Contents

1 Overview ........................................................................................................................................1
  1.1 Objectives..................................................................................................................................1
  1.2 Scope .........................................................................................................................................1
  1.3 Audience....................................................................................................................................1
  1.4 Applicable Documents or References ......................................................................................1
  1.5 Administration............................................................................................................................3
  1.6 Name and Logo Usage ...............................................................................................................3
  1.7 Intellectual Property ...................................................................................................................4
  1.8 Special Word Usage ...................................................................................................................4

2 Glossary Terms ...............................................................................................................................5

A. Revision History ............................................................................................................................17

Tables

Table 1: Revision History..................................................................................................................17
1 Overview

This document provides an overview of the glossary terms used throughout document in the NFC Forum Compliance Committee.

1.1 Objectives

Provide a single location for all defined glossary terms.

1.2 Scope

This document applies only to glossary terms used by the NFC Forum Compliance Committee.

1.3 Audience

NFC Forum Members are the intended audience of this document.

1.4 Applicable Documents or References

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>NFC Activity Technical Specification, NFC Forum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALOG</td>
<td>NFC Analog Technical Specification, NFC Forum</td>
</tr>
<tr>
<td>ANALOG_TC</td>
<td>Test Cases for Analog Technical Specification, NFC Forum</td>
</tr>
<tr>
<td>ARCHITECTURE</td>
<td>NFC Architecture Specification, NFC Forum</td>
</tr>
<tr>
<td>CERPOL</td>
<td>NFC Forum Certification Policy, NFC Forum</td>
</tr>
<tr>
<td>DEVREQS</td>
<td>NFC Forum Device(s) Requirements, NFC Forum</td>
</tr>
<tr>
<td>DIGITAL_TC</td>
<td>Test Cases for Digital Protocol Specification, NFC Forum</td>
</tr>
<tr>
<td>DTA</td>
<td>Device Test Application Specification, NFC Forum</td>
</tr>
<tr>
<td>ISO/IEC_14443</td>
<td>Identification cards – Contactless integrated circuit cards – Proximity cards</td>
</tr>
</tbody>
</table>

Includes:

Overview

[ISO/IEC_14443-3:2001/Amd.1], Identification cards – Contactless integrated circuit(s) cards – Proximity cards – Part 3: Initialization and Anti-collision, 1 February 2001 with Amendment 1: Bit rates of fc/64, fc/32 and fc/16, 15 June 2005; Amendment 3: Handling of reserved fields and values, 22 March 2006; and Corrigendum 1: Amendment 1 – Corrigendum, 29 August 2006


[ISO/IEC_17025] ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories, ISO/IEC

[LABREQS] NFC Forum Authorized Laboratory Requirements, NFC Forum


[PERFORMANCE] Tag Performance Requirements, NFC Forum

[PERF_TC] Test Cases for Tag Performance tests, NFC Forum


[RTD] NFC Record Type Definition Technical Specification, NFC Forum


[T1T] NFC Forum Type 1 Tag Technical Specification, NFC Forum
1.5 Administration

The NFC Forum Compliance Committee Glossary is an open document supported by the Near Field Communication Forum, Inc., located at:

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The Compliance Committee maintains this specification.

1.6 Name and Logo Usage

The Near Field Communication Forum’s policy regarding the use of the trademarks NFC Forum and the NFC Forum logo is as follows:

- Any company MAY claim compatibility with NFC Forum specifications, whether a member of the NFC Forum or not.
- Permission to use the NFC Forum logos is automatically granted to designated members only as stipulated on the most recent Membership Privileges document, during the period of time for which their membership dues are paid.
- Member’s distributors and sales representatives MAY use the NFC Forum logo in promoting member’s products sold under the name of the member.
• The logo SHALL be printed in black or in color as illustrated on the Logo Page that is available from the NFC Forum at the address above. The aspect ratio of the logo SHALL be maintained, but the size MAY be varied. Nothing MAY be added to or deleted from the logos.

• Since the NFC Forum name is a trademark of the Near Field Communication Forum, the following statement SHALL be included in all published literature and advertising material in which the name or logo appears:

  *NFC Forum and the NFC Forum logo are trademarks of the Near Field Communication Forum.*

1.7 Intellectual Property


1.8 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].
2 Glossary Terms

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 amounts to conformance to the standard [ISO/IEC_17025] and is awarded by accreditation bodies that are members of the International Laboratory Accreditation Co-operation (ILAC) and that conform to the ILAC Multilateral Agreement for Recognition (MLA).

Active Communication Mode

See [GLOSS_TC].

Activity

See [GLOSS_TC].

