# *EFT/POS 2000*

# Minimal Hardware Requirements for Terminal Hardware Certication

**Version 8.1.0**

**December 31, 2022**

# Release Notes

| Date | Version | Description | Author |
|---|---|---|---|
| April 6, 2004 | 5.1 | Card capture for unattended terminals was changed from mandatory to optional. | Martin Osley |
| October 31, 2004 | 5.2 | Combined insert card reader for unattended terminals allowed. | Martin Osley |
| December 8, 2006 | 5.3 | Reduction from 4 to 2 SAM slots | Martin Osley |
| October 31, 2007 | 5.4 | PIN Pad exceptions and Prove of Telecom Compatibility removed | Martin Osley |
| October 31, 2008 | 5.5 | Acceptance of PCI PED reports for security evaluation, requirements for combined card readers in vending machine precised | Martin Osley |
| October 31, 2009 | 5.6 | Card locking requirement removed, privacy shield mandatory, contactless payment requirements added and PCI PED report required for sec.acceptance | Martin Osley |
| October 31, 2010 | 5.7 | PIN Pads with alpha numeric keys allowed | Martin Osley |
| December 30, 2011 | 5.8 | PCI PED replaced by PCI-PTS POI. Contactless requirements removed, it is not part of the ep2 hardware certification | Martin Osley |
| December 10, 2012 | 6.0.0 | SAM slot requirement removed, enhanced display and printer requirement added | Martin Osley |
| November 4, 2013 | 6.1.0 | Terminal Type precised | Martin Osley |
| December 12, 2014 | 6.2.0 | Security Evaluation Report updated | Martin Osley |
| November 2, 2015 | 6.3.0 | Terminal classes added incl. rework, electronic Purse requirement removed | Martin Osley |
| December 8, 2016 | 7.0.0 | Terminal class UAT-NON-PED-ALL | Martin Osley |
| December 22, 2017 | 7.1.0 | CTLS Kernel 7 (QuickPass) mandatory | Martin Osley |
| February 1, 2019 | 7.2.0 | HW-certification reduced to a document validation, thus several requirements removed. | Martin Osley |
| December 9, 2019 | 7.3.0 | No tactile for PIN on glass PIN Pads | Martin Osley |
| December 18, 2020 | 7.4.0 | Contactless reader usage for other apps | Martin Osley |
| December 31, 2022 | 8.1.0 | No changes | Martin Osley |

# 1 Introduction

The Technical Cooperation ep2 defines herein the minimal hardware requirements for a terminal used for electronic payment.

The requirements are based on the current specification of EMV. The current EMV specification and all referenced documents of it are mandatory elements of the *ep2* requirements. This document defines additional requirements for an EMV compliant terminal to be used in Switzerland.

If incompatibilities are found with respect to existing specifications, the *ep2* requirements prevail.

Additionally this document summarises the test criteria, such as physical characteristics or conformity to international standards, which have to be fulfilled by a terminal in order to qualify for the *ep2* hardware certificate.

The document will be used by the *ep2* Certification Authority for the terminal hardware certification (document verification).

For questions and comments, please contact the *ep2* certification authority.

For all requirements in which the terminal does not fulfill the minimal hardware requirements a 'waiver request' letter must be provided by the terminal suppliers to the ep2 certification authority. The 'waiver request' letter must be accepted by all members of the ep2 working group (Technical Workgroup ep2).

## 1.1 Scope

### Validity

The hardware minimal requirements are valid for new eft/pos terminals or new hardware components for existing terminals to be approved for Switzerland. This version replaces all prior versions of *ep2* hardware requirements.

### Exclusion of Warranty

It is the sole responsibility of the terminal manufacturer and/or supplier to ensure correct and complete functionality of the terminal. Conformance with these *ep2* requirements does not ensure conformance with existing functional specifications or quality requirements. Changes of international standards and specifications and changes of legal national rules also remain within the risk and responsibility of the terminal supplier.

## 1.2 ep2 Terminal Classes

For each ep2 terminal class specific ep2 requirement and certification conditions are applied. A high level overview is shown in table below.

| Terminal Class | Meaning |
|---|---|
| **AT-PED-ALL** | Attended Terminal with PIN Entry Device that supports the complete ep2 functionality (all technologies) |
| **AT-PED-CTLS** | Attended Terminal with PIN Entry Device that supports only contactless chip technology |
| **UAT-PED-ALL** | Unattended Terminal with PIN Entry Device that supports all technologies (contactless and contact chip and magstripe) |
| **UAT-PED-CTLS** | Unattended Terminal with PIN Entry Device that supports only contactless chip technologies |
| **UAT-NON-PED-ALL** | Unattended Terminal without PIN Entry Device that supports all technologies (contactless and contact chip and magstripe) |
| **UAT-NON-PED-CTLS** | Unattended Terminal without PIN Entry Device that supports only contactless chip technologies. |

*Table 1 ep2 Terminal Classes*

| Terminal Class | Hardware | | | Reader | | | | Comm. | | CVM-Methods | | | | | # Trx Types |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Display | Printer | PIN Pad | CTLS | ICR | MSR | Manual Data Entry[2)] | FE, MI, BE, SI | online comm. | Offline PIN | Online PIN | Signature | No CVM | On Device/Mob. | |
| **AT-PED-ALL** | M | M | M | M | M | M | M | M | M | M | M | M | M | M | 22 |
| **AT-PED-CTLS** | M | M | M | M | - | - | - | M | M | - | M | M | M | M | 14 |
| **UAT-PED-ALL** | M | M | M | M | M | M | O | M | M | M | M | - | M | M | 16 |
| **UAT-PED-CTLS** | M | M | M | M | - | - | - | M | M | - | M | - | M | M | 12 |
| **UAT-NON-PED-ALL** | O | O | - | M | M | M | O | M | M | - | - | - | M | M | 12 |
| **UAT-NON-PED-CTLS[1)]** | O | O | - | M | - | - | - | M | M | - | - | - | M | M | 11 |

*Table 2 ep2 Terminal Classes and its capabilities*

**1)** For certification, this class is divided in 4 more subclasses: with printer & display, no printer, no display and no printer & display.

