Contact – Terminology removal for Vpp

This Specification Bulletin removes the terminology related to Vpp

Applicability

This Specification Bulletin applies to:

- *EMV Integrated Circuit Card Specifications for Payment Systems, Book 1 - Application Independent ICC to Terminal Interface Requirements, Version 4.3, November 2011.*

Related Documents

- *Specification Bulletin No. 216, First Edition, May 2019, Contact – Terminology removal for Vpp*

Effective Date and Approval Readiness Date

- *For terminals see "Date for application" tables in Specification Changes below.*
- *For cards effective immediately*

Description

ISO/IEC 7816-3:2006 has deprecated the support of external programming power and their related indications in the answer to reset (TB1 and TB2) as well as in the related controls in each transmission protocol. This Specification Bulletin aligns with ISO/IEC 7816-3:2006 and keeps backward compatibility with the current version of *EMV Integrated Circuit Card Specifications for Payment Systems, Book 1 - Application Independent ICC to Terminal Interface Requirements, Version 4.3, November 2011*.

The following changes apply to sections 4.1, 5.2.3, 5.3.3, 5.4.3, 5.5.3, 8.2, 8.3.2, 8.3.3, 8.3.3.2, 8.3.3.6, 9.2.4.1.1 and the Index.

This second edition reflects the change to the TB1 basic response requirement in section 8.3.3.2 (making the presence of TB1 optional in the warm basic ATR) that was introduced in the first edition of this bulletin into Table 15, Table 16, and section 8.3.2.

Specification Changes

In section 4.1 Abbreviations, remove references to VPP and V$_{pp}$

In section 5.2.3 Contact Assignment – Table 2: Remove note 2.
~~² Defined in ISO/IEC 7816-3:1997 as programming voltage (VPP) for class A.~~

Rename section 5.3.3 Programming Voltage (VPP) as Contact C6 and replace the whole section with the following section:

5.3.3   Contact C6

No ICC shall be damaged by an IFD where contact C6 is connected in the IFD to VCC or GND.

In section 5.4.3, Table 9: remove note 3.
~~³ Defined in ISO/IEC 7816-3:1997 as programming voltage (VPP) for class A.~~

Rename section 5.5.3 Programming Voltage (VPP) as Contact C6
5.5.3 ~~Programming Voltage (VPP)~~Contact C6

In section 8.2, amend Table 15 as follows:

Character	Value	Remarks
TS	'3B' or '3F'	Indicates direct or inverse convention
T0	'6x' for a cold ATR '6x' or '4x' for a warm ATR	TB1 and TC1 present; x indicates the number of historical bytes present TB1 optionally present and TC1 present; x indicates the number of historical bytes present
TB1	'00'	~~VPP not required~~The presence of TB1 has been deprecated by ISO/IEC 7816-3:2006, however the value '00' is kept here for backwards compatibility with existing terminals and its presence is mandatory for a basic cold ATR but is optional for a basic warm ATR.
…	…	…

Table 15: Basic ATR for T=0 Only

In section 8.2, amend Table 16 as follows:

Character	Value	Remarks
TS	'3B' or '3F'	Indicates direct or inverse convention
T0	'Ex' for a cold ATR 'Ex' or 'Cx' for a warm ATR	TB1 to TD1 present; x indicates the number of historical bytes present TB1 optionally present and TC1, TD1 present; x indicates the number of historical bytes present
TB1	'00'	~~VPP not required~~The presence of TB1 has been deprecated by ISO/IEC 7816-3:2006, however the value '00' is kept here for backwards compatibility with existing terminals and its presence is mandatory for a basic cold ATR but is optional for a basic warm ATR.
…	…	…

Table 16: Basic ATR for T=1 Only

In section 8.3.2 amend the second paragraph as follows:

Basic responses: If T=0 only is to be used, ~~the~~ a cold basic ATR shall contain T0 = '6x', indicating that characters TB1 and TC1 are present and a warm basic ATR shall contain T0 = '6x' or '4x', indicating that optional character TB1 is present or not (respectively) and character TC1 is present. If T=1 only is to be used, ~~the~~ a cold basic ATR shall contain T0 = 'Ex', indicating that characters TB1 to TD1 are present and a warm basic ATR shall contain T0 = 'Ex' or 'Cx', indicating that optional character TB1 is present or not (respectively) and characters TC1, TD1 are present. The value of 'x' represents the number of optional historical bytes to be returned. [5]

In section 8.3.2 amend Table 18 as follows:

	b8	b7	b6	b5	b4	b3	b2	b1
T=0 only	0	1	1 for a cold ATR 0 or 1 for a warm ATR	0	x	x	x	x
T=1 only	1	1	1 for a cold ATR 0 or 1 for a warm ATR	0	x	x	x	x

Table 18: Basic Response Coding of Character T0

In section 8.3.3, first paragraph, 3rd line, remove the references to I, P, TB1 and TB2 as follows:

TA1 to TC3 convey information that shall be used during exchanges between the terminal and the ICC subsequent to the answer to reset. They indicate the values of the transmission control parameters F, D, ~~I, P,~~ and N, and the IFSC, block waiting time integer (BWI), and character waiting time integer (CWI) applicable to T=1 as defined in ISO/IEC 7816-3. The information contained in TA1, ~~TB1,~~ TC1, <u>and</u> TA2~~, and TB2~~ shall apply to all subsequent exchanges irrespective of the protocol type to be used.