Authorized Test Laboratory

A laboratory that has satisfied and continues to satisfy all requirements set in Section 11 of this document, and is thereby authorized to provide certification testing services to Suppliers.

Applicable Certification Requirements

For a particular product or Certified Implementation, this is the complete list of items in force or active at the time of submission of Certification Information to the Certification Administrator. See [CERPOL].

Bit Duration

\[ 1 \text{ bd} = \frac{128}{f_C \times D_{\text{POLL}\rightarrow\text{LISTEN}}} \text{ or } 1 \text{ bd} = \frac{128}{f_C \times D_{\text{LISTEN}\rightarrow\text{POLL}}} \]

Card Emulator

See [GLOSS_TC].

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) that formally declares that a device is a Certified Implementation.

Certification Agreement

The agreement between the Supplier and the Certification Administrator (CA) 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

The complete set of information about a product that is submitted to the Certification Administrator (CA) in support of an application for certification.
Certification Register

The official list of all Certified Implementations and related information that is maintained by the Certification Administrator (CA) and made available on the Certification Program website.

Certification Release

A Certification Release is a group of consistent Test Cases and process documents, to aid product procurement, development and certification. For a given Certification Release, the set of interoperability modules and features that need to be supported by NFC-Forum-compliant devices, are defined in a particular version of [DEVREQS]. Each feature is defined by requirements in Technical Specifications. NFC Forum releases at least one version of a set of consistent Test Cases documents, called a Test Release. New versions of Test Cases documents MAY lead to new Test Releases for the same Certification Release. Only one version of Test Release can be active at any given time for one Certification Release. All active documents for a Certification Release are available on the Certification Program website.

Certification Testing

Testing that an NFC Forum Implementation is REQUIRED to undergo to achieve certification.

Certified Implementation

An active NFC Forum Implementation that has successfully completed the certification process and for which the Supplier has been notified in writing by the Certification Administrator (CA) that certification has been achieved.

Collision

See [GLOSS_TC].

Command

See [GLOSS_TC].

Conformance Testing

Set of tests defined for the purpose of determining whether an implementation complies with the set of specifications defined by the NFC Forum.

Connectionless Transport

See [GLOSS_TC].

Connection-oriented Transport

See [GLOSS_TC].

Correct Frame

See [GLOSS_TC].

Cyclic Redundancy Check (CRC)

See [GLOSS_TC].

$D_{LISTEN→POLL}$

See [GLOSS_TC]
D POLL—LISTEN
See [GLOSS_TC].

Data Link Connection
See [GLOSS_TC].

Device Test Application (DTA)
Part of the DUT that is used for the NFC Forum Certification Test.

In digital testing, IUT is the layer that corresponds to the [DIGITAL] and [ACTIVITY] specifications, embedded in an NFC Forum Device provided for [DIGITAL_TC].

In analog testing, IUT is the layer that corresponds to the [ANALOG] specifications, embedded in an NFC Forum Device provided for [ANALOG_TC].

In LLCP testing, IUT is the layer that corresponds to the [LLCP] specifications, embedded in an NFC Forum Device provided for [LLCP_TC].

In SNEP testing, IUT is the layer that corresponds to the [LLCP] and [SNEP] specifications, embedded in an NFC Forum Device provided for [SNEP_TC].

Device Under Test (DUT)
NFC Forum Device that contains the Implementation Under Test (IUT).

Digital Certification Testing
A defined set of tests that checks the software responsible for the data exchange between an NFC Forum Device and another NFC Forum Device or tag. The tests check the [DIGITAL] and [ACTIVITY].

Engineering Sample
A prototype, commercial, or certified NFC Forum Device. In the context of test tool validation, it is a sample used to verify that the tool correctly executes a test case.

Operating Field Off
See [GLOSS_TC].

Operating Field On
See [GLOSS_TC].

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

Implementation Under Test (IUT)
Part of the DUT that is used for the NFC Forum Certification Test.
• In digital testing, IUT is the layer that corresponds to the [DIGITAL] and [ACTIVITY] specifications, embedded in an NFC Forum Device provided for [DIGITAL_TC].

• In analog testing, IUT is the layer that corresponds to the [ANALOG] specifications, embedded in an NFC Forum Device provided for [ANALOG_TC].

• In LLCP testing, IUT is the layer that corresponds to the [LLCP] specifications, embedded in an NFC Forum Device provided for [ANALOG_TC].

• In SNEP testing, IUT is the layer that corresponds to the [LLCP] and [SNEP] specifications, embedded in an NFC Forum Device provided for [SNEP_TC].

**Initiator**

See [GLOSS_TC].

