer 1 if UDP	CL	CL tests	N/A	2
Bearer 1 if UDP	CL	CL tests	N/A	3

Additional Bearers as for Bearer 2.

CO and CL with 1 Bearer and WTLS

Application Tests (CO or CL could be chosen for full testing; example shows CL.)

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	Off	1
Bearer 1	CL	Auto	Off	2
Bearer 1	CL	Auto	Off	3
Bearer 1	CO	Auto	On	1
Bearer 1	CO	Auto	On	2
Bearer 1	CO	Auto	On	3
Bearer 1	CO	Auto	Off	CA's choice

Passive Protocol Tests

Bearer 1 if UDP	CL	CL tests	Off	1
Bearer 1 if UDP	CL	CL tests	Off	2
Bearer 1 if UDP	CL	CL tests	Off	3
Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3
Bearer 1 if UDP	CO	CO tests	Off	CA's choice

Active Protocol tests (CL tests for gateways only)

Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3
Bearer 1 if UDP	CO	CO tests	Off	CA's choice
Bearer 1 if UDP	CL	CL tests	Off	CA's choice

CO and CL with Multiple Bearers and WTLS

Application Tests (CO or CL could be chosen for full testing; example shows CL.)

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer 1	CL	Full	Off	1
Bearer 1	CL	Auto	Off	2
Bearer 1	CL	Auto	Off	3
Bearer 1	CO	Auto	On	1
Bearer 1	CO	Auto	On	2
Bearer 1	CO	Auto	On	3
Bearer 1	CO	Auto	Off	CA's choice
Bearer 2	CL	Auto	Off	1
Bearer 2	CL	Auto	Off	2
Bearer 2	CL	Auto	Off	3
Bearer 2	CO	Auto	On	1
Bearer 2	CO	Auto	On	2
Bearer 2	CO	Auto	On	3
Bearer 2	CL	Auto	On	CA's choice
Bearer 2	CO	Auto	Off	CA's choice

For additional Bearers, tests for Bearer 2 are repeated.

Passive Protocol Tests

Bearer 1 if UDP	CO	CO tests	Off	1
Bearer 1 if UDP	CO	CO tests	Off	2
Bearer 1 if UDP	CO	CO tests	Off	3
Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3
Bearer 2 if UDP	CL	CL + WTLS	On	1
Bearer 2 if UDP	CL	CL + WTLS	On	2
Bearer 2 if UDP	CL	CL + WTLS	On	3
Bearer 2 if UDP	CL	CL tests	Off	CA's choice

Active Protocol Tests (If a gateway, active tests over CL only.)

Bearer 1 if UDP	CO	CO + WTLS	On	1
Bearer 1 if UDP	CO	CO + WTLS	On	2
Bearer 1 if UDP	CO	CO + WTLS	On	3
Bearer 1 if UDP	CO	CO tests	Off	CA's choice
Bearer 1 if UDP	CL	CL tests	Off	CA's choice

Two or More Bearers
(Each with only CL or CO implemented, but both CO and CL present in the product.)

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer X	CL or CO	Full	N/A	1
Bearer X	As above	Auto	N/A	2
Bearer X	As above	Auto	N/A	3
Bearer X +1	CL or CO	Auto	N/A	1
Bearer X +1	As above	Auto	N/A	2
Bearer X +1	As above	Auto	N/A	3

Passive Protocol Tests

Bearer X if UDP	As app tests	CL or CO tests	N/A	1
Bearer X if UDP	As app tests	CL or CO tests	N/A	2
Bearer X if UDP	As app tests	CL or CO tests	N/A	3
Bearer X+1 if UDP	As app tests	CL or CO tests	N/A	1
Bearer X+1 if UDP	As app tests	CL or CO tests	N/A	2
Bearer X+1 if UDP	As app tests	CL or CO tests	N/A	3

For additional Bearers, repeat the X=1 tests.

Active Protocol Tests (If a gateway, active tests over CL only.)

Bearer X if UDP + CO	CO or CL	CO tests	N/A	1
Bearer X if UDP	CO or CL	CO tests	N/A	2
Bearer X if UDP	CO or CL	CO tests	N/A	3

**Two or More Bearers
(Each with only CL + WTLS or CO + WTLS implemented, but both CO and CL present in the product.)**

Application Tests

Bearer	Cnx Mode	Scope	WTLS	REFSET Member
Bearer X	CL or CO	Full	Off	1
Bearer X	As above	Auto	Off	2
Bearer X	As above	Auto	Off	3
Bearer X +1	CL or CO	Auto	On	1
Bearer X +1	As above	Auto	On	2
Bearer X +1	As above	Auto	On	3
Bearer X +1	As above	Auto	Off	CA's choice

Passive Protocol Tests

Bearer X if UDP	CL or CO	CL or CO tests	Off	1
Bearer X if UDP	As above	As above	Off	2
Bearer X if UDP	As above	As above	Off	3
Bearer X if UDP	As above	As above	On	CA's choice
Bearer X+1 if UDP	CL or CO	CL or CO + WTLS	On	1
Bearer X+1 if UDP	As above	As above	On	2
Bearer X+1 if UDP	As above	As above	On	3
Bearer X+1 if UDP	As above	CO or CL	Off	CA's choice

Active Protocol Tests
(If Bearers are UDP, only gateways do all CL Test Sessions; phones only do CL + WTLS.)

Bearer X or X+1 if UDP	CO	CO tests	Off	1
Bearer X or X+1 if UDP	CO	CO tests	Off	2
Bearer X or X+1 if UDP	CO	CO tests	Off	3
Bearer X or X+1 if UDP	CO	CO tests + WTLS	On	1
Bearer X or X+1 if UDP	CO	CO tests + WTLS	On	2
Bearer X or X+1 if UDP	CO	CO tests + WTLS	On	3
Bearer X or X+1 if UDP	CL	CL tests	Off	1
Bearer X or X+1 if UDP	CL	CL tests	Off	2
Bearer X or X+1 if UDP	CL	CL tests	Off	3
Bearer X or X+1 if UDP	CL	CL tests + WTLS	On	1
Bearer X or X+1 if UDP	CL	CL tests + WTLS	On	2
Bearer X or X+1 if UDP	CL	CL tests + WTLS	On	3

HTTP without TLS Security

Browser Tests

Bearer	Connection Mode	Scope	TLS	REFSET Member
Bearer 1	N/A	Full	N/A	1
Bearer 2	N/A	Subset	N/A	1
Bearer X	N/A	Subset	N/A	1

Where Subset equals ten, tests are chosen by the applicant.

HTTP with TLS Security

Browser Tests

Bearer	Connection Mode	Scope	TLS	REFSET Member
Bearer 1	N/A	Full	Off	1
Bearer 1	N/A	Subset	On	1
Bearer 2	N/A	Subset	On	1
Bearer X	N/A	Subset	On	1

Where Subset equals twenty, tests are chosen by the applicant.