2) Manual data entry includes QRC on mobile (POSD scans a QRC), thus applicable on unattended terminals

Explanation:

AT = Attended Terminal
UAT = Unattended Terminal
PED = PIN Entry Device
CTLS = Contactless card reader (PCD)
ICR = Contact chip card reader (ICC contact reader)
MSR = Magnetic stripe reader

M = Mandatory
O = Optional
- = not applicable

# 2 Required Documents

## 2.1 Standards

For certification by the ep2 certification authority, the following documents shall be brought by:

a. Prove of Electromagnetic Compatibility
b. Prove of CE Certificate of Conformity for all modules

The ep2 certification authority reserves the right to ask for additional documents.

This requirement applies to all terminal classes.

## 2.2 EMV

The terminal shall fulfil all hardware-related requirements, which have been defined in EMV. This also includes all specifications and standards, which are referenced in EMV.

a. Compliance with EMV standard fulfilled
b. ‘EMVCo Letter of Approval Contact Terminal Level 1’ certificate only for terminal classes ’AT-PED-ALL’, ’UAT-PED-ALL’ and ’UAT-NON-PED-ALL’.
c. ep2 supports only <Terminal Type> 22 (attended) and 25 (unattended). For all other <Terminal Type> a waiver must be requested.
d. EMVCo Letter of Approval Contactless Terminal Level 1 for Proximity Coupling Device (PCD), applies to all terminal classes.

## 2.3 PCI-PTS Report

For all terminals, a security evaluation shall be performed by a PCI-PTS POI recognized laboratory. The resulting most recent PCI-PTS-POI (prior PCI PED) report shall be provided.

This requirement applies to all terminal classes.

## 2.4 SRED Terminal

A terminal may have a SRED (Secure Read and Exchange of Data) approval.

SRED terminals shall perform the magnetic stripe application selection in the security module.

# 3 PIN Pad

The PIN Pad requirements do not apply to terminal class 'UAT-NON-PED-ALL' and 'UAT-NON-PED-CTLS'.

## 3.1 Requirement for PIN Pad

A terminal shall have a PIN pad for PIN entry.

For attended terminals a separate key pad or ECR may be present for the entry of transaction-related data and its functional operation. If no key pad is present (monobloc), the PIN pad shall fulfil the key pad requirements and the same key pad shall be used for both PIN entry and entry of other transaction-related data.

## 3.2 Operating of the PIN Pad

The cardholder shall be able to operate the PIN pad.

## 3.3 PIN Pad Keys

The PIN pad shall support all of the following keys:

- Numeric: '0' - '9'
- Command: Cancel, Enter, Clear

Additional keys may be present.

## 3.4 Reserved Colours for Command Keys

The following colours shall be used for the command keys, if present, either for the lettering or for the keys themselves:

| Command Key | Reserved Colour |
|---|---|
| Enter | Green |
| Cancel | Red |
| Clear | Yellow |

*Table 3 PIN Pad Keys*

## 3.5 Position of Command Keys

When the command keys are horizontally arranged, the Cancel and Enter keys should be located on the bottom row of the key pad, and Cancel should be the furthest key left and Enter should be the furthest key right. When the command keys are vertically arranged, Cancel should be the uppermost key and Enter the lowest key.

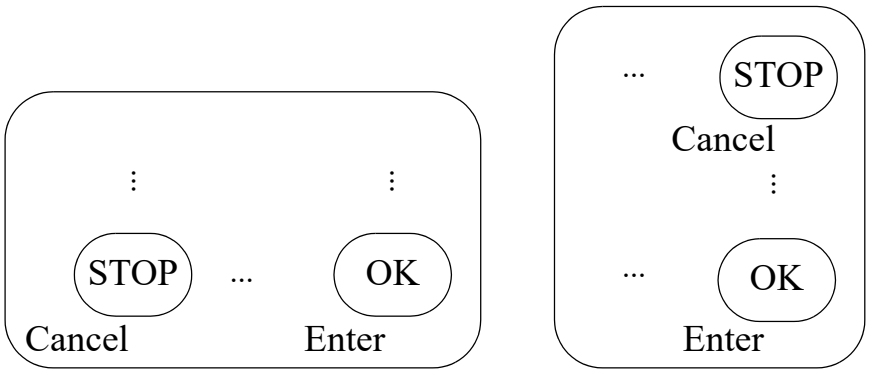


*Figure 1 Position of Command Keys*

## 3.6 Key Labelling

- The command keys should be labelled, if present, as shown below (recommended):
  - Enter: ‘Ok’ or ‘OK’
  - Cancel: ‘Stop’ or ‘STOP’
  - Clear: ‘Corr’ or ‘CORR’

## 3.7 PIN Pad Numeric Layout

The PIN pad numeric layout shall comply with ISO 9564 as shown below.

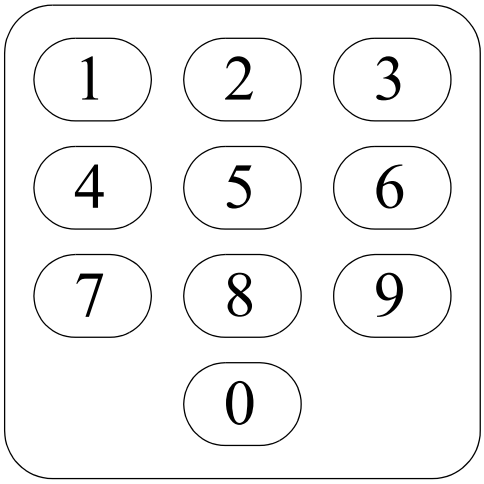


*Figure 2 PIN Pad Numeric Layout*

The labelling of the PIN pad numeric keys with letters is allowed (no specific standard for the letter labelling is required).