**Installation**

The process of Technology Detection, Collision Resolution, and Device Activation Activities.

**Interoperability Module**

An interoperability module provides the basis for communication and interaction between components of the NFC Forum architecture.

**Interoperability Testing**

Set of tests that are followed in order to determine whether a product interacts successfully with other products to comply with a set of functionalities specified by the NFC Forum.

**Interpretation**

A decision made by the NFC Forum NCIRP (NFC Forum Issue Resolution Panel) that elaborates or refines the meaning of a device specification in [DEVREQS], of an NFC Forum Specification, or of an external standard referenced by either of them. An Interpretation is one possible outcome of a Problem Report (PR).

**ISO-DEP Protocol**

See [GLOSS_TC].

**IUT Test Plan**

The list of parameterized test cases applicable to the IUT. This list is an outcome of the NFC Forum Test Specification, TCCL (Test Case Category List), and the Supplier’s ICS documents. Each IUT within an NFC Forum Implementation has its own IUT Test Plan.

**LLCP Certification Testing**

A defined set of tests that checks the software that is responsible for the data exchange between an NFC Forum Device and another NFC Forum Device. The [LLCP] shall be checked.

**LLCP Link**

See [GLOSS_TC].
Link MIU
See [GLOSS_TC].

Listen Mode
See [GLOSS_TC].

Listening Device
An NFC Forum Device in Listen Mode.

Local LLC
See [GLOSS_TC].

Logical Data Link
See [GLOSS_TC].

Lower Tester (LT)
The representation of the means of providing, during test execution, indirect control, and observation of the lower service boundary of the IUT via the underlying service-provider (from ISO/IEC 9646).

Maximum Information Unit (MIU)
See [GLOSS_TC].

Modulation Index
See [GLOSS_TC].

Mute
Behavior of a device in Listen Mode not sending a response. If the Listen device is configured to support the ACM Target mode it keeps its Operating Field condition to Operating Field OFF.

Mute ACM
The switch from Operating Field On to Operating Field Off and no frame has been sent during the time the field was On. Applicable timing parameters and associated limits are defined in [ACTIVITY].

NFC Forum Card Emulation Mode
The mode used when an NFC Universal Device is using the part of the NFC Forum Protocol Stack that responds to Master/Slave Communication from a reader/writer terminal. When in NFC Forum Card Emulation Mode, the NFC Universal Device (emulating either an NFC Forum Tag or a contactless card) cannot start communication on its own. The Master/Slave Communication is initiated by a reader/writer terminal. The communication for this mode is abbreviated as CE.

NFC Forum Certification Issue Resolution Panel (NCIRP)
The NFC Forum committee responsible for responding to Problem Reports (PRs) and Notices of Non-compliance.

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

See [GLOSS_TC].

**NFC Forum Device Requirements**

The definition of the parts of the NFC Forum Protocol Stack that are REQUIRED to be present in a product for it to be eligible for certification. NFC Forum Device Requirements include separate definitions for Peer Mode, Reader/Writer Mode, and Card Emulation Mode, and defines the Certification Release. It is defined in document [DEVREQS]. See Section 4.1 of [CERPOL].

**NFC Forum Functionality**

A set of features defined in the NFC Forum Specifications.

**NFC Forum Implementation**

The combination of hardware, software and mechanical components that together deliver NFC Forum Functionality and that meets the requirements defined in [DEVREQS].

**NFC Forum Issue Resolution Chair (NIRC)**

An independent third party responsible for chairing the NCIRP and managing all related activities.

**NFC Universal Device**

See [GLOSS_TC].

**NFC Forum Peer Mode**

The mode used when an NFC Forum Device is using the part of the NFC Forum Protocol Stack that enables Peer-to-Peer Communication with another NFC Forum Device using this same mode. The initiator starts the communication and the target responds to it. Both NFC Forum Devices have the capability to be either initiator or target. This mode uses the NFC-DEP Protocol as described in [DIGITAL]. The communication for this mode is abbreviated as P2P.

**NFC Forum Reader/Writer Mode**

The mode used when an NFC Forum Device is using the part of the NFC Forum Protocol Stack that enables Master/Slave Communication with NFC Forum tags or contactless cards. The NFC Forum Device starts the Master/Slave Communication and sends commands to an NFC Forum tag or contactless card. The communication for this mode is abbreviated as RW.

**NFC Reader Device**

See [GLOSS_TC].

**NFC Tag Device**

See [GLOSS_TC]

**NFC Forum Test Specification**

The set of tests and testing-related information that the NFC Forum uses to confirm the compliance of an Implementation Under Test (IUT) to the corresponding NFC Forum Specifications.
NFC-A
   See Technology in [GLOSS_TC].

