



18th June 2019

Shanghai Sunmi Technology Co,Ltd.
Attn: Lily Ying
Room 505, KIC Plaza No.388
Song Hu Road Yang Pu
District Shanghai 200433 CHINA

Approval Number: 31.146.FIME.SSUNMI.T6900.190618-F

RE: Expresspay 3.1 Reader Certification,
Product Name: T6900
Firmware Version: AE KERNEL Version 001

Dear Lily,

We are pleased to inform you that American Express has certified the **T6900** for **Expresspay 3.1** using Firmware Version **AE KERNEL Version 001** based on the information provided below. This Expresspay 3.1 certification is valid for three years from the date of issuance.

The certification process addressed the acceptance of American Express Proximity Device capabilities.

Because the certification process cannot possibly test for every scenario, the discovery of any subsequent bugs or issues may require the correction and recertification of your software, firmware, and/or hardware.

Sincerely,

A handwritten signature in black ink, appearing to read "JL Giacometto".

Jose Luis Giacometto
GNO Optimization
American Express

If you have question or for additional certification request please send an email to axp.contactless.terminal.support@aexp.com

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Expresspay 3.1 Contactless Reader Implementation Conformance Statement

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The policies, procedures, and rules in this manual are subject to change from time to time by American Express Global Network Services.

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Summary of Changes

Date	Version	Modification
23-Dec-12	1.0a	Baseline document
01-Feb-13	1.0b	Removed options related to Kernel-C, Rules on different options are removed to have one ICS for many configurations.
18-Feb-13	1.0c	Added options for TVR availability and terminal type in PDOL
12-Mar-13	1.0d	Added new options for removal time, UN generation method, Display capability of reader
05-Dec-13	1.1	Tidy-up of document including modifications related to condition support. Addition of modular approval and configurable kernel content.
18-Dec-13	1.2	Minor modifications following feedback from CC and EBG.
13-Jun-14	1.3	Update to Test Plan v1.4 and Expresspay 3.1
07-Oct-14	1.4	Update to include declaration that random transaction selection is not supported by reader.
16-Feb-15	1.5	Update to Test Plan v1.4.5 and Expresspay 3.1 changes.
30-Apr-15	1.5.1	Reformatted Summary of Changes, minor amends to Reference Documents and minor correction to the Declaration section.
14-May-15	1.5.2	Added footnote to clarify the purpose of the content around modular architecture and removed range for deactivation timer. Clarified that the UN range for Expresspay Magstripe is configurable.
15-May-15	1.5.3	Moved Expresspay kernel details from under the PCD section
24-May-16	1.5.4	Reworded description for some of the ICS options

Contents

- 1.0 USING THIS DOCUMENT6**
 - 1.1. Purpose of the Document6
 - 1.2. Out of Scope.....6
 - 1.3. Audience6
 - 1.4. Reference Documents6
 - 1.5. Organization of Document7
 - 1.6. Terminology and Conventions7
- 2.0 IMPLEMENTATION CONFORMANCE STATEMENT8**
 - 2.1. Certification Information8
 - 2.2. Product Information10
 - 2.3. Implementation Information12
 - 2.4. Declaration16
 - 2.5. Additional Information.....16

1.0 Using this document

1.1. Purpose of the Document

The purpose of this document is to capture the implementer specific options for contactless reader's submitted for Expresspay contactless reader functional type approval. Readers are submitted for type approval so as to prove compliance with the functional requirements as defined in [SPEC].

1.2. Out of Scope

The following are considered out of scope of this document:

- Details of functional and technical requirements as specified in [SPEC].
- Details of the certification process as specified in [PROC].

1.3. Audience

The document is intended to be used by:

- American Express;
- Terminal vendors;
- Reader application developers;
- Test tool vendors;
- Expresspay accredited testing laboratories.

1.4. Reference Documents

The following references are cited by this document:

Reference	Document
[PROC]	Expresspay Terminal Level 2 Approval Process
[SPEC]	Expresspay Terminal Specification (Expresspay 3.1)

1.5. Organization of Document

This document is organised in three sections as follows:

- Certification Information – asks about the product to be certified, previous certification of the kernel and contactless components and details of the vendor;
- Product Information – asks general questions about the product to be certified and the architecture employed;
- Implementation Information – asks detailed questions about the implementation of the Expresspay kernel within the product and support for optional features;
- Declaration.

1.6. Terminology and Conventions

In this document, the use of the words “shall” and “must” indicate mandatory requirements. Use of the words “should” or “advised” indicate recommendations and best practice guidelines.