## 3.8 Tactile Identifier for Key ‘5’

The key for ‘5’ shall have a tactile identifier (for example, a notch or raised dot) to indicate to those whose sight is impaired that this is the central key from which all others may be deduced.

This requirement is optional for PIN on glass PIN pads and for terminal classes ’AT-PED-ALL’ and ’AT-PED-CTLS’.

# 4 Key Pad

## 4.1 Requirement for Key Pad

An attended terminal shall have a key pad for the entry of transaction-related data and its functional operation. The key pad may be separated (as AEM, ECR) or integrated (monobloc).

For unattended terminals a key pad is optional (for the operator).

## 4.2 Touch Screen

A touch screen is considered to be a key pad.

## 4.3 Types of Keys

The key pad should support one or more types of keys:

- Numeric: ‘0’ - ‘9’
- Alphabetic and special: For example, ‘A’ - ‘Z’, ‘*’, ‘#’,
- Command: Cancel, Enter, Clear
- Function: Application-dependent keys, such as a selection key, F1, F2, Backspace, Escape

A key pad may consist of a single key, such as a function key that could be a button on a vending machine to indicate selection of an application or to indicate that a receipt is to be printed.

# 5 Display

## 5.1 Requirement for Display

An attended terminal of class ’AT-PED-ALL’ and ’AT-PED-CTLS’ shall have a display for the attendant and for the cardholder.

- The display may be combined (monobloc) or may be separated (AEM or ECR).
- It is recommended that an attended terminal has two separate displays, in order that different information may be displayed and different languages may be used for the attendant and cardholder.

An unattended terminal of class ’UAT-PED-ALL’ or ’UAT-PED-CTLS’ shall have a cardholder display.

An unattended terminal of class ’UAT-NON-PED-ALL’ or ’UAT-NON-PED-CTLS’ may have a cardholder display.

## 5.2 Display Size

Cardholder Display (if present)

- At a minimum the message display shall be capable of displaying two lines of 16 characters each. The two lines shall be simultaneously displayed.

- Enhanced terminal displays shall be capable of displaying four lines of at least 20 characters. The four lines shall be simultaneously displayed (four lines, each line allows 20 characters or more).

Attendant Display (if present)

- At a minimum the message display shall be capable of displaying two lines of 20 characters each. The two lines shall be simultaneously displayed.
- Enhanced terminal displays shall be capable of displaying four lines of at least 20 characters. The four lines shall be simultaneously displayed (four lines, each line allows 20 characters or more).

### 5.3 Graphic Display

To facilitate the display of different languages used in different geographical areas, the terminal should support a graphic display.

# 6 Clock

The clock requirement applies to all terminal classes.

### 6.1 Requirement for Clock

Terminals shall have a clock with the local date and time.

### 6.2 Independence of External Current

The clock shall be able to run without external current during at least 90 days.

# 7 Printer

The printer requirement applies to all terminal classes, except for ’UAT-NON-PED-ALL’ or ’UAT-NON-PED-CTLS’ it is optional.

Transaction receipts can also be transferred electronically (elect.) to the cardholder (e.g. by e-mail). If all receipts can be transferred electronically to the cardholder, the terminal can be certified and operated without printer (applies to all terminal classes).

## 7.1 Requirement for Printer

A printer shall be present for receipt printing. For terminal class'UAT-NON-PED-ALL' or 'UAT-NON-PED-CTLS' it is optional.

The printer may be integrated into the terminal or an external printer may be used, e.g. cash register printer.

## 7.2 Printer Size

The printer (if present) shall be able to print at least 24 alphanumeric characters per line.

# 8 Card Reader

## 8.1 Contactless Card Reader

A contactless card reader (proximity coupling device - PCD) is mandatory for all terminal classes.

The contactless card reader may be used for other non ep2 applications (e.g. OCPP, etc.) too.

## 8.2 Accessability of Card Reader

The card reader shall be accessible for the cardholder.

Terminal classes 'AT-PED-ALL', 'UAT-PED-ALL' and 'UAT-NON-PED-ALL' shall ensure that there is no confusion about the technology the cardholder wants to use (this could be magnetic stripe, contact chip or contactless). If the cardholder wants to conduct a contact chip transaction with a *dual interface chip card*, the contact reader should be sufficiently remote from the *PCD* to ensure that the PCD does not detect the presence of the card. The same applies for magnetic stripe readers.

## 8.3 Contact Card Reader

An ICC reader is mandatory only for terminal classes 'AT-PED-ALL', 'UAT-PED-ALL' and 'UAT-NON-PED-ALL'.

A magnetic stripe reader is mandatory only for terminal classes 'AT-PED-ALL', 'UAT-PED-ALL' and 'UAT-NON-PED-ALL'.

### 8.3.1 Motorized Reader

Terminals of terminal classes ’AT-PED-ALL’, ’UAT-PED-ALL’ or ’UAT-NON-PED-ALL’ may have a motorized reader.

### 8.3.2 Hybrid Reader

- For terminals of terminal classes ’AT-PED-ALL’, ’UAT-PED-ALL’ or ’UAT-NON-PED-ALL’, it is recommended to use a hybrid reader, i.e. a combined chip card and magnetic stripe reader.

### 8.3.3 Support for Track 2

For terminal classes ’AT-PED-ALL’, ’UAT-PED-ALL’ and ’UAT-NON-PED-ALL’the magnetic stripe reader shall be able to read the full track 2.

