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AMENDMENT 2
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Identification cards — Integrated circuit cards —

Part 4: Organization, security and commands for interchange

AMENDMENT 2: Waiting time management

Cartes d'identification — Cartes à circuit intégré —

Partie 4: Organisation, sécurité et commandes pour les échanges

AMENDEMENT 2: Gestion du temps d'attente

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This document was prepared by Technical Committee ISO/JTC1, *Information technology*, Subcommittee SC 17, *Cards and security devices for personal identification*.

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Identification cards — Integrated circuit cards —

Part 4:
Organization, security and commands for interchange

AMENDMENT 2: Waiting time management

Page 102, 12.1

Add the following sentence to the end of the first paragraph:

> The waiting time management provides the information regarding application waiting time to the outside world (see 12.1.3).

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Add the following new subclause after 12.1.2:

12.1.3 Waiting time management

12.1.3.1 General

The waiting time management service provides the information regarding application waiting time depending on respective cases, e.g. each command, each operation, and each amount of data. By using this information, an application on an IFD detects an unresponsive ICC without any negotiation, as an alternative to using a single waiting time defined on a transmission protocol (See ISO/IEC 7816-3 and ISO/IEC 14443-4).

The application waiting time is the maximum delay between the leading edge of a character transmitted by an ICC and the leading edge of the previous character transmitted by an IFD.

This information is available under application waiting time management information DO‘7F75‘ in the EF.ATR/INFO and/or in the FCI of any application DF. Table Amd.2-2 indicates four formats for this information.

The rationale for handling the waiting time defined in ISO/IEC 7816-3 in correlation with the execution time information by an application on an IFD is out of the scope of this document.

Table — Amd.2-2 — Application waiting time data objects under application waiting time management information DO‘7F75‘

Tag	Length	Value
‘81‘	Var.	Application waiting time management information in compact format
‘A1‘	Var.	Application waiting time management data elements in expanded format
‘82‘	Var.	Application waiting time management information in proprietary format
‘A2‘	Var.	Application waiting time management data elements in proprietary format

12.1.3.2 Compact format

In compact format, an application waiting time management information consists of a command indicator field followed by a concatenation of 2-byte application waiting time management factors. Each bit of bits b7 to b1 indicates whether the application waiting time management factor for each command

is present, i.e. a bit as 1 means present and a bit as 0 means absent. Table Amd.2-3 shows the first byte of command indicator. Subsequent bytes of command indicator are RFU.

An application waiting time management factor consists of 1-byte base time and 1-byte unit time. The maximum application waiting time is derived from base time plus result of multiplying unit time by data length of command processing (see arithmetic expression below). A base time is the part of each command execution time independent from data length of command processing. A unit time is 1 byte data processing time for each command, e.g. reading 1 byte data, updating 1 byte data, or verifying 1 byte data.

$$AWT_{max} = T_b + (T_u \times L)$$

where

AWT_{max} is maximum application waiting time [ms];

T_b is base time [ms];

T_u is unit time [ms/B];

L is data length [B].

Table — Amd.2-3 — Coding of the first byte of command indicator

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
x	—	—	—	—	—	—	—	Presence of next command indicator
0	—	—	—	—	—	—	—	Last command indicator byte
1	—	—	—	—	—		—	Next command indicator byte available
—	x	x	x	x	x	x	x	Presence of application waiting time management factor for each command
—	1	—	—	—	—	—	—	READ BINARY
—	—	1	—	—	—	—	—	UPDATE BINARY
—	—	—	1	—	—	—	—	READ RECORD (S)
—	—	—	—	1	—	—	—	UPDATE RECORD
—	—	—	—	—	x	x	x	RFU

12.1.3.3 Expanded format

In expanded format, an application waiting time management information consists of a concatenation of a command header description DO‘81‘ followed by an application waiting time management factor DO’A0‘. A value field of a command header description DO‘81‘ is composed of a mandatory command header description byte followed by an optional CLA byte, INS byte, P1 byte and P2 byte depending on the value of the command header description byte. Table Amd.2-4 shows the command header description byte (the first byte of the value field of DO‘81‘).