



NFC Forum Certification Policy

Rules and Procedures for the Certification Program

NFC Forum™

Version: 1.1c

NFC_Forum_Certification_Policy

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1 Introduction

1.1 Purpose

This document defines the policies that govern the operation of the NFC Forum Certification Program. These policies define what can be certified, what it means to be certified, and the process for achieving and maintaining certification. These policies also define the obligations on Suppliers of Certified Implementations, including a requirement for the Supplier to warrant and represent that the Certified Implementation meets the Applicable Certification Requirements, which include conformance to the NFC Forum Specification(s) as interpreted by the NFC Forum from time to time, and a passing result from the currently authorized versions of the approved test tools and test specifications listed on the NFC Forum web site.

This document is intended primarily for Suppliers, who would like to certify a device, and test laboratories that wish to provide testing services. This policy, in conjunction with the High Level Conformance Requirements, Certification Agreement, and Trademark License Agreement, constitutes the set of requirements and obligations for achieving certification. Buyers intending to procure Certified Implementations will also find this document useful for understanding what they can expect from a Certified Implementation.

The NFC Forum Certification Program is not intended to impose any constraints on the way in which conformance is achieved, nor is it intended to constrain whether or how Certified Implementations are integrated into higher-level products.

For example, an NFC Forum Implementation may be developed by a laptop computer vendor as a module for integration into one or more ranges of laptops. The laptop vendor may choose to certify the module, and may also choose to certify one or more of the ranges of laptops in which the module is incorporated. The laptop vendor might also choose to sell the certified module for incorporation into a second vendor's laptops – which may then be certified by the second vendor.

It is also possible that the developer of the module may never offer it for sale as a separate product.

The NFC Forum Certification Program therefore does not constrain the way in which a Certified Implementation reaches the end customer, and does allow for products that incorporate Certified Implementations to be certified without unnecessary technical or administrative effort.

In this document the term Certified Implementation is used to refer to anything that is certified. In the example above, both the certified module and a certified laptop incorporating a certified module would be referred to as Certified Implementations and listed in the Certification Register.

The following elements, while deemed necessary for the successful deployment of an NFC Compliant Device, are currently outside the scope of the NFC Forum Certification Program:

- Certification of NFC Forum Tag Types
- Regulatory requirements and government type approvals
- Application layer certification

The NFC Forum Certification Program is available only to NFC Forum member companies.

1.2 References

1.2.1 Normative References

High Level Conformance Requirements 1.0 CC-CRD-HighLevelConformanceRequirements-1.0.doc 2008-08-05 and subsequent versions as approved by NFC Forum and identified on the Certification Program web site from time to time

ISO/IEC 17025:2005 - General requirements for the competence of testing and calibration laboratories

1.2.2 Informative References

TC-WP-BestPractice-1.2.doc Best Practices for NFC Forum Terminology, 2006, Rev.: 1.0

Testing Terminology (http://www.nfc-forum.org/apps/org/workgroup/testingwg/download.php?document_id=2130)

ISO 9646; OSI Conformance Testing Methodology and Framework

1.3 Administration

The NFC Forum Certification Policy is an open specification supported by the Near Field Communication Forum, Inc., located at:

401 Edgewater Place, Suite 600
Wakefield, MA, 01880

Tel.: +1 781-876-6216

Fax: +1 781-610-9864

<http://www.nfc-forum.org/>

The Compliance Program Working Group maintains this specification. The email address is comp_program_chair@nfc-forum.org.

1.4 Special Word Usage

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in *[RFC2119]*.

1.5 Name and Logo Usage

The NFC Forum Trademark License Agreement defines the terms and conditions under which the NFC Forum Certification Mark may be used on and in relation to Certified Implementations.

1.6 Intellectual Property

The NFC Forum Certification Policy conforms to the Intellectual Property guidelines specified in the NFC Forum's Intellectual Property Right Policy, as approved on November 9, 2004 and outlined in the NFC Forum Rules of Procedure, as approved on December 17, 2004, and revised on August 4, 2009.

1.7 Glossary

Accreditation

The process by which a third party accreditation body assesses the compliance of an organization to a process standard. For the purposes of the NFC Forum Certification Program, accreditation is to ISO 17025 by accreditation bodies that are members of the International Laboratory Accreditation Co-operation (ILAC) and their Multilateral Agreement for Recognition (MLA).

Accredited Test Laboratory

An accredited test laboratory is one that has successfully completed Accreditation to ISO 17025 with a scope that includes one or more of the NFC Forum validated test tools and which has a current certificate of Accreditation.

Applicable Certification Requirements

See Section 4.2.

Specifications

The detailed technical specifications published by NFC Forum that define the radio frequency and protocol capabilities and behaviors that deliver NFC functionality. The Specifications may include, by reference, specifications and Standards published by other organizations.

Certification Administrator (CA)

The organization appointed by the NFC Forum to manage the day-to-day operations of the Certification Program in accordance with the policies defined in this document.

Certificate

A document issued to Suppliers formally declaring that a device is a Certified Implementation.

Certification Agreement

The agreement between the Supplier and the Certification Administrator that defines the certification service to be provided and contains the legal commitment by the Supplier to the conditions of the Certification Program.

Certification Information

Certification Information is all of the information about a product that is submitted to the Certification Administrator in support of an application for certification.

Certification Register

The official list of all Certified Implementations and related information, which is maintained by the Certification Administrator and made available on the Certification Program web site.

Certification Release

See Section 4.1.

Certification Testing

Testing that an NFC Forum Implementation must undergo to achieve certification.

Certified Implementation

An NFC Forum Implementation that has successfully completed the certification process and for which the Supplier has been notified in writing by the Certification Administrator that certification has been achieved and for which certification is still in force.

HLCR (High Level Conformance Requirements)

The definition of the parts of the NFC Forum Protocol stack that must be present in a product to be eligible for certification. The HLCR includes separate definitions for Peer mode, Reader/Writer mode and Card Emulation mode. The High Level Conformance Requirements document defines the Certification Release. See Section 4.1.

ICS (Implementation Conformance Statement)

The ICS is a checklist of the capabilities supported by an NFC Implementation. It provides an overview of the features and options of the Specifications that are implemented, including the modes of operation that the product supports (see HLCR). The ICS is used to select and parameterize test cases and as an indicator for basic interoperability between different products [ISO 9646]. An ICS for a protocol is usually known as a PICS (Protocol Implementation Conformance Statement).

ICS Template

The template document, available from the Certification Program web site, which is filled in by a Supplier to create an ICS. The ISO 9646 term for the ICS Template is “PICS Proforma”.

Interpretation

A decision made by the NFC Forum NCIRP that elaborates or refines the meaning of an NFC Forum specification or the HLCR, or an external standard referenced within them. An Interpretation is one possible outcome of a Problem Report.

IUT (Implementation Under Test)

The entity being tested against a single test specification. An NFC Forum Implementation may contain one or more IUTs at each protocol layer.