### 8.3.4 Reading Direction of Magnetic Stripe

- Attended terminals of terminal class ’AT-PED-ALL’ equipped with a hybrid reader shall read the magnetic stripe while putting in the card.
- Unattended terminals of terminal class ’UAT-PED-ALL’ or ’UAT-NON-PED-ALL’ equipped with a hybrid insert card reader shall read the magnetic stripe either by card insertion or by card insertion and removal (further details see [ep2cat]).

### 8.3.5 Card Capture

Unattended terminals of class ’UAT-PED-ALL’ or ’UAT-NON-PED-ALL’ may have a card capture mechanism (for left or stolen cards).

If card capture mechanism is supported, captured cards shall be held in a secure housing of the terminal. The secure housing shall be able to store at least 15 cards.

### 8.3.6 Shutter

For unattended terminals of class ’UAT-PED-ALL’ or ’UAT-NON-PED-ALL’ it is recommended to protect the card slot with a shutter.

### 8.3.7 Accessibility of Card after Power Failure

For terminal classes ’AT-PED-ALL’, ’UAT-PED-ALL’ and ’UAT-NON-PED-ALL’, one of the following alternatives for handling power failure during the transaction shall be supported:

a. It shall be possible for the cardholder to access the card at the end of a transaction under all circumstances, even if power fails.

b. If the card is not accessible after power failure, the card shall be captured after power on and held in a secure housing.

# 9 Buzzer

## 9.1 Requirement for Buzzer

For all terminal classes a buzzer is mandatory. The buzzer shall be able to produce a clearly audible sound (40 - 60 decibels).

# 10 Communication

## 10.1 Requirement for Communication Component

All terminal classes shall be equipped with a communication facility.

**Exceptions:**

- Off-line only terminals of class ’UAT-NON-PED-CTLS’ or ’UAT-NON-PED-ALL’ for debit/credit applications are subject to acquirer approval.

# 11 Persistence of Program and Data Storage

The contents of the program and data storage including cryptographic keys and initialization data shall be maintained without external current supply for at least 90 days.

# 12 Checklist for Terminal Class 'AT-PED-ALL'

| Test Cases | | applic. | approval |
|---|---|---|---|
| | ***ep2* Terminal Model:** | | |
| **2 Required Documents**<br>**2.1 Standards** | | | |
| | [2.1a] Electromagnetic Compatibility certificate provided | m | |
| | [2.1b] CE Certificate of Conformity provided | m | |
| **2.2 EMV** | | | |
| | [2.2a] Compliance with EMV standard fulfilled | m | |
| | [2.2b] EMV Type Approval Level 1 contact | m | |
| | [2.2c] EMV Terminal Type is 22 | m | |
| | [2.2d] EMV Type Approval Level 1 contactless | m | |
| **2.3 PCI-PTS Report** | | | |
| | [2.3] Most recent PCI-PTS POI report provided | m | |
| **2.4 SRED Terminal** | | | |
| | [2.4] SRED approved terminal | o | |
| **3 PIN Pad**<br>**3.1 Requirement for PIN Pad** | | | |
| | [3.1a] PIN pad present | m | |
| | [3.1b] Separate PIN pad or monobloc (sep. or mono) | | |
| **3.2 Operating of the PIN Pad** | | | |
| | [3.2] Cardholder can operate PIN pad | m | |
| **3.3 PIN Pad Keys** | | | |
| | [3.3a] Mandatory PIN pad keys present | m | |
| | [3.3b] Additional PIN pad keys present | o | |
| **3.4 Reserved Colours for Command Keys** | | | |
| | [3.4] Colours mapping correct | m | |
| **3.5 Position of Command Keys** | | | |
| | [3.5] Position of command keys correct | m | |
| **3.6 Key Labelling** | | | |
| | [3.6] Key labelling of command keys is correct | r | |

*Table 4 Checklist for Terminal Class 'AT-PED-ALL'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| **3.7 PIN Pad Numeric Layout** | | | |
| | [3.7] PIN pad numeric layout is correct | m | |
| **3.8 Tactile Identifier for Key '5'** | | | |
| | [3.8] Tactile Identifier present | o | |
| **4 Key Pad**<br>**4.1 Requirement for Key Pad** | | | |
| | [4.1a] Key pad present | m | |
| | [4.1b] Separate key pad (AEM, ECR) or monobloc (mono) | | |
| **4.2 Touch Screen** | | | |
| | [4.2] Touch Screen present | o | |
| **4.3 Types of Keys** | | | |
| | [4.3] Minimal key pad keys | r | |
| **5 Display**<br>**5.1 Requirement for Display** | | | |
| | [5.1a] Cardholder display present | m | |
| | [5.1b] Attendant display present | m | |
| | [5.1c] Separate attendant display (AEM, ECR) or combined display (monobloc)) | | |
| **5.2 Display Size** | | | |
| | [5.2a] Minimal cardholder display size fulfilled | m | |
| | [5.2b] Minimal attendant display size fulfilled | m | |
| **5.3 Graphic Display** | | | |
| | [5.3] Graphic display present | r | |
| **6 Clock**<br>**6.1 Requirement for Clock** | | | |
| | [6.1] Clock present | m | |
| **6.2 Independence of External Current** | | | |
| | [6.2] Independence of external current fulfilled | m | |
| **7 Printer**<br>**7.1 Requirement for Printer** | | | |
| | [7.1a] Printer present | m | |
| | [7.1b] Integrated or external printer, e.g. cash register (int. or ext. or elect.) | | |