2.0 Implementation Conformance Statement

2.1. Certification Information

Certification Request	
Product name	T6900
Product version <i>If applicable.</i>	
Certification type	<input type="radio"/> New Kernel Certification <input type="radio"/> Kernel Update (modification of previously certified kernel) <input checked="" type="radio"/> Device Update (using unmodified previously certified)
If this is a kernel or device update, please provide the existing Expresspay Level 2 certification number for this product	31.146.FIME.SSUNMI.W6900.190618
If this is a device update, please provide details as to which components are different than those in the originally certified product	1) The main processor has been changed from MAX32555 to MH1902, where the operating system remains the same; 2) The LCD has been updated; 3) The PCD module has been changed;

Vendor information					
Company legal name		Shanghai Sunmi Technology Co.,Ltd.			
DBA <i>If different from legal name.</i>					
Company address		Room 505, KIC Plaza No.388 Song Hu Road Yang Pu District Shanghai 200433 CHINA			
Postcode	200433	City	Shanghai	State/province	Shanghai
Country	China				
Primary contact's details (This will be used for all Expresspay contactless reader type approval communication)					
First name	Lily	Last name	Ying		
Title	Certification Manager				
Email address	yingli@sunmi.com				
Telephone	+86-18126386529	Fax	N/A		

Company address	Room 505, KIC Plaza No.388 Song Hu Road Yang Pu District Shanghai 200433 CHINA
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EMVCo Level 1 Certification details	
Version of EMV Contactless Protocol supported	Book D - EMV Contactless Communication Protocol Specification, Version 2.6 of March 2016
Level 1 Approval number	16611 0719 260 26b 26b BCTS
Date EMV Contactless Protocol certification received <i>If the reader has not yet received EMV Contactless Protocol certification, please provide the certification start date.</i>	July 10, 2019

2.2. Product Information

Product details	
Reader type	<input checked="" type="radio"/> Integrated reader <input type="radio"/> Intelligent reader <input type="radio"/> Transparent Reader
Operating System name and version	SUNMIUI 2.5
Reader architecture	<input type="radio"/> Modular <input checked="" type="radio"/> Non-Modular
Version number of the Expresspay kernel application to be certified	AE KERNEL Version 001
Version number of any test application required for certification	SunmiAmexAuth 2.0
Modular architecture details¹ (To be completed if the reader employs a modular architecture.)	
Terminal Architecture Name / Identifier	
Modular Approval Number	
Checksum function output value for the Expresspay kernel, and any referenced libraries, to be certified <i>Instructions for how to trigger the checksum function must be included with the completed ICS form.</i>	
Proximity Coupling Device details	
PCD ID <i>A unique ID which identifies the PCD embedded in the product.</i>	PB-PCD
PCD hardware name or model number	PB-PCD-HW

¹ Please note that filling in this section is not a request for Modular Label approval. A separate approval request form needs to be completed. Kindly contact your American Express representative for further information.

PCD software name	PB-PCD-SW
Software version	001

PIN Entry Device information

Is PIN entry supported?	<input checked="" type="radio"/> Yes <input type="radio"/> No
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PED Details
(To be completed if the reader supports PIN entry)

PED Model name	T6900
PED software version	1.0.x
PED architecture	<input type="radio"/> Standalone <input type="radio"/> Integrated with reader <input checked="" type="radio"/> Integrated with terminal

Test device details
(Additional information should be provided, if necessary, in the space provided at the end of this form.)

Reader serial numbers	PB01D94C60019 PB01D94C60189 PB01D94C60192 PB01D94C60193
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2.3. Implementation Information

Where the reader is hard-coded to support, or not support, particular functionality, please check 'Yes' or 'No' as appropriate in answer to the questions below. Where the reader can be configured (without modification to the Expresspay kernel or any referenced libraries) so as to support, or not support, particular functionality, please check 'Configurable'. Readers which support such configuration are known as multi-configuration kernel readers.

The inclusion of any 'Configurable' answers will identify your reader as being able to be configured to support a variety of implementation requirements from your customers. Your reader will be tested using a variety of configurations to ensure that it is certified for implementation in any of the potential configurations that result from its capabilities. This provides the greatest flexibility for you and your clients whilst providing American Express with the necessary confidence in the product.

Pre-Kernel processing	
The reader must be able to be configured to operate only in Expresspay Magstripe Mode. Please confirm that this is the case by checking the 'Configurable' checkbox.	<input checked="" type="checkbox"/> Configurable
When the reader is configured to operate only in Expresspay Magstripe Mode, is the Amount Authorized made available?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the reader detect it will be unable to go online before the transaction starts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Configurable
Configurable unpredictable range for Expresspay Magstripe mode transactions <i>Default UN range is 0 to 60.</i>	0 to <u>60</u>

Contactless transaction types supported	
Are "Cash" transactions supported? (Application Usage Control)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable If the above answer is "Yes" or "Configurable", then which type of "Cash" transactions are supported: <input checked="" type="checkbox"/> Domestic <input checked="" type="checkbox"/> International
Are "Goods and Services" transactions supported? (Application Usage Control)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable If the above answer is "Yes" or "Configurable", then which type of "Goods and Services" transactions are supported: <input checked="" type="checkbox"/> Domestic <input checked="" type="checkbox"/> International