IUT Test Plan

The list of parameterized test cases applicable to the IUT. It is an outcome of the NFC Forum Test specification, TCCL and the Supplier’s ICS documents. Each IUT within an NFC Forum Implementation has its own IUT Test plan.

NCIRP (NFC Forum Certification Issue Resolution Panel)

The NFC Forum committee responsible for responding to Problem Reports and Notices of Non Compliance.

NFC Forum Functionality

A set of features defined in the NFC Forum specifications.

NFC Forum Component

An element or part of a NFC Forum Implementation. (e.g., antenna, protocol stack, etc.).

NFC Forum Implementation

The combination of hardware, software and mechanical components that together deliver NFC Forum Functionality and which meets the requirements defined in the High-Level Conformance Requirements.

NFC Forum Test Specification

The set of tests and testing related information that NFC Forum uses to confirm the compliance of an IUT to the corresponding NFC Forum specifications.

Notice of Non-compliance

A formal notice to the NFC Forum, which the NFC Forum in its sole judgment finds to be credible, indicating that a Certified Implementation is not compliant for any reason.

PR (Problem Report)

A question of clarification, intent, or correctness about a specification or a test case, which, if accepted by the NCIRP, will be resolved into an Interpretation or a Test Case Deficiency.

Supplier

A product vendor who is interested in, is applying for certification in, or has certified a product in the NFC Forum Certification Program.

TCD (Test Case Deficiency)

An agreed error in an NFC Forum test case, which is causing it to produce an incorrect result that impacts certification. A Test Case Deficiency is one possible outcome of a Problem Report.

TCCL (Test Case Categories List)

A listing of test cases categorized in terms of the conditions under which they are to be used in Certification testing. See Section 8.2.1.

TMLA (Trademark License Agreement)

The agreement between the Supplier and NFC Forum, which contains the legal commitment by the Supplier to the conditions for use of the NFC Forum Certification Mark.

1.8 Language

The NFC Forum Certification program documentation and web site are in the English language.

All certification forms must be completed in English and all Certification Information and other information provided to the Certification Administrator in connection with certification must be in the English language.

1.9 Web Site

The Certification Program web site is available at www.nfc-forum.org/certification.

2 Scope

The current release of the NFC Forum Certification Program provides certification for NFC Forum Implementations that meet the requirements defined in the High-Level Conformance Requirements.

Certification applies to and is limited to the NFC Forum Functionality of a Certified Implementation as claimed by the Supplier in the Certified Implementation's ICS.

Certification for NFC Forum Components is not available in this version of the program, but may be included in a subsequent version.

3 Certification Process

The NFC Forum Certification process is divided into three phases:

- Preparation
- Certification Testing
- Reporting and Acceptance

These phases are described in more detail below.

3.1 Preparation

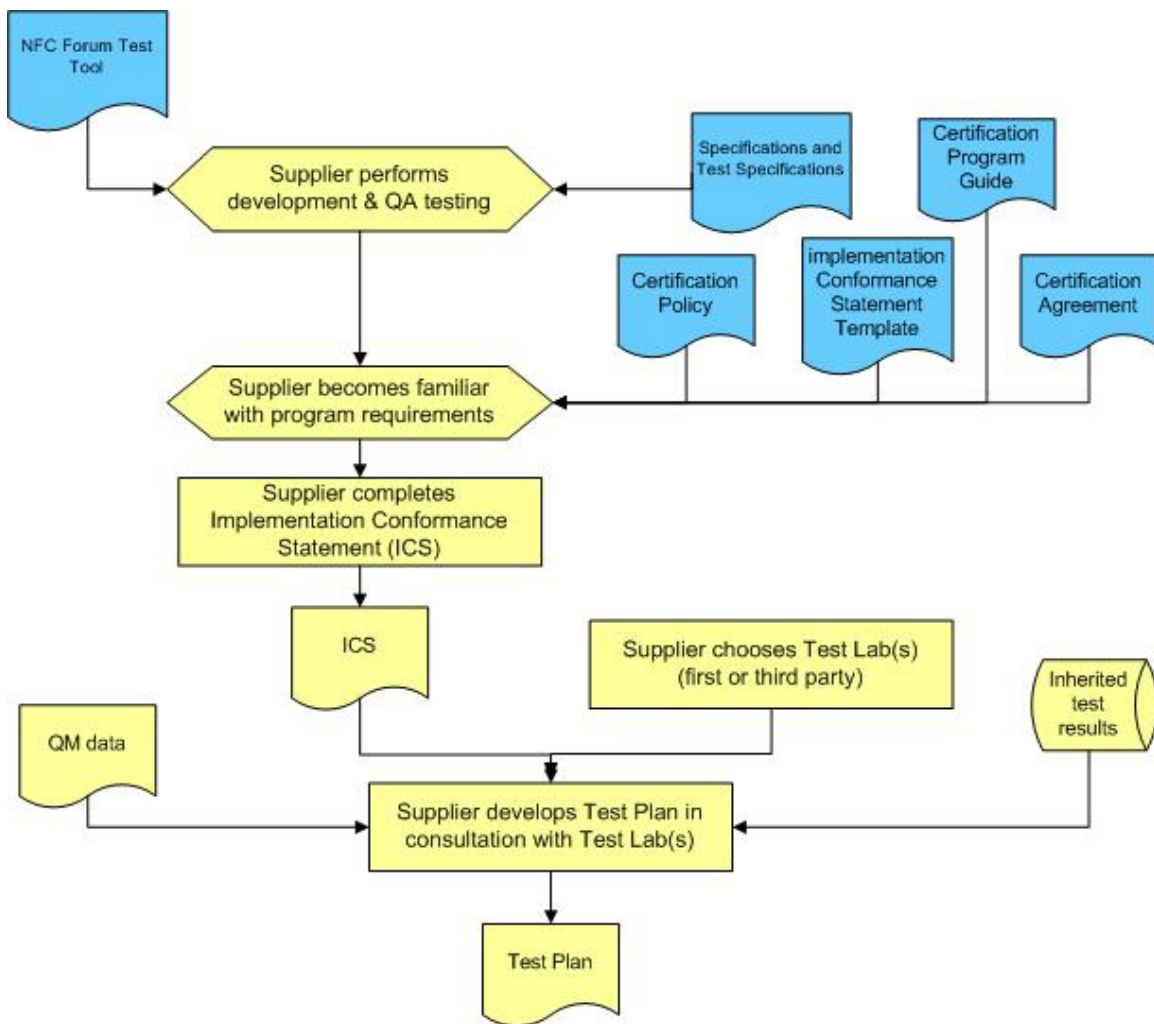


Figure 1: Certification Process: Preparation

Prior to registering for certification, it is recommended that the supplier perform internal development and quality assurance testing using validated NFC Forum test tools (see section 8.1.2) and Test Specifications, together with any additional verification methods the Supplier

considers appropriate, to ensure the product meets the Applicable Certification Requirements and is ready for entry into the Certification Program. Participation in NFC Forum interoperability testing events is strongly recommended.