*Table 4 Checklist for Terminal Class 'AT-PED-ALL'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| **7.2 Printer Size** | | | |
| | [7.2] Minimal printer size fulfilled | m | |
| **8 Card Reader**<br>**8.1 Contactless Card Reader** | | | |
| | [8.1] Contactless (PCD) reader present | m | |
| **8.2 Accessability of Card Reader** | | | |
| | [8.2] Accessability of the card reader | m | |
| **8.3 Contact Card Reader** | | | |
| | [8.3a] ICC reader present | m | |
| | [8.3b] Magnetic stripe reader present | m | |
| **8.3.1 Motorized Reader** | | | |
| | [8.3.1] Motorized reader present | r | |
| **8.3.2 Hybrid Reader** | | | |
| | [8.3.2] Hybrid reader present | r | |
| **8.3.3 Support for Track 2** | | | |
| | [8.3.3] Full track 2 can be read | m | |
| **8.3.4 Reading Direction of Magnetic Stripe** | | | |
| | [8.3.4a] Reading direction of magnetic stripe correct | m | |
| **8.3.7 Accessibility of Card after Power Failure** | | | |
| | [8.3.7a] Handling of card accessibility after power failure correct | m | |
| | [8.3.7b] Card accessibility power failure option: card accessible or card capture (access. or capt.) | | |
| **9 Buzzer**<br>**9.1 Requirement for Buzzer** | | | |
| | [9.1] Buzzer present | m | |
| **10 Communication**<br>**10.1 Requirement for Communication Component** | | | |
| | [10.1a] Communication component present | m | |
| | [10.1b] Communication component options (Ethernet, Wi-Fi, 3G/4G/5G/LTE, USB etc.) | | |
| **11 Persistence of Program and Data Storage** | | | |
| | [11] Persistence of Program and Data Storage including cryptographic keys and init-data fulfilled | m | |

*Table 4 Checklist for Terminal Class 'AT-PED-ALL'*

Legend:

m: mandatory
r: recommended
o: optional

# 13 Checklist for Terminal Class 'AT-PED-CTLS'

| Test Cases | | applic. | approval |
|---|---|---|---|
| | ***ep2* Terminal Model:** | | |
| **2 Required Documents**<br>**2.1 Standards** | | | |
| | [2.1a] Electromagnetic Compatibility certificate provided | m | |
| | [2.1b] CE Certificate of Conformity provided | m | |
| **2.2 EMV** | | | |
| | [2.2a] Compliance with EMV standard fulfilled | m | |
| | [2.2c] EMV Terminal Type is 22 | m | |
| | [2.2d] EMV Type Approval Level 1 contactless | m | |
| **2.3 PCI-PTS Report** | | | |
| | [2.3] Most recent PCI-PTS POI report provided | m | |
| **2.4 SRED Terminal** | | | |
| | [2.4] SRED approved terminal | o | |
| **3 PIN Pad**<br>**3.1 Requirement for PIN Pad** | | | |
| | [3.1a] PIN pad present | m | |
| | [3.1b] Separate PIN pad or monobloc (sep. or mono) | | |
| **3.2 Operating of the PIN Pad** | | | |
| | [3.2] Cardholder can operate PIN pad | m | |
| **3.3 PIN Pad Keys** | | | |
| | [3.3a] Mandatory PIN pad keys present | m | |
| | [3.3b] Additional PIN pad keys present | o | |
| **3.4 Reserved Colours for Command Keys** | | | |
| | [3.4] Colours mapping correct | m | |
| **3.5 Position of Command Keys** | | | |
| | [3.5] Position of command keys correct | m | |
| **3.6 Key Labelling** | | | |
| | [3.6] Key labelling of command keys is correct | r | |
| **3.7 PIN Pad Numeric Layout** | | | |

*Table 5 Checklist for Terminal Class 'AT-PED-CTLS'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| | [3.7] PIN pad numeric layout is correct | m | |
| **3.8 Tactile Identifier for Key '5'** | | | |
| | [3.8a] Tactile Identifier present | o | |
| **4 Key Pad**<br>**4.1 Requirement for Key Pad** | | | |
| | [4.1a] Key pad present | m | |
| | [4.1b] Separate key pad (AEM, ECR) or monobloc (mono) | | |
| **4.2 Touch Screen** | | | |
| | [4.2] Touch Screen present | o | |
| **4.3 Types of Keys** | | | |
| | [4.3] Minimal key pad keys | r | |
| **5 Display**<br>**5.1 Requirement for Display** | | | |
| | [5.1a] Cardholder display present | m | |
| | [5.1b] Attendant display present | m | |
| | [5.1c] Separate attendant display (AEM, ECR) or combined display (monobloc) | | |
| **5.2 Display Size** | | | |
| | [5.2a] Minimal cardholder display size fulfilled | m | |
| | [5.2b] Minimal attendant display size fulfilled | m | |
| **5.3 Graphic Display** | | | |
| | [5.3] Graphic display present | r | |
| **6 Clock**<br>**6.1 Requirement for Clock** | | | |
| | [6.1] Clock present | m | |
| **6.2 Independence of External Current** | | | |
| | [6.2] Independence of external current fulfilled | m | |
| **7 Printer**<br>**7.1 Requirement for Printer** | | | |
| | [7.1a] Printer present | m | |
| | [7.1b] Integrated or external printer, e.g. cash register (int. or ext. or elect.) | | |
| **7.2 Printer Size** | | | |

*Table 5 Checklist for Terminal Class 'AT-PED-CTLS'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| | [7.2] Minimal printer size fulfilled | m | |
| **8 Card Reader**<br>**8.1 Contactless Card Reader** | | | |
| | [8.1] Contactless (PCD) reader present | m | |
| **8.2 Accessability of Card Reader** | | | |
| | [8.2] Accessability of the card reader | m | |
| **9 Buzzer**<br>**9.1 Requirement for Buzzer** | | | |
| | [9.1] Buzzer present | m | |
| **10 Communication**<br>**10.1 Requirement for Communication Component** | | | |
| | [10.1a] Communication component present | m | |
| | [10.1b] Communication component options (Ethernet, Wi-Fi, 3G/4G/5G/LTE, USB etc.) | | |
| **11 Persistence of Program and Data Storage** | | | |
| | [11] Persistence of Program and Data Storage including cryptographic keys and init-data fulfilled | m | |