NFC-B
   See Technology in [GLOSS_TC].

NFC-DEP Protocol
   See [GLOSS_TC].

NFC-F
   See Technology in [GLOSS_TC].

NFC-V
   See Technology in [GLOSS_TC].

NFCID0
   See NFCIDx in [GLOSS_TC].

NFCID1
   See NFCIDx in [GLOSS_TC].

NFCID1 CLn
   See [GLOSS_TC].

NFCID2
   See NFCIDx in [GLOSS_TC].

NFCID3
   See NFCIDx in [GLOSS_TC].

«noise» error
   Transmission error in a Response that is encapsulated in a frame of at least 4 characters,
   encapsulated in a frame with residual bits (i.e., the number of data bits is not a multiple of
   8).

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

Operating Field
   See [GLOSS_TC].

Operating Volume
   See [GLOSS_TC].

Passive Communication
   See [GLOSS_TC].

Poll Command
   • See [GLOSS_TC].
Poll Mode

See [GLOSS_TC].

Polling Device

An NFC Forum Device in Poll Mode.

Problem Report (PR)

A description of a question about clarification, intent, or correctness related to a specification or a test case. If a PR is accepted by the NCIRP, the PR will be resolved into an Interpretation or a Test Case Deficiency (TCD).

Protocol Data Unit (PDU)

The sequence of contiguous octets delivered as a unit to the adjacent lower layer or received as a unit from the adjacent lower layer.

Profile

See [GLOSS_TC].

Reader/Writer

See [GLOSS_TC].

Record Type Definition (RTD)

An NFC Forum RTD defines NDEF payload data formats and their associated type names. The generic RTD guidelines are defined in [RTD].

Remote LLC

See [GLOSS_TC].

Reset

See [GLOSS_TC].

Response

See [GLOSS_TC].

$\Delta SFGT_{FAAT}$

Start-up Frame Guard Time. Minimum Frame Delay Time after an Answer To Select, NFC-A (ATS) for a Type 4A Tag platform.

$\Delta SFGT_B$

Start-up Frame Guard Time. Minimum Frame Delay Time after an ATTRIB response for a Type 4B Tag platform.

Service [LLCP]

See [GLOSS_TC].

Service Discovery Protocol (SDP)

See [GLOSS_TC].
**Smart Card (SC)**

A contactless tag or smart card based on one of the technologies (ISO/IEC_14443A, ISO/IEC_14443B, or JIS_X_6319-4) compatible with those defined by the NFC Forum (NFC-A, NFC-B, or NFC-F).

**Specifications**

The detailed technical documents that are published by the NFC Forum and 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.

**State**

See [GLOSS_TC].

**Sub-cases**

A set of scenarios within a test case.

**Supplier**

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

\[ T_{A,nn} \]

Minimum time period during which the NFC Forum Listen Device NFC-A is not allowed to produce any detectable disturbance before it sends its response.

\[ T_{B,nn} \]

Minimum time period during which the NFC Forum Listen Device NFC-B is not allowed to produce any detectable disturbance before it sends its response.

**Target**

See [GLOSS_TC].

**Technology**

See [GLOSS_TC].

**Technology Subset**

See [GLOSS_TC].

**Test Case**

A description of the testing of one or more requirements derived from a specification.

**Test Case Categories List (TCCL)**

A list of test cases categorized in terms of the conditions under which they are to be used in Certification Testing. See Section 8.3.1 of [CERPOL].

**Test Case Mapping Table (TCMT)**

TCMT provides required test cases based on IUT’s ICS values.
**Test Environment**

Test environment required to perform NFC Forum Certification Testing. It includes the Device Test Application, Implementation Under Test, and the Lower Tester.

**Test Functionalities**

Functionalities to be implemented by the vendor following the requirements specified in this document, and to be implemented in the Device Test Application to allow the Test Laboratory to proceed to NFC Forum Certification Testing.

**Test Group**

A set of test cases grouped together by the NFC Forum to be the smallest set available for inheritance of test results.

**Test Laboratory**

A facility approved by the NFC Forum to perform NFC Forum Certification Testing.

**Test Plan**

A collection of Test Cases in one document.

**Test Release**

The NFC Forum MAY publish new versions of its Test Specifications and, when they are published, will collect the new versions into consistent sets to aid product certification and testing. Each such set is called a Test Release.

**Test Script**

The implementation of a Test Case into a specific test tool using a scripting language. Depending on the test tool, the Test Script can be contained in a single file, distributed over several files, or be parameter driven, or it can be in text form, giving the operator test instructions.

