

# Interoperability Specification for ICCs and Personal Computer Systems

## *Part 3. Supplemental Document*

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## Revision History

| Revision | Issue Date         | Comments   |
|----------|--------------------|--|
| 2.00.00  | April 1, 2005      | First version  |
| 2.00.01  | April 19, 2005     | Minor edits  |
| 2.00.02  | May 6, 2005        | Added RID number   |
| 2.01.00  | June 22, 2005      | Final release  |
| 2.01.01  | September 29, 2005 | Changed Schlumberger to Axalto                           |
| 2.01.02  | November 24, 2005  | Some cards added, part 4 compliant storage cards removed |
| 2.01.03  | June 20, 2007      | LRI64 tag added  |
| 2.01.04  | July 23, 2007      | Added Cherry GmbH as participant                         |
| 2.01.05  | March 02, 2009     | New cards added  |
| 2.01.06  | June 16, 2009      | i-Code SL2 added   |
| 2.01.07  | November 05, 2010  | MIFARE Plus and FeliCa added                             |
| 2.01.08  | June 03, 2011      | Low frequency added, Table caption added                 |
| 2.01.09  | June 07, 2013      | Added NN byte for MIFARE Ultralight EV1                  |

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## 1 Scope

This document provides additional information to part 3 of the PC/SC specification for IFD subsystem implementers. It contains vendor- and product-specific information, which is subject to frequent updates, and is therefore provided as a separate document.

## 2 Storage-Card ATR Relevant Information

This section defines fields of the Storage Card ATR that are likely to change (to be extended) in the future. It shall be noted that existing definitions remain the same.

### 2.1 AID Definition

The bytes are listed from lowest to highest index.

#### 2.1.1 RID

This is the *Registered Application Provider Identifier*. The PC/SC Workgroup has its own 5-byte RID:

|      |      |      |      |      |
|------|------|------|------|------|
| B[0] | B[1] | B[2] | B[3] | B[4] |
| A0   | 00   | 00   | 03   | 06   |

**Table 1: Registered Application Identifier for PC/SC Workgroup**

The specification mandates to use this RID for compliant IFD subsystems.

#### 2.1.2 PIX

##### 2.1.2.1 SS - Byte For Standard

This describes the standard a Storage Card (that has been detected by the IFD subsystem) is working under.

| b7 | b6 | b5 | b4 | b3 | b2 | b1 | b0 | Description          |
|----|----|----|----|----|----|----|----|----------------------|
| 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | No information given |
| 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | ISO 14443 A, part 1  |
| 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | ISO 14443 A, part 2  |
| 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | ISO 14443 A, part 3  |
| 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | RFU                  |
| 0  | 0  | 0  | 0  | 0  | 1  | 0  | 1  | ISO 14443 B, part 1  |
| 0  | 0  | 0  | 0  | 0  | 1  | 1  | 0  | ISO 14443 B, part 2  |
| 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | ISO 14443 B, part 3  |

| b7  | b6 | b5 | b4 | b3 | b2 | b1 | b0 | Description                                  |
|-----|----|----|----|----|----|----|----|--|
| 0   | 0  | 0  | 0  | 1  | 0  | 0  | 0  | RFU  |
| 0   | 0  | 0  | 0  | 1  | 0  | 0  | 1  | ISO 15693, part 1                            |
| 0   | 0  | 0  | 0  | 1  | 0  | 1  | 0  | ISO 15693, part 2                            |
| 0   | 0  | 0  | 0  | 1  | 0  | 1  | 1  | ISO 15693, part 3                            |
| 0   | 0  | 0  | 0  | 1  | 1  | 0  | 0  | ISO 15693, part 4                            |
| 0   | 0  | 0  | 0  | 1  | 1  | 0  | 1  | Contact (7816-10) I <sup>2</sup> C           |
| 0   | 0  | 0  | 0  | 1  | 1  | 1  | 0  | Contact (7816-10) Extended I <sup>2</sup> C  |
| 0   | 0  | 0  | 0  | 1  | 1  | 1  | 1  | Contact (7816-10) 2WBP                       |
| 0   | 0  | 0  | 1  | 0  | 0  | 0  | 0  | Contact (7816-10) 3WBP                       |
| 0   | 0  | 0  | 1  | 0  | 0  | 0  | 1  | FeliCa                                       |
| ... |    |    |    |    |    |    |    | RFU  |
| 0   | 1  | 0  | 0  | 0  | 0  | 0  | 0  | Low frequency contactless cards <sup>1</sup> |
| ... |    |    |    |    |    |    |    | RFU  |
| 1   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | RFU  |