*Table 5 Checklist for Terminal Class 'AT-PED-CTLS'*

Legend:

m: mandatory
r: recommended
o: optional

# 14 Checklist for Terminal Class 'UAT-PED-ALL'

| Test Cases | | applic. | approval |
|---|---|---|---|
| | ***ep2* Terminal Model:** | | |
| **2 Required Documents**<br>**2.1 Standards** | | | |
| | [2.1a] Electromagnetic Compatibility certificate provided | m | |
| | [2.1b] CE Certificate of Conformity provided | m | |
| **2.2 EMV** | | | |
| | [2.2a] Compliance with EMV standard fulfilled | m | |
| | [2.2b] EMV Type Approval Level 1 contact | m | |
| | [2.2c] EMV Terminal Type is 25 | m | |
| | [2.2d] EMV Type Approval Level 1 contactless | m | |
| **2.3 PCI-PTS Report** | | | |
| | [2.3] Most recent PCI-PTS POI report provided | m | |
| **2.4 SRED Terminal** | | | |
| | [2.4] SRED approved terminal | o | |
| **3 PIN Pad**<br>**3.1 Requirement for PIN Pad** | | | |
| | [3.1a] PIN pad present | m | |
| **3.2 Operating of the PIN Pad** | | | |
| | [3.2] Cardholder can operate PIN pad | m | |
| **3.3 PIN Pad Keys** | | | |
| | [3.3a] Mandatory PIN pad keys present | m | |
| | [3.3b] Additional PIN pad keys present | o | |
| **3.4 Reserved Colours for Command Keys** | | | |
| | [3.4] Colours mapping correct | m | |
| **3.5 Position of Command Keys** | | | |
| | [3.5] Position of command keys correct | m | |
| **3.6 Key Labelling** | | | |
| | [3.6] Key labelling of command keys is correct | r | |
| **3.7 PIN Pad Numeric Layout** | | | |

*Table 6 Checklist for Terminal Class 'UAT-PED-ALL'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| | [3.7] PIN pad numeric layout is correct | m | |
| **3.8 Tactile Identifier for Key '5'** | | | |
| | [3.8a] Tactile Identifier present | m/o | |
| **4 Key Pad**<br>**4.1 Requirement for Key Pad** | | | |
| | [4.1a] Key pad present | o | |
| **4.2 Touch Screen** | | | |
| | [4.2] Touch Screen present | o | |
| **4.3 Types of Keys** | | | |
| | [4.3] Minimal key pad keys | r | |
| **5 Display**<br>**5.1 Requirement for Display** | | | |
| | [5.1a] Cardholder display present | m | |
| **5.2 Display Size** | | | |
| | [5.2a] Minimal cardholder display size fulfilled | m | |
| **5.3 Graphic Display** | | | |
| | [5.3] Graphic display present | r | |
| **6 Clock**<br>**6.1 Requirement for Clock** | | | |
| | [6.1] Clock present | m | |
| **6.2 Independence of External Current** | | | |
| | [6.2] Independence of external current fulfilled | m | |
| **7 Printer**<br>**7.1 Requirement for Printer** | | | |
| | [7.1a] Printer present | m | |
| | [7.1b] Integrated or external printer, e.g. vending machine application (int. or ext. or elect.) | | |
| **7.2 Printer Size** | | | |
| | [7.2] Minimal printer size fulfilled | m | |
| **8 Card Reader**<br>**8.1 Contactless Card Reader** | | | |
| | [8.1] Contactless (PCD) reader present | m | |
| **8.2 Accessability of Card Reader** | | | |

*Table 6 Checklist for Terminal Class 'UAT-PED-ALL'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| | [8.2] Accessability of the card reader | m | |
| **8.3 Contact Card Reader** | | | |
| | [8.3a] ICC reader present | m | |
| | [8.3b] Magnetic stripe reader present | m | |
| **8.3.1 Motorized Reader** | | | |
| | [8.3.1] Motorized reader present | r | |
| **8.3.2 Hybrid Reader** | | | |
| | [8.3.2] Hybrid reader present | r | |
| **8.3.3 Support for Track 2** | | | |
| | [8.3.3] Full track 2 can be read | m | |
| **8.3.4 Reading Direction of Magnetic Stripe** | | | |
| | [8.3.4a] Reading direction of magnetic stripe correct | m | |
| **8.3.5 Card Capture** | | | |
| | [8.3.5a] Card Capture mechanism implemented | o | |
| | [8.3.5b] Minimal card capacity of secure housing fulfilled | | |
| **8.3.6 Shutter** | | | |
| | [8.3.6] Shutter present | o | |
| **8.3.7 Accessibility of Card after Power Failure** | | | |
| | [8.3.7a] Handling of card accessibility after power failure correct | m | |
| | [8.3.7b] Card accessibility power failure option: card accessible or card capture (access. or capt.) | | |
| **9 Buzzer**<br>**9.1 Requirement for Buzzer** | | | |
| | [9.1] Buzzer present | m | |
| **10 Communication**<br>**10.1 Requirement for Communication Component** | | | |
| | [10.1a] Communication component present | m | |
| | [10.1b] Communication component options (Ethernet, Wi-Fi, 3G/4G/5G/LTE, USB etc.) | | |
| **11 Persistence of Program and Data Storage** | | | |
| | [11] Persistence of Program and Data Storage including cryptographic keys and init-data fulfilled | m | |