In addition, the Supplier should become familiar with the Certification Program and the requirements for certification and should review this policy document, the High Level Conformance requirements, the legal agreements that are part of the program, and other related information. All information and documents related to the NFC Forum Certification Program are available on, or linked from, the Certification Program web site.

The Supplier should prepare the Implementation Conformance Statement for the product, using the template document available from the Certification Program web site, and should choose which test lab(s) is/are to perform the necessary Certification Testing for the product.

The Supplier chooses which aspects of the required Certification Testing will be performed in-house (first party) or out-sourced to an Accredited third party testing service provider. See Section 11.

In consultation with the chosen test laboratory(s), the Supplier then develops a test plan for the product. The development of the test plan takes into consideration the Supplier's Quality Management data to identify which aspects of the product have changed compared with any previously certified versions of the product (see Section 9). The test plan development also takes into account whether any test results may be inherited from previously certified NFC Forum Implementations that are incorporated in the product (see Section 9 and Section 10).

The Supplier is responsible for ensuring that the ICS and Test Plan for the product is complete and correct.

3.2 Certification Testing

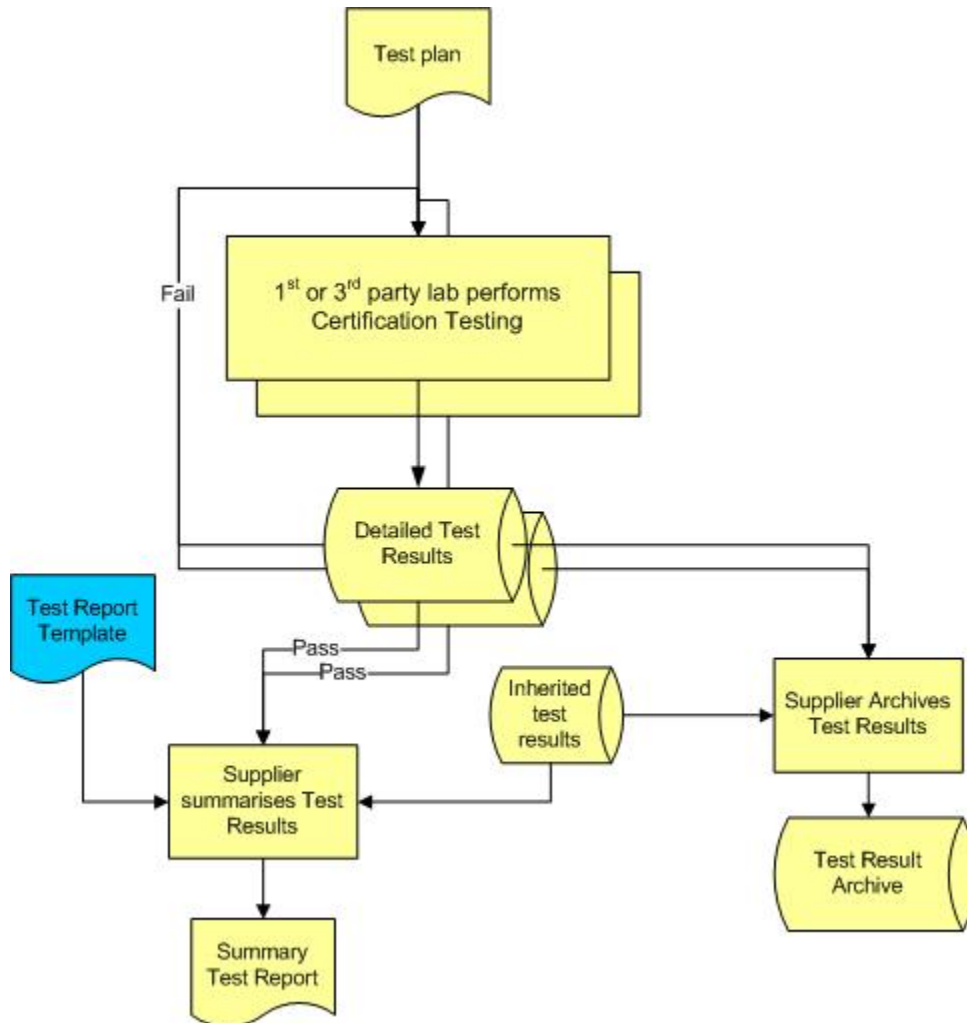


Figure 2: Certification Process: Certification Testing

Formal testing of the product then takes place according to the test plan. Different aspects of the product, e.g. RF and protocol, may be tested in parallel at different test labs, using copies of the product.

The Supplier must store all detailed test results used to substantiate applications for certification for a period of no less than 6 years.

Using the NFC Forum Test Report Template from the Certification Program web site, the test labs produce summary test reports that the Supplier assembles, along with any inherited test reports, into a complete summary test report for submission to the Certification Administrator. At the time it is prepared, the scope of the complete summary test report must match the scope of the functionality claimed in the product’s ICS for which NFC Forum requires Certification Testing.

In the event that any test fails due to an agreed Interpretation, Temporary Waiver or Test Case Deficiency, the Supplier must resolve any such non-passing test results to a pass by correct reference to an approved Interpretation, Temporary Waiver or Test Case Deficiency.

