



**International
Standard**

ISO/IEC 19369

**Information technology —
Telecommunications and
information exchange between
systems — NFCIP-2 test methods**

*Technologies de l'information — Téléinformatique — Méthodes
d'essai NFCIP-2*

**Second edition
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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

This second edition cancels and replaces the first edition (ISO/IEC 19369:2014), which has been technically revised.

The main changes are as follows:

- [Clause 3](#) was added;
- test methods were adapted to align with ISO/IEC 21481;
- [Annex A](#) was added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Information technology — Telecommunications and information exchange between systems — NFCIP-2 test methods

1 Scope

This document specifies test methods for ISO/IEC 21481 in addition to applicable test methods specified in ISO/IEC 10373-6, ISO/IEC 10373-7 and ISO/IEC 23917.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO/IEC 9646 (all parts), *Information technology — Open Systems Interconnection — Conformance testing methodology and framework*

ISO/IEC 10373-6, *Cards and security devices for personal identification — Test methods — Part 6: Contactless proximity objects*

ISO/IEC 10373-7, *Cards and security devices for personal identification — Test methods — Part 7: Contactless vicinity objects*

ISO/IEC 14443-3, *Cards and security devices for personal identification — Contactless proximity objects — Part 3: Initialization and anticollision*

ISO/IEC 15693-2, *Cards and security devices for personal identification — Contactless vicinity objects — Part 2: Air interface and initialization*

ISO/IEC 15693-3, *Cards and security devices for personal identification — Contactless vicinity objects — Part 3: Anticollision and transmission protocol*

ISO/IEC 21481:2021, *Information technology — Telecommunications and information exchange between systems — Near field communication interface and protocol 2 (NFCIP-2)*

ISO/IEC 23917, *Telecommunications and information exchange between systems — Near Field Communication Interface and Protocol 1 (NFCIP-1) — Protocol test methods*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

PICC mode emulator

functionality to behave as proximity card or object (PICC) mode

Note 1 to entry: PICC mode is specified in ISO/IEC 14443-2, ISO/IEC 14443-3 and ISO/IEC 14443-4.

3.2

VICC mode emulator

functionality to behave as vicinity card or object (VICC) mode

Note 1 to entry: VICC mode shall be compliant with the mandatory VICC requirements of ISO/IEC 15693-2 and ISO/IEC 15693-3.

4 Symbols and abbreviated terms

ATQA	Answer To reQuest, type A
ATQB	Answer To ReQuest, type B
IUT	implementation under test
PCD	proximity coupling device
PICC	proximity card or object
REQA	REQest command, type A
REQB	REQest command, type B
RF	radio frequency
TB-PDU	transmission block – protocol data unit
TM-SDU	test management – service data unit
UT	upper tester
LT	lower tester
VCD	vicinity coupling device
VICC	vicinity card or object

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5 Test environment and apparatus

The concepts and abstract model of the ISO/IEC 9646 series shall be used to verify the operation of an IUT in accordance with ISO/IEC 21481.

The NFCIP-2 test apparatus consists of a UT and an 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 document.

The NFCIP-2 test apparatus shall implement the specified modes at its LT interface in accordance with the requirements of the test scenarios specified in [Clause 6](#).