Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device

NFC Forum™
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1 Overview

The NFC Forum is producing a set of base specifications for Near Field Communications Technology and a set of test documents for the NFC Forum base specifications.

NOTE This document is Version 1.5.00 of Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device for start-up validation activity.

1.1 Objectives

The objective of this document is to provide the instructions for filling in the Implementation eXtra Information for Testing (IXIT) proforma for the Digital Protocol specification.

1.2 Applicable Documents or References

[DEVREQS] NFC Forum Device Requirements, Version 1.5, NFC Forum


[DTA] Device Test Application Specification for NFC Digital Protocol and NFC Forum Type 1/2/3/4 Tags, Version 2.2.01, NFC Forum

[ICS] Implementation Conformance Statement (ICS) for Digital Protocol, Version 1.5.00, NFC Forum
1.3 Administration

The Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device is a document supported by the Near Field Communication Forum, Inc., located at:

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

The Testing Working Group maintains this document.

1.4 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.

Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device
1.5 Intellectual Property

The Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device conforms to the Intellectual Property guidelines specified in the NFC Forum's Intellectual Property Rights Policy, as outlined in the NFC Forum Rules of Procedure. These documents are available on the NFC Forum website.

1.6 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].

1.7 Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-APDU</td>
<td>Command APDU</td>
</tr>
<tr>
<td>DID</td>
<td>Device Identifier</td>
</tr>
<tr>
<td>IUT</td>
<td>Implementation Under Test</td>
</tr>
<tr>
<td>NFC-A</td>
<td>Near Field Communication – Type A Technology</td>
</tr>
<tr>
<td>NFC-B</td>
<td>Near Field Communication – Type B Technology</td>
</tr>
<tr>
<td>NFCID0</td>
<td>NFC-B identifier of the NFC Forum Device</td>
</tr>
<tr>
<td>R-APDU</td>
<td>Response APDU</td>
</tr>
<tr>
<td>RTOX</td>
<td>Response TimeOut eXtension</td>
</tr>
<tr>
<td>T1T</td>
<td>Type 1 Tag Platform</td>
</tr>
<tr>
<td>T2T</td>
<td>Type 2 Tag Platform</td>
</tr>
<tr>
<td>T4AT</td>
<td>Type 4A Tag Platform</td>
</tr>
<tr>
<td>T4T</td>
<td>Type 4 Tag Platform</td>
</tr>
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</table>

1.8 Glossary

Please refer to [CC_GLOSS]
Conformance to the IXIT Proforma

2 Conformance to the IXIT Proforma

The IXIT proforma provides a way for suppliers to provide information about their implementation in a standardized manner. This information must follow the requirements defined in [ACTIVITY], [DIGITAL], [LLCP], [SNEP], [ANALOG] and [DTA].

Suppliers must use the IXIT proforma (see [IXIT]) or its technical equivalent, preserving the numbering, naming, and ordering of the proforma items, to claim conformance to the IXIT proforma.

See Section 3 for instructions on how to complete the proforma.
3 Instructions for Completing the IXIT Proforma

The implementation supplier shall complete each field in the [IXIT] proforma. In particular, an explicit answer must be entered in the support column fields, using the notation described in Section 3.1. If necessary, the supplier may provide additional information in the Comments column.

The information entered in [IXIT] or produced by the Test Tool must exactly match the information entered in all forms and documentation in the Certification system.

3.1 Conventions

The following conventions are used in [IXIT].

ID: Contains a unique alphanumeric code that identifies the item.

Parameter and Description: Describes each respective item (e.g., parameters, timers, etc.).

Reference: Contains the document reference to the definition of the item. The following notations are used:

- [ACT] x.y.z: The item is defined in [DEVREQS] NFC Forum Device Requirements, Version 1.5, NFC Forum
- [ACTIVITY], Section x.y.z.
- [DPS] x.y.z: The item is defined in [DIGITAL], Section x.y.z.
- [ATS] x.y.z: The item is defined in [ANALOG], Section x.y.z.
- [TCA] x.y: The item is defined in [TCANALOG], Section x.y.
- [DTA] x.y.z: The item is defined in [DTA], Section x.y.z.

Status: Uses the conditional C.X, where "X" is an integer identifying a unique conditional status expression that is defined immediately following the table. A conditional expression notation uses the following syntax:

C.X: IF <Boolean expression> THEN … ELSE …

The Boolean expression is composed of one or more item references connected via Boolean connectors such as AND, OR, etc. An item reference is defined by its ID. Some examples are:

EXAMPLE 1: IF (RWR-1 AND RWR-2) THEN M ELSE O
EXAMPLE 2: IF NDF-1 THEN O ELSE M

Allowed Values: Indicates either an interval or discrete value allowed for the associated item.

Supported Values: To be filled in by the supplier.
### A. Revision History

**Table 1: Revision History**

<table>
<thead>
<tr>
<th>Document Name</th>
<th>Revision and Release Date</th>
<th>Status</th>
<th>Change Notice</th>
<th>Supersedes</th>
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<tbody>
<tr>
<td>Digital Protocol IXIT</td>
<td>Version 1.0, July 2010</td>
<td>Final</td>
<td></td>
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<td>Digital Protocol IXIT</td>
<td>Version 1.01, October 2010</td>
<td>Final</td>
<td>Separation of the instructions from the items list</td>
<td>Version 1.0, July 2010</td>
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<tr>
<td>Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for Digital Protocol</td>
<td>Version 1.0.02, November 2010</td>
<td>Draft</td>
<td>Editorial corrections</td>
<td>Version 1.01, October 2010</td>
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<td>Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for Digital Protocol</td>
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<td>Version 1.0.02, November 2010</td>
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<td>Version 1.0.03, December 2010</td>
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<td>Version 1.0.05, March 20, 2012</td>
<td>Final</td>
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<td>Version 1.0.05 February 27, 2012</td>
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<td>Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for Digital Protocol</td>
<td>Version 1.0.06, May 22, 2012</td>
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<td>Version 1.0.05 March 20, 2012</td>
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<td>Change Notice</td>
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<td>Final</td>
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<td>Version 1.0.07 June 28, 2012</td>
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<td>Version 1.0.09, December 4, 2013</td>
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<td>Version 1.0.08, May 2013</td>
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<td>Final</td>
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<td>Version 1.0.09, December 4, 2013</td>
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<td>Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device</td>
<td>Version 1.0.11, January 30, 2015</td>
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<td>Version 1.0.10, May 9, 2014</td>
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<td>Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device</td>
<td>Version 1.4.01, 16 October, 2015</td>
<td>Draft</td>
<td>Consolidated with the Analog equivalent Replaced logos and default language</td>
<td>Version 1.0.11, 30 January, 2015</td>
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<td>Instructions for Completing the Implementation eXtra Information for Testing (IXIT) for NFC Forum Device</td>
<td>Version 1.5.00_20160919, 19 September, 2016</td>
<td>Draft</td>
<td>Updated to the CR 10</td>
<td>Version 1.4.01, 16 October, 2015</td>
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