



ADVANCING NEAR
FIELD COMMUNICATION
TECHNOLOGY



NFC Forum Compliance Program

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NFC Forum Compliance Program Objectives

- Develop a means of establishing compliance and interoperability with the Forum's published open standards
- Develop a product certification program with a consumer recognizable trademark guaranteeing the NFC brand promise of compliance and interoperability

Questions to Answer

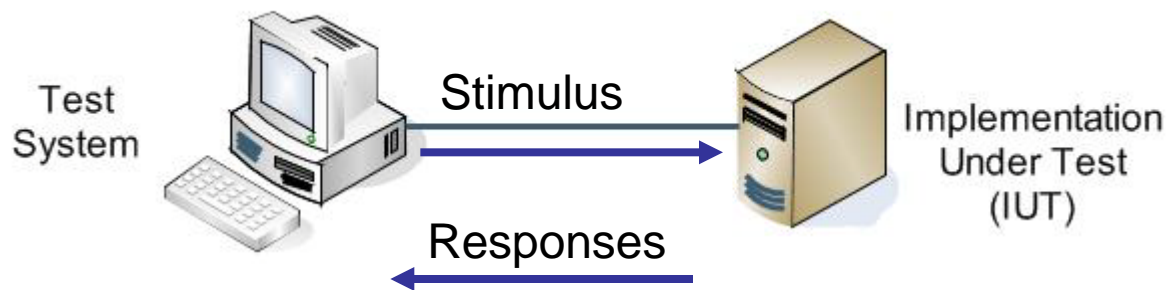
- To meet these objectives, the Compliance Committee had to answer the following questions:
 1. What does a device have to do in order to be certified?
 2. What needs to be certified, how will it be certified, and how do we track devices through the process?
 3. How and what do we have to test (or not test) for conformance and interoperability?

Status of Compliance Work

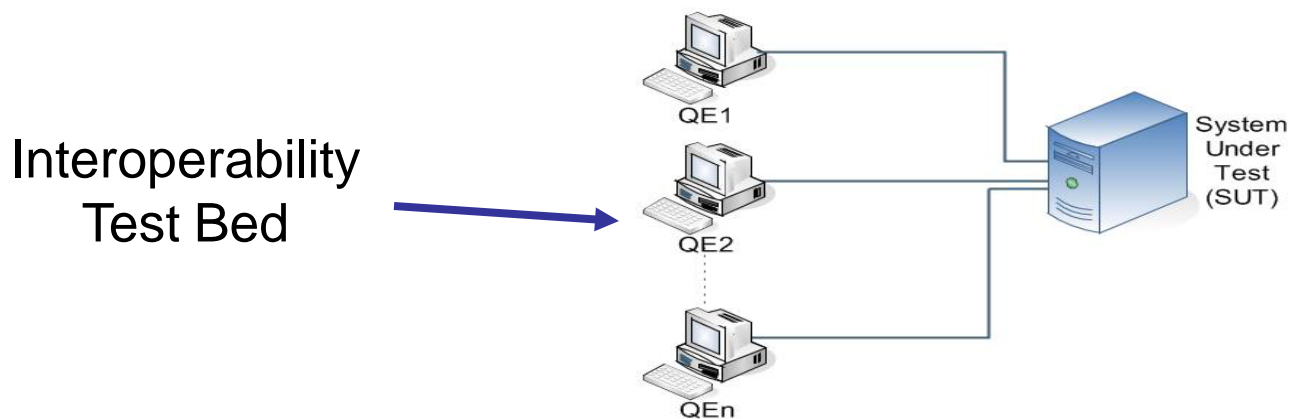
- Over 100 representatives of 30 member companies within the Forum have worked for the past 2-3 years on:
 - Defining Minimum Levels of Interoperability
 - Developing a Certification Program
 - Defining and developing Test Procedures, Tools, and Test Laboratory Relationships
- “First Wave Certification Program” should be ready within the year

Types of Testing

Conformance Testing



Interoperability Testing



- ✓ NFC Forum is focusing on **Conformance Testing**

Process & Terminology



NDEF
LLCP
...