3.3 Reporting and Acceptance

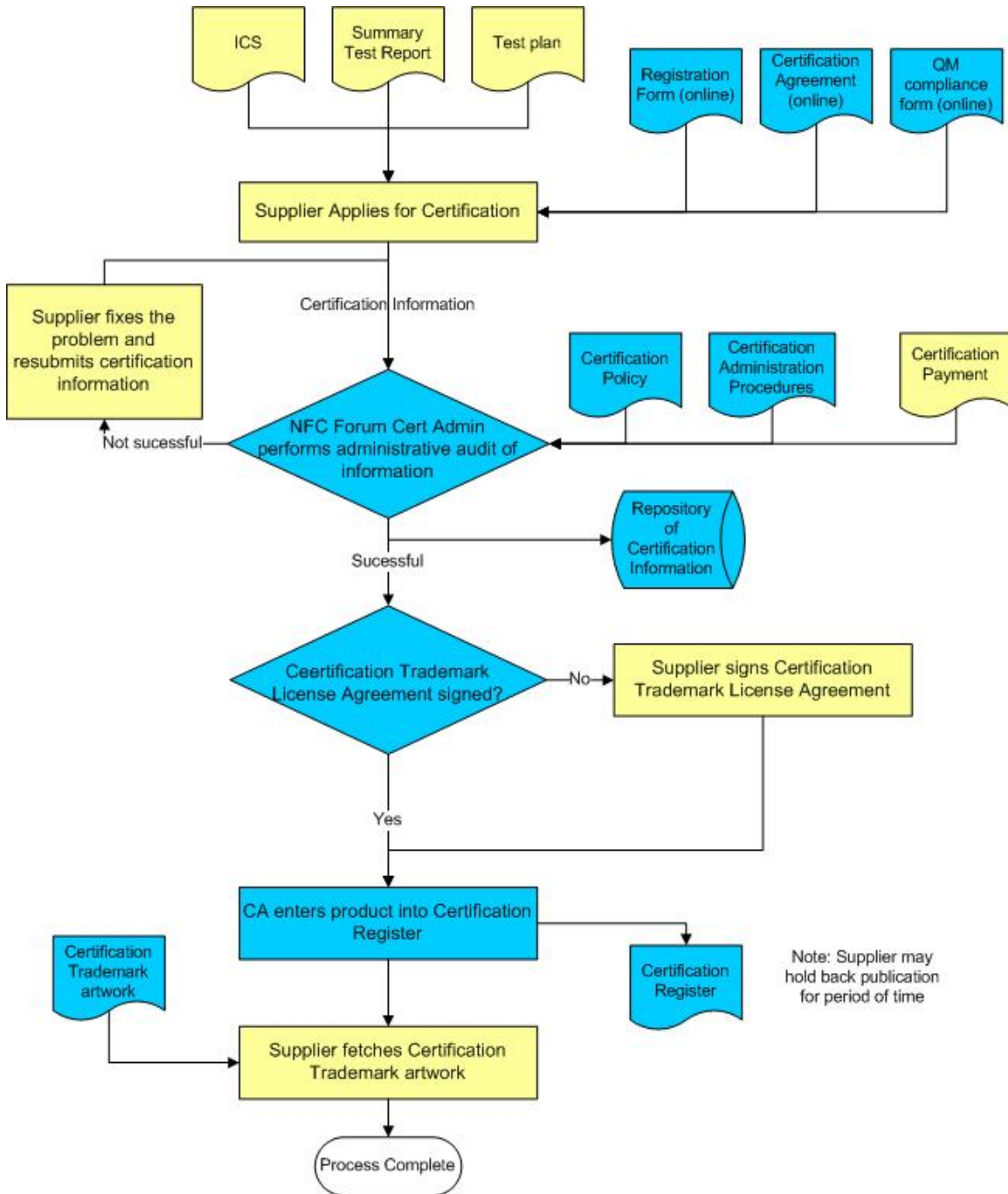


Figure 3: Certification Process: Reporting and Acceptance

Before applying to certify products, the Supplier must first register organization and contact information with the Certification Administrator. This needs only to be done once per Supplier, after which multiple products may be certified. Large organizations with more than one business

unit producing products for certification may wish to register the separate business units with the Certification Administrator.

To apply to certify a product, the Supplier must accept the online Certification Agreement and submit the required information about the product to be certified, including the ICS, summary test report and test plan.

Acceptance of the Certification Agreement includes the commitment by the Supplier to pay the certification fees. Fees are payable at this point, either in advance by credit card or on terms agreed with the Certification Administrator.

The Certification Administrator will check to ensure that the submitted certification information, including the registration information, ICS, test plan and test results, demonstrates that the product passed the formal testing process and meets the Applicable Certification Requirements. The Certification Administrator will perform the audit of all certification-related information within 6 business days of receiving a complete submission.

If the Supplier has not already signed the NFC Forum Trademark License Agreement covering the use of the NFC Forum Certification Mark, the Supplier must do so before proceeding. The TMLA is an online agreement with “click to accept”.

The product is now certified.

After the TMLA has been accepted and provided that the Supplier has not requested that Certification remains confidential, the Certification Administrator will enter information about the Certified Implementation into the Certification Register on the Certification Program web site, and the Supplier will then be able to download and print the Certificate.

If the Supplier has requested that certification remain confidential, then the fact of certification and the Certification Information will be kept confidential to the Certification Administrator and the Supplier according to Section 15.3.

4 Conformance

It is the Supplier's responsibility to ensure that at all times each of their Certified Implementations meets the Applicable Certification Requirements and continues to pass the tests that were in force at the time of certification, independent of any changes made.

4.1 Certification Release

NFC Forum may publish new versions of its Specifications and will collect them together into consistent sets to aid product procurement, development, certification, and testing. Such a set is called a Certification Release and is documented in the High Level Conformance Requirements (HLCR).

Certification is made available only for specific Certification Releases

A new Certification Release will require a new version of the HLCR to be published. NFC Forum at its sole discretion will decide when to publish a new version of the HLCR, but this would typically be caused by an extension to the NFC Forum Functionality.

NFC Forum at its sole discretion will decide and announce the date upon which certification will be available to a new Certification Release.

During the lifetime of certification to a particular Certification Release, the Specifications it contains may be subject to errata and interpretations. Test specifications will typically continue to be extended and updated during the lifetime of a Certification Release.

Each new Certification Release will be accompanied by a decision about whether and how certification will continue to the previous Certification Release(s). NFC Forum may choose to terminate certification to a previous Certification Release with reasonable notice.

If certification to a Certification Release is terminated, products certified to the terminated Certification Release may be updated and maintained and remain certified according to this policy, but new certifications to the terminated release are not allowed.

The Certification Release(s) active within the Certification Program is/are identified on the Certification Program web site.

4.2 Applicable Certification Requirements

The **Applicable Certification Requirements** for a particular product or Certified Implementation are the combination of the following items in force or active at the time of submission of Certification Information to the Certification Administrator:

- The functionality required and allowed by the HLCR and claimed in the ICS, for the Certification Release
- The applicable NFC Forum Specifications in the Certification Release including errata required by NFC Forum
- The tests for this claimed functionality

The Applicable Certification Requirements exclude tests that become required for certification after the time of submission of Certification Information to the Certification Administrator.

4.3 Modification of the Specifications within a Certification Release

During the lifetime of a Certification Release, NFC Forum may make changes to the Specifications it includes, e.g. to address errors or ambiguities.

Such changes may give rise to updates to Test Specifications – see Section 8.3.

There will be no impact upon existing Certified Implementations.

4.4 Implementation Conformance Statement (ICS)

An Implementation Conformance Statement (ICS) is the Supplier's documented set of claims describing precisely the way in which the product meets the High Level Conformance Requirements, including which modes and which optional features are supported.

An ICS is produced by completing the relevant ICS Template, available on the Certification Program web site.

The ICS of a Certified Implementation provides a precise identification of the Certified Implementation for which conformance is claimed by the Supplier. It also includes details of the specific configuration used to validate conformance to enable test results to be reproduced.

The ICS is used by test labs to select and parameterize appropriate test cases, and acts as an indicator of basic protocol interoperability between different products.

The ICS is completed by the Supplier and submitted to the Certification Administrator as part of the registration process for certification. It is the responsibility of the Supplier to ensure that the information supplied in the ICS is correct and complete and accurately reflects the implementation to be certified.

Suppliers must ensure that the ICS of a Certified Implementation is kept accurate and up-to-date on the Certification Program web site.

The Certification Administrator will not make the ICS for a Certified Implementation publicly available, but the Supplier is required to make the ICS available to prospective corporate purchasers on request.

