

ISO/IEC JTC 1/SC 17
Cards and personal identification
Secretariat: BSI (United Kingdom)

Document type: Information from SC Secretariat

Title: Ecma's contribution on NFCIP-2 Test Methods

Status: SC17 for information. WG8/WG1 take note.

Date of document: 2012-09-28

Source: JTC1/SC6

Expected action: INFO

Email of secretary: Chris.Starr@ukcards.org.uk

Committee URL: <http://isotc.iso.org/livelink/livelink/open/jtc1sc17>

Telecommunications and Information Exchange Between Systems

ISO/IEC JTC 1/SC 6

Document Number:	N15471
Date:	2012-09-27
Replaces:	
Document Type:	Liaison Organization Contribution
Document Title:	Ecma's contribution on NFCIP-2 Test Methods
Document Source:	Ecma International
Project Number:	
Document Status:	For your information.
Action ID:	FYI
Due Date:	
No. of Pages:	11
<p>ISO/IEC JTC1/SC6 Secretariat Ms. Jooran Lee, KSA (on behalf of KATS) Korea Technology Center #701-7 Yeoksam-dong, Gangnam-gu, Seoul, 135-513, Republic of Korea ; Telephone: +82 2 6009 4808 ; Facsimile: +82 2 6009 4819 ; Email : jooran@kisi.or.kr</p>	

3rd Draft **Standard** ECMA-XXX

1st Edition / September 2012

NFCIP-2 Test Methods

Standard



COPYRIGHT PROTECTED DOCUMENT



Contents

Page

1	Scope	24
2	Conformance	24
3	Normative references	24
4	Terms and definitions	24
5	Test environment and apparatus	32
6	Tests	32
6.1	Test External RF Field detection	32
6.2	Test Mode selection and switching	42
6.2.1	Test PICC mode	42
6.2.2	Test NFC mode, Target and Initiator	43
6.2.3	Test PCD mode	43
6.2.4	Test VCD mode	43

Introduction

Text text text

This Ecma Standard has been adopted by the General Assembly of <month> <year>.

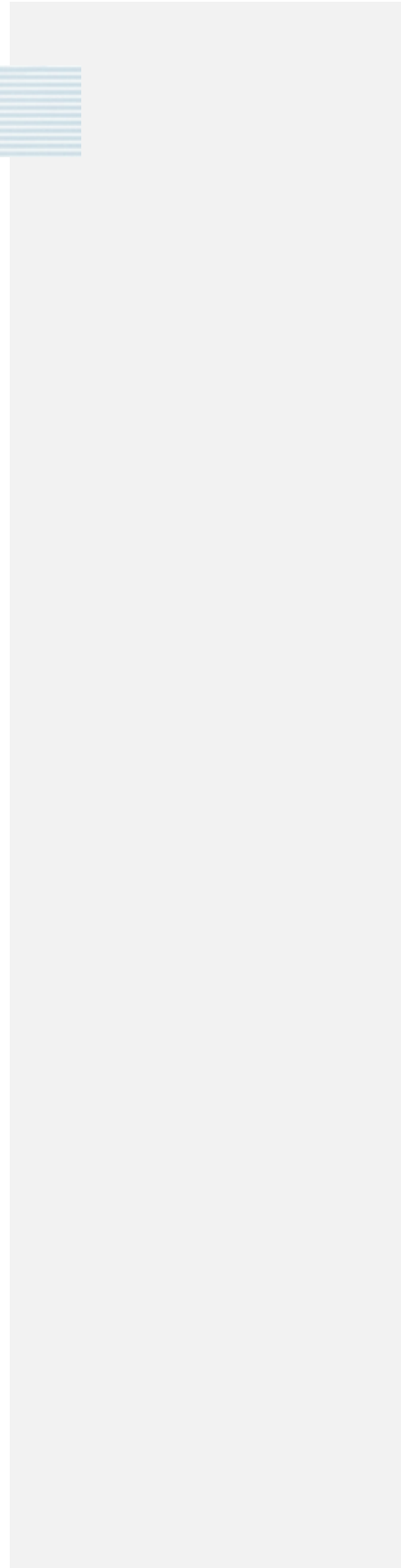
"DISCLAIMER

This draft document may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published, and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this section are included on all such copies and derivative works. However, this document itself may not be modified in any way, including by removing the copyright notice or references to Ecma International, except as needed for the purpose of developing any document or deliverable produced by Ecma International.

This disclaimer is valid only prior to final version of this document. After approval all rights on the standard are reserved by Ecma International.

The limited permissions are granted through the standardization phase and will not be revoked by Ecma International or its successors or assigns during this time.

This document and the information contained herein is provided on an "AS IS" basis and ECMA INTERNATIONAL DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY OWNERSHIP RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE."



NFCIP-2 Test Methods

1 Scope

This standard specifies requirements to verify NFCIP-2 mode selection and initial communication in the selected modes. The Test Management Service Data Units and the interface over which they are exchanged are out of scope.