*Table 6 Checklist for Terminal Class 'UAT-PED-ALL'*

Legend:

m: mandatory
r: recommended
o: optional

# 15 Checklist for Terminal Class 'UAT-PED-CTLS'

| Test Cases | | applic. | approval |
|---|---|---|---|
| | ***ep2* Terminal Model:** | | |
| **2 Required Documents**<br>**2.1 Standards** | | | |
| | [2.1a] Electromagnetic Compatibility certificate provided | m | |
| | [2.1b] CE Certificate of Conformity provided | m | |
| **2.2 EMV** | | | |
| | [2.2a] Compliance with EMV standard fulfilled | m | |
| | [2.2c] EMV Terminal Type is 25 | m | |
| | [2.2d] EMV Type Approval Level 1 contactless | m | |
| **2.3 PCI-PTS Report** | | | |
| | [2.3a] Most recent PCI-PTS POI report provided | m | |
| **2.4 SRED Terminal** | | | |
| | [2.4] SRED approved terminal | o | |
| **3 PIN Pad**<br>**3.1 Requirement for PIN Pad** | | | |
| | [3.1a] PIN pad present | m | |
| **3.2 Operating of the PIN Pad** | | | |
| | [3.2] Cardholder can operate PIN pad | m | |
| **3.3 PIN Pad Keys** | | | |
| | [3.3a] Mandatory PIN pad keys present | m | |
| | [3.3b] Additional PIN pad keys present | o | |
| **3.4 Reserved Colours for Command Keys** | | | |
| | [3.4] Colours mapping correct | m | |
| **3.5 Position of Command Keys** | | | |
| | [3.5] Position of command keys correct | m | |
| **3.6 Key Labelling** | | | |
| | [3.6] Key labelling of command keys is correct | r | |
| **3.7 PIN Pad Numeric Layout** | | | |
| | [3.7] PIN pad numeric layout is correct | m | |

*Table 7 Checklist for Terminal Class 'UAT-PED-CTLS'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| **3.8 Tactile Identifier for Key '5'** | | | |
| | [3.8a] Tactile Identifier present | m/o | |
| **4 Key Pad**<br>**4.1 Requirement for Key Pad** | | | |
| | [4.1a] Key pad present | o | |
| **4.2 Touch Screen** | | | |
| | [4.2] Touch Screen present | o | |
| **4.3 Types of Keys** | | | |
| | [4.3] Minimal key pad keys | r | |
| **5 Display**<br>**5.1 Requirement for Display** | | | |
| | [5.1a] Cardholder display present | m | |
| **5.2 Display Size** | | | |
| | [5.2a] Minimal cardholder display size fulfilled | m | |
| **5.3 Graphic Display** | | | |
| | [5.3] Graphic display present | r | |
| **6 Clock**<br>**6.1 Requirement for Clock** | | | |
| | [6.1] Clock present | m | |
| **6.2 Independence of External Current** | | | |
| | [6.2] Independence of external current fulfilled | m | |
| **7 Printer**<br>**7.1 Requirement for Printer** | | | |
| | [7.1a] Printer present | m | |
| | [7.1b] Integrated or external printer, e.g. vending machine application (int. or ext. or elect.) | | |
| **7.2 Printer Size** | | | |
| | [7.2a] Minimal printer size fulfilled | m | |
| **8 Card Reader**<br>**8.1 Contactless Card Reader** | | | |
| | [8.1] Contactless (PCD) reader present | m | |
| **8.2 Accessability of Card Reader** | | | |
| | [8.2] Accessability of the card reader | m | |

*Table 7 Checklist for Terminal Class 'UAT-PED-CTLS'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| **9 Buzzer**<br>**9.1 Requirement for Buzzer** | | | |
| | [9.1] Buzzer present | m | |
| **10 Communication**<br>**10.1 Requirement for Communication Component** | | | |
| | [10.1a] Communication component present | m | |
| | [10.1b] Communication component options (Ethernet, Wi-Fi, 3G/4G/5G/LTE, USB etc.) | | |
| **11 Persistence of Program and Data Storage** | | | |
| | [11] Persistence of Program and Data Storage including cryptographic keys and init-data fulfilled | m | |

*Table 7 Checklist for Terminal Class 'UAT-PED-CTLS'*

Legend:

m: mandatory
r: recommended
o: optional

# 16 Checklist for Terminal Class 'UAT-NON-PED-ALL'

| Test Cases | | applic. | approval |
|---|---|---|---|
| | ***ep2* Terminal Model:** | | |
| **2 Required Documents**<br>**2.1 Standards** | | | |
| | [2.1a] Electromagnetic Compatibility certificate provided | m | |
| | [2.1b] CE Certificate of Conformity provided | m | |
| **2.2 EMV** | | | |
| | [2.2a] Compliance with EMV standard fulfilled | m | |
| | [2.2b] EMV Type Approval Level 1 contact | m | |
| | [2.2c] EMV Terminal Type is 25 | m | |
| | [2.2d] EMV Type Approval Level 1 contactless | m | |
| **2.3 PCI-PTS Report** | | | |
| | [2.3a] Most recent PCI-PTS POI report provided | m | |
| **2.4 SRED Terminal** | | | |
| | [2.4] SRED approved terminal | o | |
| **4 Key Pad**<br>**4.1 Requirement for Key Pad** | | | |
| | [4.1a] Key pad present | o | |
| **4.2 Touch Screen** | | | |
| | [4.2] Touch Screen present | o | |
| **4.3 Types of Keys** | | | |
| | [4.3] Minimal key pad keys | r | |
| **5 Display**<br>**5.1 Requirement for Display** | | | |
| | [5.1a] Cardholder display present | o | |
| **5.2 Display Size** | | | |
| | [5.2a] Minimal cardholder display size fulfilled | m | |
| **5.3 Graphic Display** | | | |
| | [5.3] Graphic display present | r | |