**Test Track**

A test track involves conformance testing, interoperability testing, or a combination of the two.

**Test Case Deficiency (TCD)**

An error in an NFC Forum test case that is agreed by the NCIRP to be causing an IUT to produce an incorrect result that impacts the IUT’s certification. A Test Case Deficiency is one possible outcome of a Problem Report.

**Test Case Categories List (TCCL)**

A list of test cases categorized in terms of the conditions under which they are to be used in Certification Testing. See Section 8.3.1 of [CERPOL].

**Tool Validation Administrator (TVA)**

Someone appointed by the NFC Forum to manage the test tool validation process through approval of the test tool for certification testing.

**Tool Validation Review Committee (TVRC)**

A group of at least three subject matter experts providing technical and process support to the TVA in matters relating to the test tool validation process.
**Type X Tag**

A contactless tag or smart card supporting NDEF, which can be accessed by a device implementing the tag operation defined in the specifications.

**NOTE**

“X” must be replaced by “2”, “3”, “4”, “4A”, “4B” or “5”.

**Type Y Tag Platform**

The command set and underlying communication protocol of a Type Y Tag according to [DIGITAL].

**NOTE**

When used in a document, “Y” must be replaced by “3”, “4A” or “4B”.

**Type-Length-Value (TLV)**

See [GLOSS_TC].

**Validation House**

An independent third-party test laboratory selected by the NFC Forum for conducting the test tool validation process.

**Vendor**

The entity that submits the NFC Forum Device for NFC Forum Certification Testing.

**Waiver**

Expressed or implied voluntary and intentional relinquishment or abandonment of a requirement.

**Waiver Request**

A request through a Problem Report to get a waiver for business reasons.

**WLC Reader Device**

An NFC Forum Device that supports the following Modus Operandi: Reader/Writer and WLC Poller. It can also support RF Collision Avoidance.

See [WLC], [GLOSS_TC], [ACTIVITY]

**WLC Tag Device**

An NFC Forum Device that supports the following Modus Operandi: at least one Tag Module and the WLC Listener functionality.

See [WLC], [GLOSS_TC]

**Open ecosystem Device Classes**

All the Device Classes that are dedicated to the open ecosystem and ensuring use case independent interoperability.
Specific market ecosystem Device Classes

All the Device Classes that are dedicated to specific market segments to enable a single particular use case, called, specific market ecosystem. An example is the set of Device Classes for the Automotive market. Typically, the Specific market ecosystem Device Classes serve the needs of specific standardization bodies other than NFC Forum and benefiting from the NFC Forum certification program.
A. Revision History

Table 1 outlines the revision history of Compliance Committee Glossary.

<table>
<thead>
<tr>
<th>Document Name</th>
<th>Revision and Release Date</th>
<th>Status</th>
<th>Change Notice</th>
<th>Supersedes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Committee Glossary</td>
<td>1.0 Initial Version 28 Sept 2016</td>
<td>Approved</td>
<td>Approved by the CC</td>
<td></td>
</tr>
<tr>
<td>Compliance Committee Glossary</td>
<td>1.0.02 30 Apr 2017</td>
<td>Approved</td>
<td>Additions per MloI WG, [DEVREQS]; approved by CPWG; added audit related documents; final edit.</td>
<td>1.0 Initial Version</td>
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<td>Compliance Committee Glossary</td>
<td>1.0.03 2018-04-19</td>
<td>Final</td>
<td>Referring to GLOSS_TC were possible instead of having own definitions</td>
<td>1.0.02 30 Apr 2017</td>
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<tr>
<td>Compliance Committee Glossary</td>
<td>1.0.04 2019-10</td>
<td>Approved</td>
<td>Added “Type X Tag”, “Type Y Tag Platform” and editorial updates</td>
<td>1.0.03 2018-04-19</td>
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<tr>
<td>Compliance Committee Glossary</td>
<td>1.0.05 2020-12</td>
<td>Approved</td>
<td>Added “Mute” and “Mute ACM”</td>
<td>1.0.03 2018-04-19</td>
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<td>Compliance Committee Glossary</td>
<td>1.0.06 2021-10</td>
<td>Approved</td>
<td>Aligned definition of Certification Release with other certification documents</td>
<td>1.0.05 2020-12</td>
</tr>
<tr>
<td>Compliance Committee Glossary</td>
<td>1.1.01 2022-03</td>
<td>Approved</td>
<td>Added new terms: WLC Reader Device, WLC Tag Device, Open ecosystem Device Classes, Specific market ecosystem Device Classes Removal of T1T</td>
<td>1.0.06 2021-10</td>
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