New versions of the ICS template may be published by NFC Forum from time to time. Suppliers are recommended to use the latest version, but a grace period is allowed with the same duration as for updates to Test Specifications.

4.5 NFC Forum Certification for Components

This version of the Certification Policy does not include certification of partial NFC Forum Implementations, i.e., NFC Forum Components.

In their applications for certification, suppliers of Certified Implementations are allowed to list the names and version numbers of constituent products that implement part of the NFC Forum functionality. Such constituent product names and version numbers will appear on the Certificate.

The supplier of such an included product is allowed, subject to the agreement of the Supplier of the Certified Implementation, to state publicly that "This component has been used in an NFC Forum Certified Implementation (NFC Cert Nr. xxxxx)".

5 Obligations of Suppliers of Certified Implementations

5.1 Achieving Certification

Certification is awarded to those implementations that have successfully completed the certification process by meeting the Applicable Certification Requirements and all other requirements for certification. Certification is effective once the Certification Administrator provides written notice to the Supplier that certification has been achieved. Such an implementation is then considered a Certified Implementation.

Claims of certification may only be made in relation to Certified Implementations. Claims of certification may not be made about implementations that have not completed the certification process, or that have been withdrawn from the Certification Program.

As a condition of certification, the Certification Agreement requires the Supplier to agree to the policies expressed in this document as well as to warrant and represent that the manufactured units of the Certified Implementation continue to meet the Applicable Certification Requirements as stated in the ICS and would pass Certification Testing as it was defined when the implementation was certified.

A buyer therefore has confidence that a Certified Implementation conforms to the specification(s) and will continue to do so.

5.1.1 Quality Management System (QMS)

To achieve certification, Suppliers must have a general quality management system in place that meets the following requirements.

1. The Supplier's manufacturing process (including change management) is controlled by a QMS that either complies with ISO9001 or equivalent recognized standard, or at least follows the following principles:
 - a set of procedures that cover all key processes in the manufacturing process;
 - proof of the monitoring of manufacturing processes to ensure they are producing quality products;
 - the keeping and maintenance of proper records relating to the manufacturing process;
 - a clear system in place to check outgoing product for defects, with appropriate corrective action where necessary;
 - regularly reviewing individual processes and the quality system itself for effectiveness; and
 - facilitating continual improvement
2. The Supplier's QM system ensures that any instance of a Certified Implementation that is shipped to the market meets the Applicable Certification Requirements.

As a condition of certification Suppliers of Certified Implementations are required to “warrant and represent” that the conditions in 1) and 2) above are met and will continue to be met throughout the manufacturing life of the product for so long as the product remains a Certified Implementation.

The assertion is captured with a checkbox in the Web-based certification system and is an explicit term in both the Certification Agreement and Trademark License Agreement.

5.2 Maintaining Certification

Certified Implementations are only required to pass Certification Testing as it was defined at the time of their certification.

The Certification Administrator has the right to audit the Supplier's claims of conformance and adherence to the requirements of this policy. The Certification Administrator may at any time request Suppliers of Certified Implementations to provide the Certification Administrator with any information reasonably related to their Certified Implementations' conformance with the Applicable Certification Requirements. If the Supplier fails to provide such information within 60 calendar days of the request, then the Certification Administrator may remove the product from the Certification Register, in which case the product ceases to be a Certified Implementation and the Supplier may no longer make a claim of certification in relation to the product.

Third parties, including buyers and prospective buyers of a Certified Implementation, who have evidence of a non-conformance in the Certified Implementation should report such non-conformance to the Supplier of the Certified Product. If the Supplier does not address the non-conformance within 60 calendar days, the issue may be raised to the Certification Administrator. Recourse shall always be made through normal support channels before escalation to the Certification Administrator.

If a Certified Implementation is found by any means to no longer meet the Applicable Certification Requirements, the Certification Administrator shall provide written notification to the Supplier of such Certified Implementation who shall:

- a) Within 180 calendar days rectify the non-conformity (subsequent production) and satisfy the Certification Administrator and/or the notifier of the efficacy of the rectification; or
- b) Within 180 calendar days satisfy the Certification Administrator and/or the notifier that the Certified Implementation is conformant; or
- c) Within 180 calendar days cease making any claim of certification in relation to the Certified Implementation, in which case the product ceases to be a Certified Implementation; or
- d) Within 90 calendar days invoke the appeals process as described in Section 12.

If option "d" is selected, the Supplier will have 90 calendar days from the completion of the appeals process to implement the decision.

If the Supplier fails to take one of the above actions within the timescales described above, the product will cease to be a Certified Implementation.

5.2.1 Use of Certified Implementations in Secondary Products

Certified Implementations may be integrated into secondary products. For example, a certified reader/writer module may be integrated into a vending machine or a laptop computer.

Suppliers of Certified Implementations that may be used in this way are required to provide their customers with guidance to enable them to maintain conformant behavior of the Certified Implementation when integrated.

5.3 Removal of Certification

A product shall cease to be a Certified Implementation if:

- The product ceases to meet the Applicable Certification Requirements. See Section 5.2.
- The Supplier requests that the Certification Administrator withdraw the Supplier's product from the Certification Register.
- The Supplier fails to adhere to any of the policies defined within this Certification Policy document.

If a Certified Implementation ceases to be certified, the Supplier may no longer make any claim of certification in relation to that product. The Supplier, at its own expense, shall remove any existing claim of certification from all subsequent production of that product and from all related sales or promotional literature and other materials. The Certification Administrator may inspect any such product, literature, or other materials to ensure adequate removal.

Once a product ceases to be a Certified Implementation, any future claim of certification in relation to that product will require re-certification in advance of such claims being made.

The right to use the NFC Forum Certification Mark in conjunction with a product that ceases to be certified shall be immediately terminated.

6 The NFC Forum Certification Mark

Once the Certification Administrator has notified a Supplier that certification has been achieved, the Supplier may use the NFC Forum Certification Mark in association with that Certified Implementation as per the terms specified in the Trademark License Agreement.

The NFC Forum Certification Mark may only be used on or in relation to Certified Implementations.

Award of the NFC Forum Certification Mark is not an endorsement by NFC Forum of any product.

6.1 Licensing the Certification Mark

In order to use the NFC Forum Certification Mark, the Supplier will be required to sign a Trademark License Agreement. This license agreement is the legal contract governing how the NFC Forum Certification Mark may be used and defines the rights and obligations of the Supplier.

6.2 Use of the Certification Mark

The terms for use of the NFC Forum Certification Mark in relation to a Certified Implementation are as described in the Trademark License Agreement.

6.3 Use of the Certification Mark on Secondary Products

Certified Implementations may be integrated into other products before distribution to the market. Inclusion of a Certified Implementation within another such “secondary” product does not give the supplier of that “secondary” product any rights to use the NFC Forum Certification Mark.

Any use of the Certification Mark on or in relation to the secondary product requires the secondary product first to be certified and listed in the Certification Register.

