

December 15, 2022

Mr. George Jiang
ID TECH
10721 Walker Street
Cypress 90630-4720
UNITED STATES OF AMERICA

Re: *EMVCo Letter of Approval - Contact Terminal Level 2*

EMV Application Kernel: EMV Common Gen 3 L2 Version V1.30.039

Approval Number(s):
2-05129-1-1C-BCTS-1222-4.3k
2-05129-1-2C-BCTS-1222-4.3k
2-05129-1-3C-BCTS-1222-4.3k
2-05129-1-4C-BCTS-1222-4.3k
2-05129-1-5C-BCTS-1222-4.3k
2-05129-1-6C-BCTS-1222-4.3k
2-05129-1-7C-BCTS-1222-4.3k
2-05129-1-8C-BCTS-1222-4.3k
2-05129-1-9C-BCTS-1222-4.3k
2-05129-1-10C-BCTS-1222-4.3k
2-05129-2-11C-BCTS-1222-4.3k
2-05129-2-12C-BCTS-1222-4.3k
2-05129-2-13C-BCTS-1222-4.3k
2-05129-2-14C-BCTS-1222-4.3k
2-05129-2-15C-BCTS-1222-4.3k
2-05129-2-16C-BCTS-1222-4.3k
2-05129-2-17C-BCTS-1222-4.3k
2-05129-1-1P-BCTS-1222-4.3k
2-05129-1-1OS-BCTS-1222-4.3k

The EMV Application Kernel has been tested on the following terminal

Terminal: VP5300

PinPad: 1P = SmartPIN L100, SmartPIN L100 firmware version: 1.01.007 - PIN pad is valid for configuration(s): 1C, 5C, 11, 12, 15, 16, 17

Operating System: 1OS = uC/OS-III Version V3.06.02

Renewal Date: 05-Dec-2026

Report ID

Session 1: **TEMV224KR1T Version V1.0 - Beijing Unionpay Card Technology Co., Ltd. Shenzhen Branch**

Session 2: **TEMV224KR1T Version V1.0 - Beijing Unionpay Card Technology Co., Ltd. Shenzhen Branch**

Kernel Checksum:

3DE25B7DAACBF00BA53B10E8CBF7C7AE56A4E6E8
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Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	1C	22	F003E1F9090D38B6D177659980B3816CF1079ED5
2C	2C	21	CD0783589059BEC0417B5AF0817751418E727B29
3C	4C	25	F10CFC402B54925B46C9AC63F912C5CBC096A1B9
4C	5C	21	EA40D5EAB8685FFD22DACCF5520E23476656497E
5C	6C	22	9CF00163DA3E306F2FADD58B623C7B6297704491
6C	8C	22	B516E7238CD23A7755B25D9043217EE5BA38F9E4
7C	9C	21	8BF447D900B8E4D1A873206FAF8E5851BA0E6A39
8C	10C	25	68D5B4E90925ACC595CAFCC20DE86AE920755A92
9C	11C	21	1F22CB8D9467A63E549EC779C7373D6B9CB3E877
10C	12C	22	2E9BC008316919F1097F6AB1120551E45D5BA1D9
11C	13C	25	5A40969877D6FF95E86582414F5B096F3D74F900
12C	14C	25	72A6E0AF60E96E7CF8F476A38BFD008BC8646C95
13C	17C	21	4A69D1506B00ECD6C9952897FC31D3E29F6D33D5
14C	18C	21	2B0B9EC004CB92DBC971DC82A97ED86DE0C8D25A
15C	21C	21	266B76E41FA1CE0E6A7D1A508091DDB910501A38
16C	22C	21	E9114BD533655A100967A7BBCFDB79C5D96E6058
17C	23C	25	75236B5109637BEABDA495B52A7F17D2C400D5F0

PIN Pads Checksums:

PinPad	Checksum
1P	NA

Dear Mr. Jiang:

EMVCo, LLC ("EMVCo"), a Delaware limited liability company, has received your request for Level 2 terminal type approval for the EMV Application Kernel identified above (hereafter referred to as the "Application"). In connection with your request, we have reviewed all test file number(s) listed above.

After assessing such file(s), EMVCo has found reasonable evidence that the submitted samples of the above referenced Application sufficiently conform to EMV Integrated Circuit Card Specifications for Payment Systems, Version 4.3 of November 2011.

EMVCo hereby grants your Application EMVCo Type Approval for Terminal Level 2, based on the requirements stated in the EMV 4.3 Specifications. Please note that EMVCo may publish this letter and publicly identify your Application as an approved Application, including in EMVCo's published list of approved Applications.

EMVCo's grant to your Application is subject to and specifically incorporates (i) the General Terms and Conditions to the Letter of Approval enclosed as Exhibit A, and (ii) the Specific Terms and Conditions to the Letter of Approval attached hereto as Attachment 1. Because EMVCo's grant is subject to such limitations, including certain events of termination, you and any third parties should confirm that such approval is current and has not been terminated by referring to the list of approved Applications published on the EMVCo website (www.emvco.com).

Please note that EMVCo makes certain logos available for use in connection with an Application that has received EMVCo approval. To obtain permission to use the "EMV Approved" certification mark, please contact EMVCo to request a license agreement.