<p>Are "ATM" transactions supported? (Application Usage Control)</p>	<p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable </p> <p>If the above answer is "Yes" or "Configurable", then which type of "ATM" transactions are supported:</p> <p> <input checked="" type="checkbox"/> Domestic <input checked="" type="checkbox"/> International </p>
<p>What type of operational control is supported by the Terminal?</p>	<p>Operational Control:</p> <p> <input type="checkbox"/> Financial Institution <input checked="" type="checkbox"/> Merchant <input type="checkbox"/> Cardholder </p>
<p>Please specify the environment in which the Terminal will operate:</p>	<p>Environment:</p> <p> <input checked="" type="checkbox"/> Attended <input type="checkbox"/> Unattended </p>
<p>Is the Terminal type "Offline only"?</p> <p>Note: If the terminal type is "Offline with online capability", then the only valid options are either "No" or "Configurable"</p>	<p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable </p>
<p>Is the Terminal type "Online only"?</p> <p>Note: If the terminal type is "Offline with online capability", then the only valid options are either "No" or "Configurable"</p>	<p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable </p>

Other Interfaces supported	
<p>Does the reader support the AEIPS contact interface?</p>	<p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable </p>

Transaction Processing Capability	
Is the reader capable of processing transactions in Partial Online?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Configurable
Is the reader capable of processing transactions with Delayed Authorization?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable
Is the reader capable of displaying, printing or communicating the TVR to the test tool after the GENAC1 command is completed during a Magstripe Mode transaction?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Offline data authentication	
Expresspay requires that all Terminals must support SDA. The enablement of SDA support must be configurable for deployment. Please confirm that this is the case by checking the 'Configurable' checkbox.	<input checked="" type="checkbox"/> Configurable
Expresspay requires that all Terminals must support CDA. The enablement of CDA support must be configurable for deployment. Please confirm that this is the case by checking the 'Configurable' checkbox.	<input checked="" type="checkbox"/> Configurable
What is the maximum length of CA public key supported by the reader?	_____ 1984 _____ bits
Does the reader support revocation of an installed CA public key without the key's removal?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Configurable
Does the reader detect CDA failure during Issuer or ICC public key recovery prior to the First Terminal Action Analysis?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Configurable

Processing Restrictions	
Is exception list processing supported?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Configurable

Cardholder verification	
<p>The reader must be able to support Online PIN as a CV method. The enablement of Online PIN support must be configurable at deployment.</p> <p>Please confirm that this is the case by checking the 'Configurable' checkbox.</p>	<input checked="" type="checkbox"/> Configurable
<p>The reader must be able to support Signature as a CV method. The enablement of Signature support must be configurable at deployment.</p> <p>Please confirm that this is the case by checking the 'Configurable' checkbox.</p>	<input checked="" type="checkbox"/> Configurable
<p>The reader must be able to support Mobile CVM as a CV method. The enablement of Mobile CVM support must be configurable at deployment.</p> <p>Please confirm that this is the case by checking the 'Configurable' checkbox.</p>	<input checked="" type="checkbox"/> Configurable
<p>The reader must support a configurable deactivation timer for when restarting transactions due to Mobile CVM failure. The default value of this timer shall be 1.5 seconds.</p> <p>Please confirm that this is the case by checking the 'Yes' checkbox.</p>	<input checked="" type="checkbox"/> Yes

Printing receipts	
<p>Is the reader connected to a terminal with a printing capability?</p> <p><i>Note: This is mandatory for an integrated reader.</i></p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the printing of Terminal Verification Results supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Is the printing of Authorisation Response Codes supported?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the reader support Cardmember display messages?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Membership-Related Data Processing	
Does the reader support membership-related data processing?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Configurable

2.4. Declaration

I confirm that all of the information I have provided, in answer to the questions on this form, is correct and complete.	
Please confirm that the terminal does not support random transaction selection or velocity checking for Expresspay transactions.	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not Confirmed
Name	Lily Ying
Title	Certification Manager
Signature	Lily Ying
Date	2019/8/8
Modular Architecture Declaration²	
(To be completed if the reader employs a modular architecture)	
Please confirm that the terminal architecture identified above is structured using self-contained modules that can be updated independently.	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not Confirmed
Please confirm that the terminal architecture identified above is capable of calculating a unique checksum value over the Expresspay kernel and any external libraries utilised in the processing of Expresspay transactions.	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not Confirmed
Please confirm that the configuration of a terminal implementing the architecture identified above can be modified without the need for re-compilation of the Expresspay kernel or any external libraries utilised in the processing of Expresspay transactions.	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not Confirmed
Please confirm that you have supplied design documentation in accompaniment with this form which correctly and completely describes the structure and interfaces of the terminal architecture identified above.	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not Confirmed
Please confirm that all products listed above implement the same terminal architecture as described in the accompanying design documentation.	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not Confirmed

2.5. Additional Information

² Please note that filling in this section is not a request for Modular Label approval. A separate approval request form needs to be completed. Kindly contact your American Express representative for further information.

T6900 is in testing of PCI PTS, and we have received the report, we will get the LoA in September 2019.

~ End of Document ~