If the NFC Forum Certification mark has been applied to a Certified Implementation, it may remain in place after the Certified Implementation is integrated into the “secondary” product; there is no requirement for the Certification Mark on the Certified Implementation to be removed or obscured, and it is allowed to be visible to the public after integration.

6.4 Removal of the Trademark

If a Certified Implementation ceases to be certified, any and all rights the Supplier has to use the NFC Forum Certification Mark on or in relation to that product cease immediately.

The terms for removal of the NFC Forum Certification Mark in relation to a product are as described in the Trademark License Agreement.

Failure to adhere to these provisions will be a breach of the Trademark License Agreement and shall result in its termination.

7 Certification Register

7.1 Listing in the Register

The Certification Register is a web-accessible record of all Certified Implementations and is maintained by the Certification Administrator. The register contains the following public information:

- Manufacturer
- Model
- (Optional) Version number
- Date of Listing of Certification
- Certification Release

Once certification has been awarded, the Certification Administrator will enter the certification information into the Certification Register. A registration that is being held confidential as provided for in Section 15.3 will not be entered into the Certification Register during the confidential period.

7.2 Removal from the Register

Only Certified Implementations are included in the Certification Register. Thus, if a product ceases to be certified, the Certification Administrator will remove it from the Certification Register.

8 Testing for Certification

The objective of the NFC Forum Certification Program is to encourage and facilitate the development and market availability of products that meet the NFC Forum specification(s). Test specifications and test tools have two essential roles in this context: first, they help developers and quality assurance teams to ensure a product meets the specification(s) and, second, they are used to ensure that only eligible products are certified.

8.1 Test Tool and Testing Processes

8.1.1 Test Specifications

The NFC Forum is responsible for developing and publishing, or providing reference to, all test specifications used in the NFC Forum Certification Program. The NFC Forum's Test Specifications cover the Specifications, and may also cover specifications and Standards published by other organizations. They may also include by reference test specifications from these other organizations.

The Test Specifications that must be used to perform Certification Testing are under continual development and extension by NFC Forum. The Test Specifications that are currently valid for Certification Testing to a Certification Release are listed on the Certification Program web site.

8.1.2 Test Tools

Test tools that have been validated by NFC Forum must be used in Certification Testing. A list of validated test tools is available on the Certification Program web site.

8.2 Testing of the Product

A product that is to be tested for certification will include implementations of one or more NFC Forum Specifications. For testing purposes the product may be considered to consist of one or more Implementations Under Test (IUT) - one for each of the applicable test specifications. Each IUT within the product will give rise to a separate section of the test plan and a separate detailed test report.

Each first or third party Test Laboratory is responsible for verifying that all test cases implied by the ICS are included in each IUT Test Plan for which they are responsible. This includes all mandatory and conditionally mandatory test cases for the features supported by the product.

Each IUT Test Report produced by a Test Laboratory must include a statement that all of the applicable test cases are included in each of the IUT Test plans, and that they have been executed, and that all test outcomes have been resolved to "PASS".

Prior to submission to the Certification Administrator, the IUT test reports must be summarized and combined into a summary Test Report, based on the NFC Forum Test Report Template available on the Certification Program web site.

The Supplier is responsible for ensuring the completeness of the overall test plan for the product and for ensuring that the summary Test Report is complete and correct.

8.2.1 Test Case Categories List (TCCL)

The Test Case Categories List (TCCL) is a document listing all NFC Forum test cases and their associated test category. NFC Forum test cases fall under four categories:

- A. Tests that must be run for certification.
- B. Interoperability test cases. Not part of the Certification testing.
- C. Tests that are currently not required for certification. Category C test cases may have a “mandatory from” date after which they will be promoted to category A
- D. Tests that have been demoted from category A, B or C. These tests may be revised and promoted to Category C or B.

The TCCL is a flexible reference document that can be updated at short notice without any update to the NFC Forum Test Specifications.

For example: Should the NFC Forum identify that a category A or B test case has been wrongly categorized, it will downgrade it to category D. The TCCL, within reasonable time, will be updated without any need to amend the corresponding test case or other Certification Program documentation.

The NFC Forum may add new test cases for category C on a quarterly basis. Existing category C test cases can be upgraded to category A after a grace period of not less than 120 days.

The NFC Forum may decide to downgrade test cases at any time and without notice.

NFC Forum may add test cases to category B at any time.

8.2.2 Test Results

Test results will be provided in a report that meets the requirements as defined by the NFC Forum Testing Working Group, following the principles of ISO 17025. If a test case cannot be run according to the defined test procedure, a problem report should be submitted for NCIRP consideration.

8.2.3 Test Case Deficiencies

Published test cases become active once incorporated into the TCCL and released into the testing regime. In the event that an error in a test case is detected by a vendor, an implementer or a Test Laboratory, then a Problem Report must be completed, with the proposed modification to solve the error, and submitted to the Certification Administrator (see Section 13). The Problem Report will be evaluated by the NCIRP and may be accepted or rejected. A test case may be downgraded to TCCL D category as a result of the evaluation. If the Problem Report is approved as a Test Case Deficiency (TCD), it is given a unique identifier and it is entered in the TCCL so that all testing from that point is performed according to the modified test case as per the approved TCD.

8.3 Test Specification Changes

Test Specifications are derived from the Specifications and are subsidiary to them: when a Specification changes, a Test Specification that refers to it will usually need to change, but when a Test Specification changes, the Specifications are not affected.

During the life of a Certification Release, NFC Forum may publish several versions of the test specifications.

Suppliers shall always use the latest Test Specifications when certifying new products. However, a grace period of 6 months will be provided before a test specification is phased out.

Derivative and re-branded products may continue to use the version of the test specification that applied to the certification of the Certified Implementation from which they are derived. If a Supplier changes a previously Certified Implementation in a way that requires re-testing, it may

be re-tested using the same or a subsequent version of the test specification. **However, NFC Forum reserves the right to deprecate past versions of Test Specifications with a grace period of its choosing.**

Products already certified are not affected by subsequent changes to test specifications and re-testing is not required when a new version of a Test Specification is released.

9 Changes to a Certified Implementation

Any change to a Certified Implementation shall be assessed by the Supplier who shall produce a documented evaluation of the impact of the change upon NFC Forum Functionality. Any change to the Certified Implementation that the Supplier considers has a significant risk of causing a change in the conformance of the implementation, or of changing the results of any tests, require that the implementation be re-tested to ensure continued compliance with the requirements of the Program. Records of any such testing must be kept by the Supplier, along with the documented impact evaluation, and made available to the Certification Administrator on request.

To be considered a Certified Implementation it must be clear that a maintenance release or other update is included within the scope of the product name and version listed on the Certification Register. Suppliers may wish to consider using broad version descriptions such as “version 3.2.x” or “version 3.2 and on”.

Suppliers may choose to carry out full Certification Testing and certification for maintenance releases and other updates to meet the requirements of their customers.