메모 [OnE11]: the scope should include the full conformance to the modes

2 Conformance

Conforming implementations pass the tests in Clause 6 using the test environment and apparatus as specified in Clause 5.

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ECMA-356 *NFCIP-1 - RF Interface Test Methods (ISO/IEC 22536)*

ECMA-362 *NFCIP-1 - Protocol Test Methods (ISO/IEC 23917)*

메모 [OnE12]: be consistent in referencing.

ISO/IEC 9646 *Information Technology – Open systems Interconnection – Conformance Testing methodology and framework*

ISO/IEC 10373-6 *Identification cards – Test methods – Part 6: Proximity cards*

서식 있음: 강조

ISO/IEC 10373-7 *Identification cards – Test methods – Part 6: Vicinity cards*

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4.1

IUT

Implementation Under Test

4.2

TB-PDU

Transmission Block – Protocol Data Unit

4.3

TM-SDU

Test Management – Service Data Unit

4.4
UT
 Upper Tester

4.5
LT
 Lower Tester

5 Test environment and apparatus

The test environment shall use the concepts and abstract model of ISO/IEC 9646 to verifying the operation of an IUT compliant to ISO/IEC 21481.

NFCIP-2 test apparatus consists of an Upper Tester (UT) and a Lower Tester (LT) as illustrated in Figure 1.

To communicate with the IUT, e.g. to select modes on the IUT, the UT and IUT exchange TM-SDUs. The SDU definition and the interface between UT and IUT are out of scope of this standard.

The NFCIP2 test apparatus shall implement the specified modes at its LT interface according to the requirements of the test scenarios specified in Clause 6.

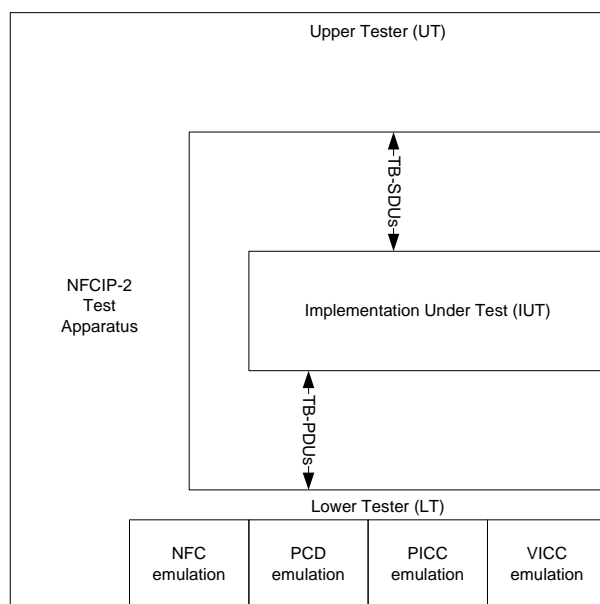


Figure 1: test configuration

6 Tests

6.1 Test External RF Field detection

To verify that the IUT does not switch on its RF field, configure the LT as test circuit and perform the test in 8.1 of ISO/IEC 22536 while using the term NFCIP-2 device instead of NFCIP-1 device.

6.2 Test Mode selection and switching

6.2.1 Test PICC mode

1. Select PICC mode on the IUT and place it into the operating volume of the LT

2. Select PCD mode on the LT, and have it LT send REQ(A),

메모 [OnE13]: replace this by a reference to the PICC mode of ISO/IEC 10373-6

2.1 If the IUT answers with ATQ(A) within 1ms, it passes the test, otherwise

2.2 LT sends REQ(B): if the IUT answers with ATQ(B) within 1ms, it passes the test otherwise it fails.

6.2.2 Test NFC mode, Target and Initiator

1. Select NFC, VCD or PCD mode on the IUT and place it in the operating volume of the LT, have the LT switch its RF field off for at least 5,1ms, and select Initiator for Active communication mode, on either *fc/128*, *fc/64* or *fc/32* on the LT, let the LT send ATR_REQ (see 8.5.1 of ISO/IEC 23917).

메모 [OnE14]: ensure completeness of the tests

2. To test step 3 of Clause 7 of ISO/IEC 21481, verify that the IUT responds with ATR_RES.

3. The LT shall switch off its RF field and select NFC mode, Passive communication mode, as a Target on the LT

4. Select NFC mode on the IUT and verify that the IUT executes one of the Initiator protocols for *fc/128*, *fc/64* or *fc/32* (9 of ISO/IEC 23917) as selected.

6.2.3 Test PCD mode

Use ISO/IEC 10373-6 to verify that the IUT operates in PCD mode with the LT as PICC mode emulator.

6.2.4 Test VCD mode

Use ISO/IEC 10373-7 to verify that the IUT operates in VCD mode with the LT as VICC mode emulator.