NFC Forum Specifications

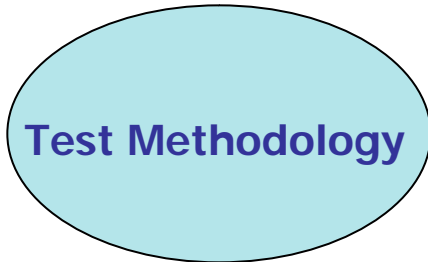
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Identifier: *Id1*
RFC Clause: *RFC Y*
Type: *Type of RQ*
Applies to: *device 1*
Requirement: *requirement 1*
RFC Text: *RFC Text 1*

Requirements
Catalogue

2



TP ID	Unique identifier of the test purpose
Reference	Section in specification related to this test purpose.
Selection criteria	Use Case applied
Test purpose	Test purpose description
Comments:	Additional comments to test purpose description

Test Purposes

3



Item	Feature	Reference	Status	Support [Yes] [No]
1	Feature 1		M	
...	...	Clause from specs.	...	
n	Feature n		O	
Comments: additional comments.				

Implementation Conformance Statement

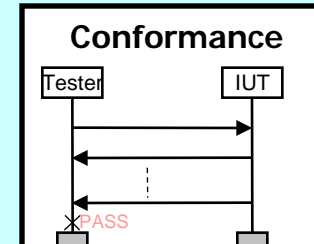
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Static Conformance Review