10 Certifying a Product Based upon a Previous Certification

Many Certified Implementations will be distributed to end customers under different names, or rebranded by OEMs, either with or without changes. Many will be incorporated into some other product.

Four examples are:

- The Certified Implementation is integrated into a new product that is to be certified (*Same NFC Forum Implementation being re-used*)
- A Certified Implementation that is to be sold in a new territory under a new name (*Adding a New Name for an Existing Certified Implementation*)
- A mobile handset branded by a network operator (*Re-branding a Certified Implementation*)
- A reader/writer module incorporated into a vending machine or a laptop computer (*Inclusion of a Certified Implementation in a Secondary Product*)

If the NFC Forum Certification Mark is to be used on or in relation to such products or such a product is to be listed in the Certification Register, then the product must be certified in its own right.

The general principle in these cases is that Certification Testing is not required to be repeated and certification may be obtained by inheriting test results from the certification of the parent Certified Implementation.

The complete NFC Forum certification policy applies to re-branded products including without limitation re-branding, maintenance updates and derivatives.

Irrespective of when certification takes place, the Applicable Certification Requirements and the version of the Test Specifications that govern the certification are those that applied to the certification of the original Certified Implementation.

NFC Forum at its sole discretion may choose to deprecate past versions of Test Specifications and Certification Releases with a grace period of its choosing.

10.1 Same NFC Forum Implementation Being Re-used

A Supplier may wish to certify a product in which one or more of the IUTs within an NFC Forum Implementation are the same in all respects related to NFC Forum compliance as the IUTs in another Certified Implementation.

Test results for an IUT within the NFC Forum Implementation may be re-used to support the application for certification of another NFC Forum Implementation in which the same IUT is used.

10.2 Adding a New Name for an Existing Certified Implementation

If a Supplier wishes a Certified Implementation to be listed again in the Certification Register under a new name, then, provided that there is no difference other than the name, an additional listing may be created at the request of the Supplier and on payment of the listing fee.

The Certification Register will maintain the relationship between the initial Certified Implementation and the additional listing(s).

If the initial Certified Implementation ceases for any reason to be certified, then any subsidiary listing(s) will also cease to be certified at the same time.

All such subsidiary listings must share the same ICS apart from the product name.

10.3 Re-Branding a Certified Implementation

The organization applying to certify the re-branded product is responsible for the product meeting the Certification Requirements.

To certify a re-branded product, the Supplier must submit an application for certification that identifies the original Certified Implementation that has been re-branded.

As part of the application for Certification, the Supplier will submit a Re-brand Acknowledgment Form, signed by the Supplier of the original Certified Implementation, which confirms that the re-branded product contains no changes to the Certified Implementation that have a significant risk of changing or materially affecting the compliance of the Certified Implementation to the Applicable Certification Requirements, and confirming that the original test results apply to the re-branded product. The Certification of the re-branded product will then reference the test results supplied with the original certification.

All such re-branded products must share the same ICS apart from the product and organization names.

10.4 Inclusion of a Certified Implementation in a Secondary Product

A Certified Implementation may be included in a secondary product without any requirement (under this policy) for further testing or certification.

But if the supplier of such a secondary product wishes that secondary product to be listed in the Register of Certified Products, then separate certification is required.

If certification is required, then the organization applying to certify the secondary product is responsible for the secondary product meeting the Certification Requirements.

To certify a secondary product, the Supplier must submit an application for certification that identifies the original Certified Implementation that has been incorporated within it. The Supplier will be required to do one of the following:

- Confirm that the secondary product contains no changes to the Certified Implementation that have a significant risk of changing or materially affecting the compliance of the Certified Implementation to the Applicable Certification Requirements and that the original test results apply to the secondary product.
- Submit a full application for certification including a test plan and test results.

In the first case, certification of the secondary product will proceed based on the test results supplied with the original certification.

10.5 Administrative Changes

The Supplier is responsible at all times for the accuracy of the information held on the Certification Register in connection with their Certified Implementations. The Certification Program web site provides facilities to allow the Supplier's staff that have been identified to the

Certification Administrator to update the information about a Certified Implementation over the internet.

For other administrative changes, such as those to the designated certification contacts, the Supplier may carry out such changes on the Certification program web site at any time.

11 Test Laboratories

NFC Forum does not distinguish between first party test laboratories (owned and controlled by the Supplier) and third party test laboratories (owned and controlled by another party).

Two types of laboratory are allowed to perform testing for NFC Forum certification:

- 1) Laboratories Accredited to ISO 17025. This option is allowed for both first and third party test laboratories
- 2) Laboratories that follow the principles of ISO 17025 but are not Accredited. This option is only allowed for first party test laboratories

If all Certification Testing for a product is carried out in an Accredited Test Laboratory, the certification listing information will contain the note "Tested in ISO 17025 Accredited Test Laboratory", otherwise the certification listing information will not have any note about ISO 17025.

All test laboratories that perform Certification Testing for NFC Forum Certification must be members of NFC Forum (as defined in the NFC Forum By-laws) and must participate in an annual meeting on the subject of NFC Forum testing, organized by the NFC Forum.

A list of third party Accredited Test Laboratories is available on the Certification Program web site.

Some additional constraints apply to the Supplier owning a test lab that "follows" the principles of ISO17025 but is not accredited:

- The Supplier must be a member of the NFC Forum at a membership level that entitles them to participate in the NFC Forum testing and Certification Program via their own in-house test labs.
- The laboratory may only perform Certification Testing on the Supplier's own products.
- In each application for certification, the Supplier must claim that the Certification Testing followed the principles of ISO 17025.
- If a Certified Implementation for which Certification Testing was performed in a test laboratory that was not Accredited is found not to fulfill the Applicable Certification Requirements, the Supplier is responsible for finding the reason.
 - If the product development is responsible for the flaw, then follow the current policy document.
 - If the test laboratory is responsible for the flaw, the Supplier must recertify the product using a third party Accredited Test Laboratory.
 - The NFC Forum reserves the right, subject to the interpretations and appeals processes described in sections 13 and 14, to require the Supplier to use only Accredited Test Laboratories for all future Certification Testing. It is acceptable for the internal test laboratory that was found responsible to achieve Accreditation to ISO 17025.

12 Archiving and De-Listing

All Certified Implementations are considered active (and listed) by the NFC Forum unless directed otherwise by the Supplier or if Certification is removed as described in section 5.3.

For the purposes of information management, product listings may be periodically archived on the Certification Program website. Products that are archived remain certified and may be un-archived.

A mechanism for the de-listing of Certified Implementations will be made available by the Certification Administrator.

The following will occur on an annual basis:

1. Email sent to Supplier with web-link to the de-listing administration page. Note: it is the responsibility of the Supplier to register and maintain an appropriate email contact.
2. From this de-listing administration page, the Supplier will be able to select the product for delisting and click to de-list.
3. De-listing is complete, and a confirmation email will be sent.

