

## **EMV Contact Specifications - Increased Data Communication Speed**

**This General Bulletin describes the future changes to the EMV Contact Specifications to increase the data communication speed, and to give the introduction schedule.**

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### **Applicability**

This General Bulletin applies to:

- *EMV 4.3 Book 1 - Application Independent ICC to Terminal Interface Requirements, November 2011*

### **Related Documents**

- *Draft General Bulletin No. 48, First Edition, September 2017, EMV Contact Specifications - Increased Data Communication Speed*
  - *INTERNATIONAL STANDARD, ISO/IEC 7816-3, Identification cards — Integrated circuit cards — Part 3: Cards with contacts — Electrical interface and transmission protocols, Third edition, 2006-11-01*
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### **Description**

EMVCo plans to increase the data communication speed between contact cards and terminals in order to decrease the overall transaction time. In current EMV specifications, the speed of the data communications allows a range from default (equivalent to 9600 Baud at a clock frequency of 3.57 MHz) to quadruple speed (equivalent to 38400 Baud at a clock frequency of 3.57 MHz). Supporting the communication speed range up to quadruple speed is a requirement for terminals and is tested. It is currently optional for cards to support communication speeds above the default speed. In order to reduce transaction time, EMVCo will enforce the changes outlined below, to ensure that maximum data communication speed is guaranteed in all transactions with terminals supporting version 4.0 and above when the card operates in specific mode, and all terminals that support PPS (Protocol and Parameters Selection) when the card operates in negotiable mode.

EMVCo will also introduce PPS into the EMV specification and other time related enhancements by the publication of specification bulletins. The details of these improvements are beyond the scope of this bulletin.

**For terminals:** Terminals subject to new approval shall use a clock signal frequency (CLK) approaching the maximum of 5 MHz starting January 2022.

New requirements for the terminal clock signal frequencies (CLK) are proposed in DSB219 and are as below and are subject to change during the process of that Draft Specification Bulletin becoming the final published Specification Bulletin SB219:

<b>Minimum</b>	<b>Maximum</b>	<b>Unit</b>	<b>Date for application</b>
3.1	5	MHz	Approved terminals due for renewal: from January 2022 to end December 2025
4.7	5	MHz	Approved terminals due for renewal: from January 2026
4.7	5	MHz	New terminal approval: from January 2022

New requirements for the terminal due to ATR parameter handling changes proposed in DSB218 and subject to change during the process of that Draft Specification Bulletin becoming the final published Specification Bulletin SB218:

<b>Requirements</b>	<b>Date for application</b>
The changes (new requirements) in DSB/SB218	Approved terminals due for renewal: from January 2026
EMV Book 1 version 4.3	New terminal approvals: until end December 2021
The changes (new requirements) in DSB/SB218	New terminal approvals: from January 2022

**For cards:** New requirements for the ATR parameters are proposed in DSB218 and are as below:

<b>Requirements</b>	<b>Date for application</b>
The changes (new requirements) in DSB/SB218	Approved cards due for renewal: from September 2021
EMV Book 1 version 4.3	New card approvals: until end August 2020
The changes (new requirements) in DSB/SB218	New card approvals: from September 2020

Cards shall implement either:

- A cold ATR with TA1 in specific mode as below:

If TA2 is returned with b5 = 0 (specific mode, parameters defined by the interface bytes), TA1 shall be coded with '13' indicating the values of F = 372 and D = 4, respectively. In such case the warm ATR shall be a basic ATR.

or:

- A cold ATR with TA1 in negotiable mode as below:

If TA2 is not returned (negotiable mode), TA1 shall be coded with a most significant nibble (m.s. nibble) different from 0 and therefore indicate a maximum frequency of at least 5 MHz. TA1 shall be coded with a least significant nibble (l.s. nibble) greater than or equal to 3 and therefore indicating a value of D greater than or equal to 4. In such case the warm ATR shall be a basic ATR.

The basic response ATR parameters are modified as indicated below (if present):

- TC1= '00' or 'FF'
- TA3 = '7C' to 'FE'
- TB3 least significant nibble (l.s. nibble) 0 or 1

For the details please see the relevant upcoming DSB/SB218 and DSB/SB219.

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