"Abstract" Test Case

Interoperability	
Test Procedure	Verdict
Step 1	Pass
Step 2	
...	
Step n	Pass

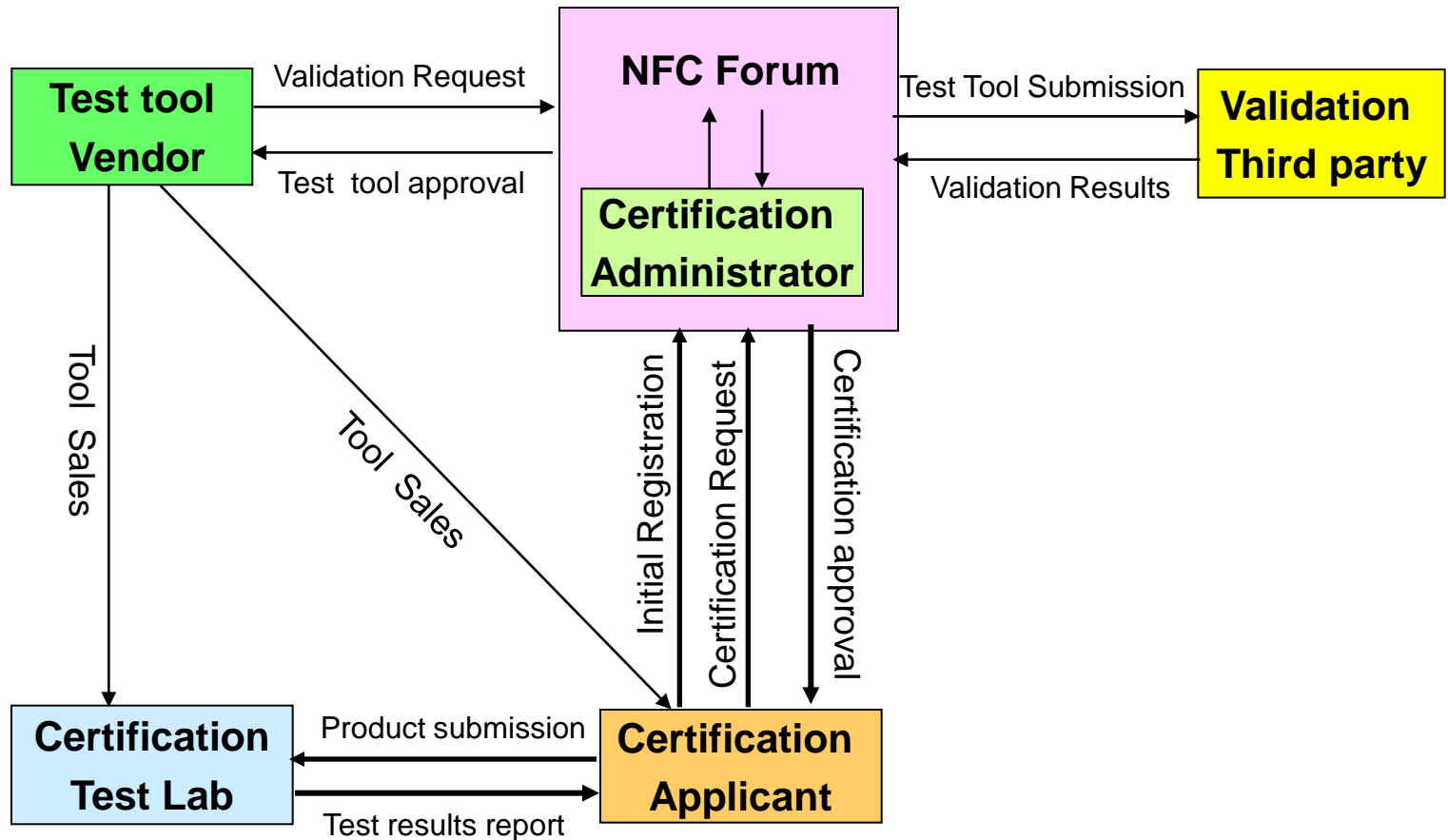


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Test Plan

Certification Process Overview

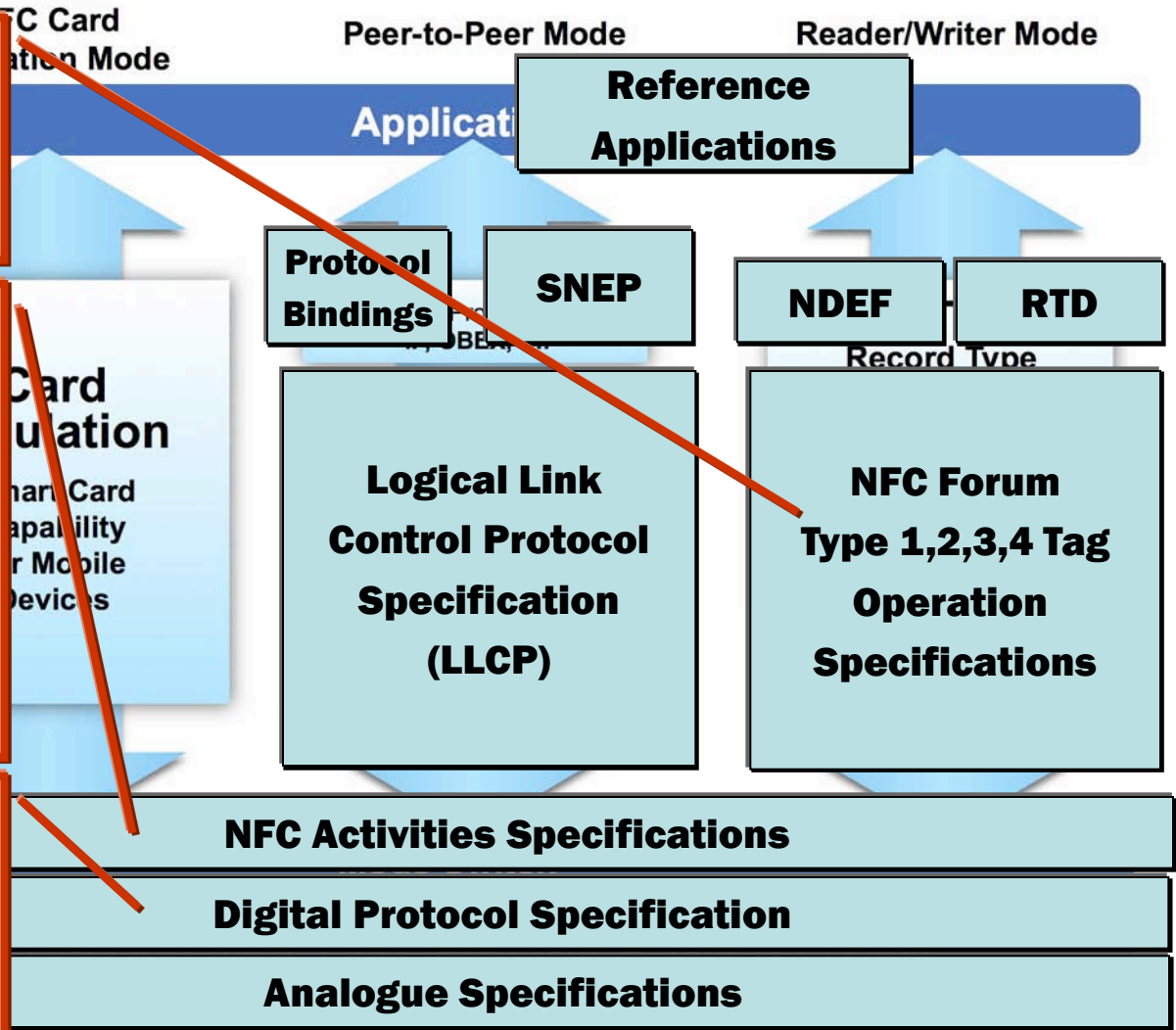


Specifications to be Tested for 1st Wave Conformance

Specifies how an NFC Forum device shall operate an NFC Forum Type 1, 2, 3, or 4 Tag Platform.

Defines activities needed to set up communications in interoperable manner, based on the building blocks of the Digital Protocol Spec. Eg, when to perform collision detection, polling, etc

Implementation Spec. for digital aspects of ISO/IEC 18092 and ISO/IEC 14443. Defines building blocks for communication.