13 Problem Reports and Issue Resolution

Any applicant for certification may disagree with the reported result of the test or the NFC Forum Test Laboratory may report an issue for clarification about the Specifications, HLCR, the test specifications or the certification process and policy. The NFC Forum Certification Issue Resolution Panel (NCIRP) is responsible for bringing the issue to resolution..

The possible resolutions of a Problem Report are:

- Test Case Deficiency (TCD) - a decision about the correctness of a Test Case (see Section 8.2.3)
- Interpretation (INT)– a decision resolving a question about the HLCR, ICS template or the NFC Forum Specifications
- Certification System Deficiency (CSD) – a decision about the documentation or operation of the Certification Program itself
- Reject (REJ)

The NCIRP will handle resolution of all Problem Reports. The Certification Administrator must be kept informed of all ongoing issues and the status of the issue resolution.

Issues can be presented to the NCIRP at regularly scheduled meetings or through email explaining the details of the certification issue.

All Problem Reports must be submitted to the Certification Administrator on the Certification Program web site. On submission the following process will be triggered:

- The Certification Administrator will immediately notify the NCIRP members by email.
- The NCIRP chair will schedule a conference call or electronic discussion (i.e. email, virtual meeting) within 3 working days. A NCIRP quorum must be reached for resolution.
- The NCIRP chair must issue a response within 2 working days of the meeting

The NCIRP will make best efforts to resolve all issues within 5 business days. If the NCIRP takes more than 5 business days to resolve an issue, a temporary waiver will be issued by the Certification Administrator for that issue for that application for certification. A temporary waiver will remain in force until the NCIRP makes a final decision. Temporary waivers associated with a Certified Implementation will be identified on the Certification Register.

The NCIRP membership consists of at least three members. NCIRP members are either Sponsor or Principal members of the NFC Forum. There is no term limit to membership of the NCIRP. The Certification Administrator is the chair of the NCIRP. The NFC Forum Compliance Committee is responsible for the process for applying for NCIRP membership.

The NCIRP will operate under NFC normal voting rules, with the following exception: in order to vote, participants need to have voting rights within the NFC Forum Compliance Committee or Technical Committee.

When a conflict of interests exists between a NCIRP member and an issue being considered by the NCIRP, the member shall withdraw from participation in the resolution of the issue in conflict.

14 Appeals

Suppliers may appeal decisions made by the NFC Forum or the Certification Administrator. The occasions that may give rise to an appeal include, but are not limited to, the following:

- The Supplier disagrees with the resolution of a Problem Report
- The Supplier disagrees with the Certification Administrator's grounds for denying the award of certification
- The Supplier of a Certified Implementation disagrees with a formal notification of the need to rectify a non-conformance

Appeal requests should be made to the Certification Administrator and must be accompanied by the appeal fee as set by NFC Forum and listed on the NFC Forum Certification Program web site.

There are two levels of appeal:

- A Technical Review
- A Board Review

Review decisions will be made in accordance with NFC Forum's policies.

At each level of appeal, the Supplier has the right to representation at the review meeting to make their case, though is not required to do so. The appeals process will be anonymous if the Supplier does not wish to be represented at the review meetings. In such case, the Certification Administrator will take reasonable steps to remove the details of the Supplier and product from all information provided for the Technical and Board Reviews.

A Supplier wishing to dispute a decision may request a Technical Review. Technical Review requires the NFC Forum Compliance Committee to consider the matter and produce a response, with a recorded vote according to NFC Forum voting rules, within 45 calendar days of the request. The NFC Forum Compliance Committee may commission reports from independent experts, and may seek input from other committees within NFC Forum as it sees fit.

If the Supplier is not satisfied with the outcome of the Technical Review, the Supplier may request an appeal to the NFC Forum Board of Directors within 14 calendar days of being notified in writing by the Certification Administrator of the results of the Technical Review. NFC Forum's Board of Directors 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 90 calendar days of the Supplier's written request for a Board Review. The results of a Board Review and decision are final and cannot be further appealed.

15 Confidentiality

15.1 Confidentiality During Certification

All information relating to a Supplier and the product to be certified will be held confidential during the certification process, that is, prior to the award of certification.

Test results will always be confidential. Information regarding the results of testing shall not be disclosed in any publicly available document or to any third party by the Certification Administrator, the Supplier, Test Laboratories, or any third-party acting on the Supplier's behalf.

In addition, the Certification Administrator will always hold confidential any information regarding unsuccessful requests for certification.

15.2 Disclosure of Certification Information

Certification information consists of the fact that certification was achieved, the description of the Certified Implementation (Manufacturer, model), and the date of publication of certification. Any claims of conformance or information related to the certification process may only be made public after the Certification Administrator has notified the Supplier in writing that the product has passed the certification process.

The Certification Administrator will make certification information publicly available by including it in the Certification Register available on the Certification Administrator's web site.

Public Information	Non- Public Information
Manufacturer	S/W version
Model	H/W version
Optional Version number	Date of Certification
Date of Listing of Certification	Summary Test Report
Certification Release	Full Test Report
	Version of Test Specifications
	ICS
	Supplier contact information

15.3 Optional Confidential Treatment of Certification Information

On occasions, a Supplier will apply for and achieve certification prior to the product's launch in the marketplace. To enable a Supplier to keep such information confidential prior to product launch, the Supplier may request that the certification information be kept confidential for a maximum period of six months from the date of written notification by the Certification Administrator that the product has achieved certification.

During this period, the Supplier may not publicly use the Certification Mark or make any public or claim that the product is NFC Forum certified without first informing the Certification Administrator that the confidential period has expired. In the event that the Supplier wishes to

keep the certification information for a product confidential permanently, the Supplier may request withdrawal and deletion of such information. Such product will then no longer be considered a Certified Implementation.

The certification information will cease to be held confidential upon the earlier of notice by the Supplier that the confidential period has expired, or at the end of the six-month period, provided that the Supplier has not requested withdrawal and deletion of such information.

A. Revision History

The following table outlines the revision history of NFC Forum Certification Policy.

Table 1: Revision History

Document Name	Revision and Release Date	Status	Change Notice	Supersedes
NFC Forum Certification Policy	0.6 June 10, 2009	Draft		
NFC Forum Certification Policy	0.7 August 19, 2009	Draft	Comments from CC	0.6
NFC Forum Certification Policy	0.8 August 24, 2009	Draft	Comments from CC resolved in call on August 20 2009	0.7
NFC Forum Certification Policy	1.0 August 25, 2009	For CC Ballot	Comments from legal resolved in CC call August 25, 2009	0.8
NFC Forum Certification Policy	1.1	For CC Ballot	Section 1.5 amended to address comment from legal	1.0
NFC Forum Certification Policy	1.1a, November 2009	For BoD Presentation	Editorial cleanup only	1.1
NFC Forum Certification Policy	1.1b, December 10, 2009	For BoD Ballot	Minor editorial changes and two additions to glossary.	1.1a
NFC Forum Certification Policy	1.1c, December 11, 2009	Release version (internal to NFC Forum)	Minor editorial corrections (as discussed at BoD meeting)	1.1b