Ecma/TC32-TG19/2004/28
Ecma/GA/2004/67

ecma INTERNATIONAL

Near field communication (NFC)

Ecma TC32-TG19, June 2004

Rue du Rhône 114- CH-1204 Geneva - T: +41 22 849 6000 - F: +41 22 849 6001 - www.ecma-international.org

Near Field Communication

- Easy to use wireless communication interface for the last few centimeters
- Easy to use target selection, by simply holding two devices close to each other

NFC is as easy as….

… a touch

Wireless Short Range Communication Technology

- *Based on RFID technology at 13,56 MHz*
- *Operating distance typical up to 10 cm*
- *Compatible with today's field proven contactless RFID technology*
- *Data exchange rate today up to 424kbit/s*

Wireless short range communication technology

- *NFC is designed for short distance wireless communication*
- *Allows intuitive initialization of wireless networks*
- *NFC is complementary to Bluetooth and 802.11 with their long distance capabilities*
- *NFC also works in dirty environment*
- *NFC does not require line of sight*
- *Easy and simple connection method*
- *Provides communication method to non-self powered devices*

Near Field Communication Applications

Smart Key

- for mobile local payment

Peer to Peer communication, Virtual Connector

- either directly or by establishing wireless links

NFC

NFC

NFC

Low cost solution to distribute info / services

-e.g. by passive loops embedded in paper media

NFC enables a unique blend of valued applications

ECMA-340: NFCIP-1 Interface and protocol

ISO/IEC 18092: Near Field Communication- Interface and Protocol

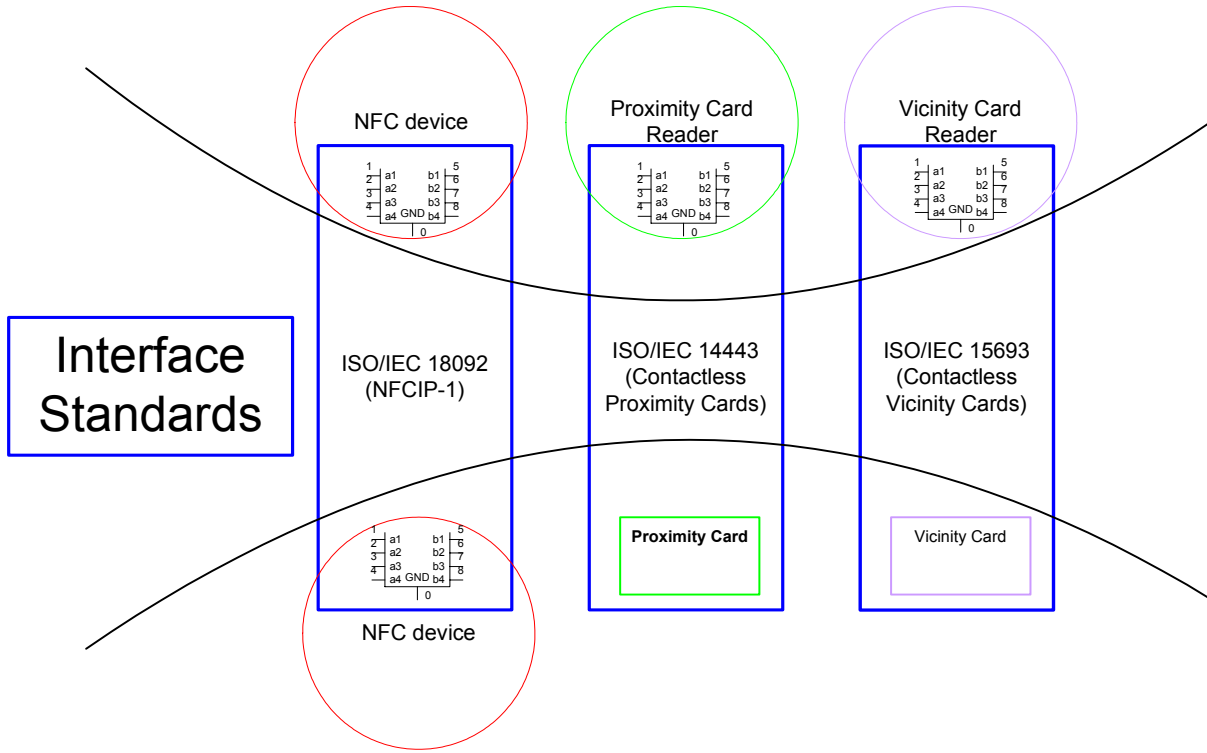
Key points:

- *The NFC communication is based on an inductive RF link on 13.56 MHz*
- *Active and passive NFC mode at different transfer speeds from 106 to 424 kbps*
- *Backward compatibility with RFID systems*
- *Allows communication between*
  - **Two powered devices**
  - **Powered and non self-powered devices**
- *Standardization of*
  - **Communication signal interface**
  - **General protocol flow**

ECMA-352: NFCIP-2 Interface and protocol
under JTC 1 fast track procedure as ISO/IEC DIS 21481

Key points:

- **Gateway between**
  - *ECMA-340*
  - *ISO/IEC 14443 PCD mode*
  - *ISO/IEC 15693 VCD mode*



ECMA-356: NFCIP-1 – RF interface Test Methods

Key points:

- *Basic standard to ensure interoperability on the RF interface for ECMA-340 devices*
- *Description of test equipment and procedures to perform interoperability tests on the RF interface*
- *Description of the tests to be performed on Initiator and Target side*

ECMA-xxx: NFCIP-1 - Protocol Test Methods

Key points:

- *Basic standard to ensure interoperability of ECMA-340 devices for:*
  - **the initialization**
  - **the single device detection**
  - **the transmission protocol**
- *Description of test equipment and procedures to perform tests*
- *Description of the tests to be performed on Initiator and Target side*

Future NFC work items

- *Companion test methods for ECMA-352 (NFCIP-2)*
- *A mapping of NFC to other communication protocols including the Internet Protocol (IP), GSM and Bluetooth*
- *Support for higher data rates*
- *Support for device categories with low power requirements*

TC32-TG19 membership

The following Ecma International member companies have nominated representatives to TC32-TG19:

- *Alcatel, Ericsson, Hitachi/Mitsubitshi Electric, Hewlett Packard, Philips, Samsung, Siemens, Sony, Tenovis, Texas Instruments*

Convenor: Reinhard Meindl , Philips Semiconductors

Rue du Rhône 114
CH-1204 Geneva
T: +41 22 849 6000
F: +41 22 849 6001