In section 8.3.3.2, remove the following:

~~TB1 conveys the values of PI1 and II where:~~
- ~~PI1 is specified in bits b1 to b5 and is used to determine the value of the programming voltage P required by the ICC. PI1 = 0 indicates that VPP is not connected in the ICC.~~
- ~~II is specified in bits b6 and b7 and is used to determine the maximum programming current, Ipp, required by the ICC. This parameter is not used if PI1 = 0.~~
- ~~Bit 8 is not used and shall be set to logic zero.~~

~~*Basic response:* The ATR shall contain TB1 = '00', indicating that VPP is not connected in the ICC.~~

~~*Terminal behaviour:* In response to a cold reset, the terminal shall accept only an ATR containing TB1 = '00'. In response to a warm reset the terminal shall accept an ATR containing TB1 of any value (provided that b6 of T0 is set to 1) or not containing TB1 (provided that b6 of T0 is set to 0) and shall continue the card session as though TB1 = '00' had been returned. Vpp shall never be generated.~~

~~**Note:** Existing terminals may maintain Vpp in the idle state (see section 5.4.3).~~

and replace with:

<u>The usage of TB1 has been deprecated by ISO/IEC 7816-3:2006 but the value '00' is kept in this version of the specification for backwards compatibility with existing terminals.</u>

<u>If the cold ATR does not contain TB1 = '00' for proprietary reasons the warm ATR shall be a basic ATR, otherwise the ICC is not compliant with this specification.</u>

<u>**Note:** A cold ATR without TB1 = '00' will cause default communication speed with terminals compliant to EMV 4.3 and earlier versions by enforcing them to initiate the warm basic ATR (default, D = 1).</u>

Basic response: The cold ATR shall contain TB1 = '00'. The warm ATR may optionally contain TB1 = '00'.

Terminal behaviour: In response to a cold reset or a warm reset, the terminal shall accept an ATR containing TB1 with any value or not containing TB1 and continue the card session. No signals shall ever be generated on contact C6 except as described in section 5.5.3 existing class A terminals may maintain C6 at a potential between GND and 1.05 x V_{CC} throughout the card session.

Date for application:

From January 2022 to January 2026	Approved terminals due for renewal	may reject a cold ATR which does not contain TB1 = '00'
From January 2026	Approved terminals due for renewal	shall implement the requirements defined in the terminal behaviour above.
From January 2022	New terminal approval	shall implement the requirements defined in the terminal behaviour above.

In section 8.3.3.6, remove the first paragraph

~~TB2 conveys PI2, which is used to determine the value of programming voltage P required by the ICC. When present it overrides the value indicated by PI1 returned in TB1.~~

~~*Basic response:* The ATR shall not contain TB2.~~

~~*Terminal behaviour:* The terminal shall reject an ATR containing TB2.~~

~~**Note:** Existing terminals may maintain V_{PP} in the idle state (see section 5.4.3).~~

and replace with the following:

The usage of TB2 has been deprecated by ISO/IEC 7816-3:2006.

An ATR containing TB2 is NOT compliant with this specification.

Basic response: The ATR shall not contain TB2.

Terminal behaviour: The terminal shall accept an ATR containing TB2 and shall ignore any value of TB2 that is returned and continue the card session.

Date for application:

From January 2022 to January 2026	Approved terminals due for renewal	may reject an ATR containing TB2
From January 2026	Approved terminals due for renewal	shall implement the requirements defined in the terminal behaviour above.
From January 2022	New terminal approval	shall implement the requirements defined in the terminal behaviour above.

In section 9.2.4.1.1, 1st bullet: remove the wording 'and to provide VPP state control'

- Node address (NAD) to identify source and intended destination of the block ~~and to provide VPP state control~~

and in the paragraph below *Node Address*, remove note 7:

~~[7] Defined in ISO/IEC 7816-3:1997 as VPP control for class A. A value of 0 indicates that VPP shall be maintained in the idle state.~~

and in Table 31, remove '4 = VPP error [8]' as well as note 8:

b8	1
b7	1
b6	0 = Request 1 = Response
b5–b1	0 = Resynchronisation request 1 = Information field size request 2 = Abort request 3 = Extension of BWT request ~~4 = VPP error [8]~~ Other values RFU

Table 31: Coding of the PCB of a S-block

~~[8] Not used by ICCs and terminals conforming to this specification.~~

Update the Index as follows:

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