Table 2: SS Byte for standard

### 2.1.2.2 NN – Bytes For Card Name

The two bytes for Card Name represent a number which will be assigned by the PC/SC Workgroup upon request:

| Card Name            | Two Byte - Identifier |
|----------------------|-----------------------|
| No information given | 00 00                 |
| Mifare Standard 1K   | 00 01                 |
| Mifare Standard 4K   | 00 02                 |
| Mifare Ultra light   | 00 03                 |
| SLE55R_XXXX          | 00 04                 |
| SR176                | 00 06                 |
| SRI X4K              | 00 07                 |
| AT88RF020            | 00 08                 |
| AT88SC0204CRF        | 00 09                 |
| AT88SC0808CRF        | 00 0A                 |
| AT88SC1616CRF        | 00 0B                 |
| AT88SC3216CRF        | 00 0C                 |
| AT88SC6416CRF        | 00 0D                 |
| SRF55V10P            | 00 0E                 |
| SRF55V02P            | 00 0F                 |
| SRF55V10S            | 00 10                 |

<sup>1</sup> The Low frequency is the range < 135 kHz. The typical frequency is 125 kHz.

| <b>Card Name</b>                     | <b>Two Byte - Identifier</b> |
|--------------------------------------|------------------------------|
| SRF55V02S                            | 00 11                        |
| TAG_IT                               | 00 12                        |
| LRI512                               | 00 13                        |
| ICODESLI                             | 00 14                        |
| TEMPESENS                            | 00 15                        |
| I.CODE1                              | 00 16                        |
| PicoPass 2K                          | 00 17                        |
| PicoPass 2KS                         | 00 18                        |
| PicoPass 16K                         | 00 19                        |
| PicoPass 16Ks                        | 00 1A                        |
| PicoPass 16K(8x2)                    | 00 1B                        |
| PicoPass 16KS(8x2)                   | 00 1C                        |
| PicoPass 32KS(16+16)                 | 00 1D                        |
| PicoPass 32KS(16+8x2)                | 00 1E                        |
| PicoPass 32KS(8x2+16)                | 00 1F                        |
| PicoPass 32KS(8x2+8x2)               | 00 20                        |
| LRI64                                | 00 21                        |
| I.CODE UID                           | 00 22                        |
| I.CODE EPC                           | 00 23                        |
| LRI12                                | 00 24                        |
| LRI128                               | 00 25                        |
| Mifare Mini                          | 00 26                        |
| my-d move (SLE 66R01P)               | 00 27                        |
| my-d NFC (SLE 66RxxP)                | 00 28                        |
| my-d proximity 2 (SLE 66RxxS)        | 00 29                        |
| my-d proximity enhanced (SLE 55RxxE) | 00 2A                        |
| my-d light (SRF 55V01P))             | 00 2B                        |
| PJM Stack Tag (SRF 66V10ST)          | 00 2C                        |
| PJM Item Tag (SRF 66V10IT)           | 00 2D                        |
| PJM Light (SRF 66V01ST)              | 00 2E                        |
| Jewel Tag                            | 00 2F                        |
| Topaz NFC Tag                        | 00 30                        |
| AT88SC0104CRF                        | 00 31                        |
| AT88SC0404CRF                        | 00 32                        |
| AT88RF01C                            | 00 33                        |
| AT88RF04C                            | 00 34                        |
| i-Code SL2                           | 00 35                        |
| MIFARE Plus SL1_2K                   | 00 36                        |
| MIFARE Plus SL1_4K                   | 00 37                        |

| <b>Card Name</b>              | <b>Two Byte - Identifier</b> |
|-------------------------------|------------------------------|
| MIFARE Plus SL2_2K            | 00 38                        |
| MIFARE Plus SL2_4K            | 00 39                        |
| MIFARE Ultralight C           | 00 3A                        |
| FeliCa                        | 00 3B                        |
| Melexis Sensor Tag (MLX90129) | 00 3C                        |
| MIFARE Ultralight EV1         | 00 3D                        |
| ...                           | RFU                          |
| Others                        | To be assigned               |

**Table 3: NN Byte for card name**

### **2.1.2.3 RR RFU Bytes**

These bytes are RFU. They have to be zero.