First Wave Certification: Conformance Testing

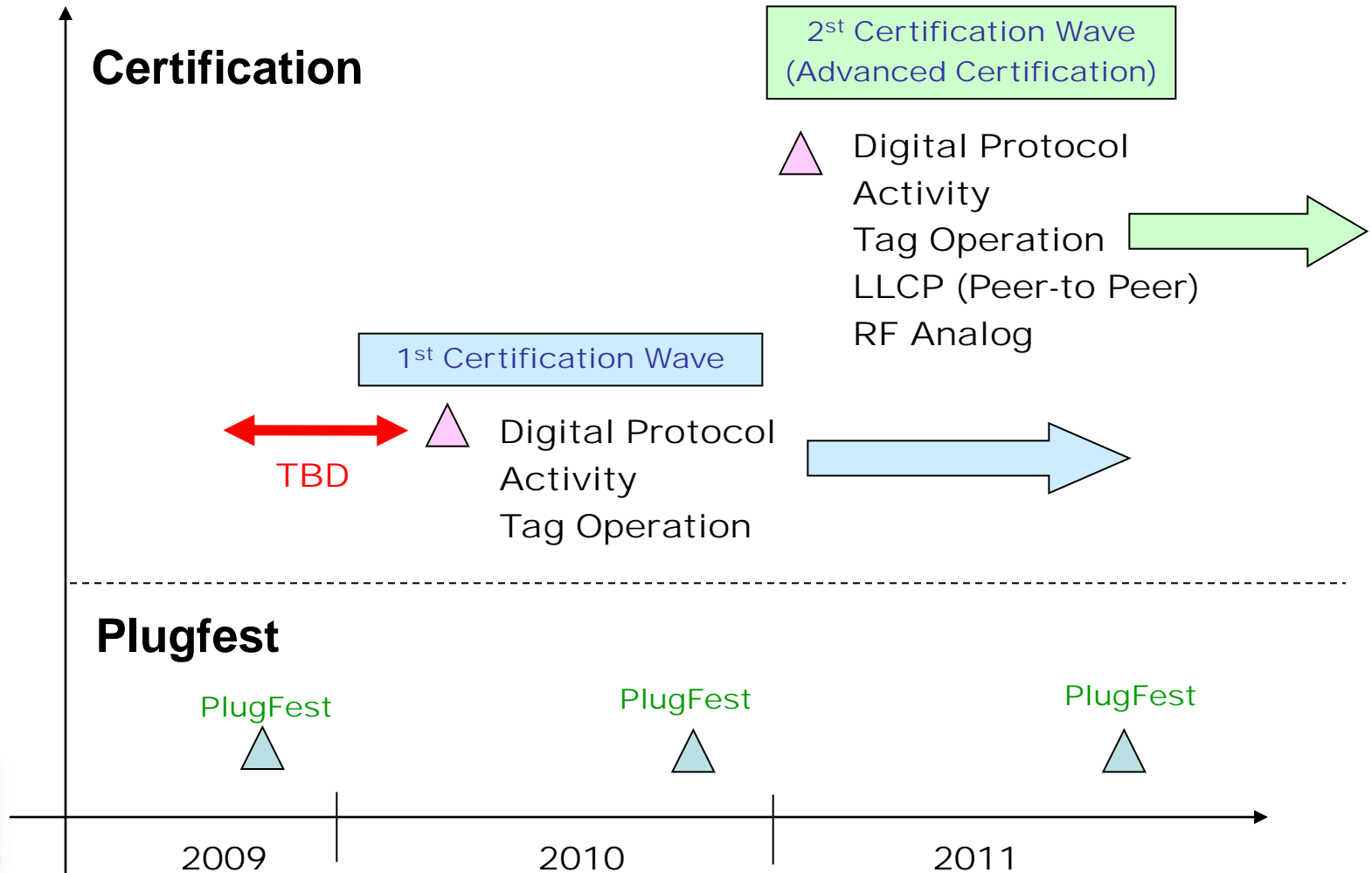
- Applicant for First Wave Certification must:
 1. “Self Confirm” Device is compliant to certain existing NFC Forum Specifications, which may or may not have Test Cases available, including but not limited to:

Digital Protocol	Others?
Activities	
Tag Operation	
 2. Submit Device for Certification Test
 - Conformance Test using NFC Forum-Approved test tool
 - Conformance Test coverage will be different than Step 1, and will include Tag Operation, Digital Protocol, and Activity Specifications

First Wave Certification: Interoperability Testing

- The NFC Forum also strongly recommends some Interoperability Testing
 - NFC Forum will define and support an interoperability test event (“plugfest”) by using a “Test Bed” to decrease chances of interoperability issues
 - Interoperability testing by the applicant is not required at this point in First Wave Certification. However, it is strongly recommended (could become mandatory).
 - Certification will not be denied based on the results of interoperability testing

Target Schedule



Ongoing Activities

- High-Level Conformance Requirements (HLCR) document, which defines minimum levels of interoperability for certification
- Traceability Matrix to enable implementers to map requirements in the HLCR document to technical specifications
- Certification administration
 - Selected The Open Group as Administrator
 - Policy/ procedures almost complete
 - Development and implementation underway

Ongoing Activities (2)

- Developing partnerships with test equipment manufacturers
- Creating Requirements Catalogs, Test Purposes, and Test Cases (1800+ to date)
- Prioritizing, selecting and completing test cases for First Wave Certification
- Selecting the Test Tool Validation House
- Drafted RF testing requirements

Plugfests

- Currently, one Plugfest per year
- December 2008: Plugfest and Testfest
 - Plugfest: More than 20 devices/tools/tags from more than 10 companies
 - Testfest: Three RFC Test Tool Manufacturers
 - Coverage:
 - All tag types (1, 2, 3, 4A and 4B)
 - Read and Write functions
 - Peer-to-Peer
 - Card Emulation
 - Protocol Testing
 - RF Measurements
- Planned Plugfest and LLCP Specification test session at September 2009 member meeting