*Table 8 Checklist for Terminal Class 'UAT-NON-PED-ALL'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| **6 Clock**<br>**6.1 Requirement for Clock** | | | |
| | [6.1] Clock present | m | |
| **6.2 Independence of External Current** | | | |
| | [6.2] Independence of external current fulfilled | m | |
| **7 Printer**<br>**7.1 Requirement for Printer** | | | |
| | [7.1a] Printer present | o | |
| | [7.1b] Integrated or external printer, e.g. vending machine application (int. or ext. or elect.) | | |
| **7.2 Printer Size** | | | |
| | [7.2a] Minimal printer size fulfilled | m | |
| **8 Card Reader**<br>**8.1 Contactless Card Reader** | | | |
| | [8.1a] Contactless (PCD) reader present | m | |
| **8.2 Accessability of Card Reader** | | | |
| | [8.2] Accessability of the card reader | m | |
| | [8.3a] ICC reader present | m | |
| | [8.3b] Magnetic stripe reader present | m | |
| **8.3.1 Motorized Reader** | | | |
| | [8.3.1] Motorized reader present | r | |
| **8.3.2 Hybrid Reader** | | | |
| | [8.3.2] Hybrid reader present | r | |
| **8.3.3 Support for Track 2** | | | |
| | [8.3.3] Full track 2 can be read | m | |
| **8.3.4 Reading Direction of Magnetic Stripe** | | | |
| | [8.3.4a] Reading direction of magnetic stripe correct | m | |
| **8.3.5 Card Capture** | | | |
| | [8.3.5a] Card Capture mechanism implemented | o | |
| | [8.3.5b] Minimal card capacity of secure housing fulfilled | | |
| **8.3.6 Shutter** | | | |
| | [8.3.6] Shutter present | o | |
| **8.3.7 Accessibility of Card after Power Failure** | | | |

*Table 8 Checklist for Terminal Class 'UAT-NON-PED-ALL'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| | [8.3.7a] Handling of card accessibility after power failure correct | m | |
| | [8.3.7b] Card accessibility power failure option: card accessible or card capture (access. or capt.) | | |
| **9 Buzzer**<br>**9.1 Requirement for Buzzer** | | | |
| | [9.1] Buzzer present | m | |
| **10 Communication**<br>**10.1 Requirement for Communication Component** | | | |
| | [10.1a] Communication component present | m | |
| | [10.1b] Communication component options (Ethernet, Wi-Fi, 3G/4G/5G/LTE, USB etc.) | | |
| **11 Persistence of Program and Data Storage** | | | |
| | [11] Persistence of Program and Data Storage including cryptographic keys and init-data fulfilled | m | |

*Table 8 Checklist for Terminal Class 'UAT-NON-PED-ALL'*

Legend:

m: mandatory
r: recommended
o: optional

# 17 Checklist for Terminal Class 'UAT-NON-PED-CTLS'

| Test Cases | | applic. | approval |
|---|---|---|---|
| | ***ep2* Terminal Model:** | | |
| **2 Required Documents**<br>**2.1 Standards** | | | |
| | [2.1a] Electromagnetic Compatibility certificate provided | m | |
| | [2.1b] CE Certificate of Conformity provided | m | |
| **2.2 EMV** | | | |
| | [2.2a] Compliance with EMV standard fulfilled | m | |
| | [2.2c] EMV Terminal Type is 25 | m | |
| | [2.2d] EMV Type Approval Level 1 contactless | m | |
| **2.3 PCI-PTS Report** | | | |
| | [2.3a] Most recent PCI-PTS POI report provided | m | |
| | [2.4] SRED approved terminal | o | |
| **4 Key Pad**<br>**4.1 Requirement for Key Pad** | | | |
| | [4.1a] Key pad present | o | |
| **4.2 Touch Screen** | | | |
| | [4.2] Touch Screen present | o | |
| **4.3 Types of Keys** | | | |
| | [4.3] Minimal key pad keys | r | |
| **5 Display**<br>**5.1 Requirement for Display** | | | |
| | [5.1a] Cardholder display present | o | |
| **5.2 Display Size** | | | |
| | [5.2a] Minimal cardholder display size fulfilled | m | |
| **5.3 Graphic Display** | | | |
| | [5.3] Graphic display present | r | |
| **6 Clock**<br>**6.1 Requirement for Clock** | | | |
| | [6.1] Clock present | m | |

*Table 9 Checklist for Terminal Class 'UAT-NON-PED-CTLS'*

| Test Cases | | applic. | approval |
|---|---|---|---|
| **6.2 Independence of External Current** | | | |
| | [6.2] Independence of external current fulfilled | m | |
| **7 Printer**<br>**7.1 Requirement for Printer** | | | |
| | [7.1a] Printer present | o | |
| | [7.1b] Integrated or external printer, e.g. vending machine application (int. or ext. or elect.) | | |
| **7.2 Printer Size** | | | |
| | [7.2a] Minimal printer size fulfilled | m | |
| **8 Card Reader**<br>**8.1 Contactless Card Reader** | | | |
| | [8.1a] Contactless (PCD) reader present | m | |
| **8.2 Accessability of Card Reader** | | | |
| | [8.2] Accessability of the card reader | m | |
| **9 Buzzer**<br>**9.1 Requirement for Buzzer** | | | |
| | [9.1a] Buzzer present | m | |
| **10 Communication**<br>**10.1 Requirement for Communication Component** | | | |
| | [10.1a] Communication component present | m | |
| | [10.1b] Communication component options (Ethernet, Wi-Fi, 3G/4G/5G/LTE, USB etc.) | | |
| **11 Persistence of Program and Data Storage** | | | |
| | [11] Persistence of Program and Data Storage including cryptographic keys and init-data fulfilled | m | |

*Table 9 Checklist for Terminal Class 'UAT-NON-PED-CTLS'*

Legend:

m: mandatory

r: recommended

o: optional