This Letter of Approval is valid while the approval number is posted on the EMVCo website.

EMVCo, LLC, a Delaware limited liability company

By:

Name: Frédéric Fortin

Title: EMVCo Terminal Type Approval Chair

Note:

The Random Number Generator is part of the EMV specifications. This Contact Level 2 Kernel utilizes a specific Hardware component in the tested terminal to generate random numbers. To be EMV compliant, this Contact Level 2 Kernel shall be used in conjunction with terminals having this specific hardware component.

Terminal Capabilities	1C	2C	3C	4C	5C	6C	7C	8C	9C	10C
Card Data Input Capability										
Terminal Type	22	21	25	21	22	22	21	25	21	22
Manual Key Entry	No	No	No	No	No	No	No	No	No	No
Magnetic Stripe	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IC with Contacts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CVM Capability										
Plaintext PIN	Yes	No	No	No	Yes	No	No	No	No	No
Online Enciphered PIN	Yes	No	No	No	Yes	No	No	No	No	No
Signature (Paper)	Yes	Yes	No	Yes	Yes	No	No	No	No	No
Offline Enciphered PIN	Yes	No	No	No	Yes	No	No	No	No	No
No CVM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SB185	No	No	No	No	No	No	No	No	No	No
Offline Finger	No	No	No	No	No	No	No	No	No	No
Online Finger	No	No	No	No	No	No	No	No	No	No
Offline Facial	No	No	No	No	No	No	No	No	No	No
Online Facial	No	No	No	No	No	No	No	No	No	No
Offline Palm	No	No	No	No	No	No	No	No	No	No
Online Palm	No	No	No	No	No	No	No	No	No	No
Offline Iris	No	No	No	No	No	No	No	No	No	No
Online Iris	No	No	No	No	No	No	No	No	No	No
Offline Voice	No	No	No	No	No	No	No	No	No	No
Online Voice	No	No	No	No	No	No	No	No	No	No
Security Capability										
SDA & DDA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Card Capture	No	No	No	No	No	No	No	No	No	No
CDA	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1
Transaction Type Capability										
Tran Type - Cash	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Tran Type - Goods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tran Type - Services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tran Type - Cash Back	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Tran Type - Inquiry	No	No	No	No	No	No	No	No	No	No
Tran Type - Transfer	No	No	No	No	No	No	No	No	No	No
Tran Type - Payment	No	No	No	No	No	No	No	No	No	No
Tran Type - Admin	No	No	No	No	No	No	No	No	No	No
Tran Type - Cash Deposit	No	No	No	No	No	No	No	No	No	No
Terminal Data Input Capability										
Keypad	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Numeric Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alpha and Special Character Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Command Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Function Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(continued)	1C	2C	3C	4C	5C	6C	7C	8C	9C	10C
Terminal Data Output Capability										
Print, Attendant	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Print, Cardholder	No	No	Yes	No	No	No	No	Yes	No	No
Display, Attendant	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Display, Cardholder	No	No	Yes	No	No	No	No	Yes	No	No
Code Table 10	No	No	No	No	No	No	No	No	No	No
Code Table 9	No	No	No	No	No	No	No	No	No	No
Code Table 8	No	No	No	No	No	No	No	No	No	No
Code Table 7	No	No	No	No	No	No	No	No	No	No
Code Table 6	No	No	No	No	No	No	No	No	No	No
Code Table 5	No	No	No	No	No	No	No	No	No	No
Code Table 4	No	No	No	No	No	No	No	No	No	No
Code Table 3	No	No	No	No	No	No	No	No	No	No
Code Table 2	No	No	No	No	No	No	No	No	No	No
Code Table 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Application Selection										
PSE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cardholder Confirmation	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No
Preferred display order	No	No	No	No	No	No	No	No	No	No
Partial AID Selection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multi language	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EMV Language Selection method	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Common Character Set	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data Authentication										
MAX CA Public key	248	248	248	248	248	248	248	248	248	248
Exponents	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}	3 and 2 ^{*16+1}
Revocation of Issuer PK Certificate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Certificate Revocation List Format	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN
Default DDOL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manual act. when CA PK loading fails	No	No	No	No	No	No	No	No	No	No
CA PK verified with check sum	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cardholder Verification Method										
Bypass PIN Entry	Yes	No	No	No	Yes	No	No	No	No	No
Subsequent Bypass PIN Entry	Yes	No	No	No	Yes	No	No	No	No	No
Get Data for PIN Try Counter	Yes	No	No	No	Yes	No	No	No	No	No
Fail CVM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Amount known before CVM proces.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Terminal Risk Management										
Floor Limit Checking	Yes	No	Yes	No	Yes	Yes	No	Yes	No	Yes
Random Transaction Selection	Yes	No	Yes	No	Yes	Yes	No	Yes	No	Yes
Velocity Checking	Yes	No	Yes	No	Yes	Yes	No	Yes	No	Yes
Transaction Log	Yes	No	Yes	No	Yes	Yes	No	Yes	No	Yes
Exception File	No	No	No	No	No	No	No	No	No	No
TRM irrespective of AIP setting (expected behavior)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(continued)	1C	2C	3C	4C	5C	6C	7C	8C	9C	10C
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TAC can be deleted or disabled	No	No	No	No	No	No	No	No	No	No
How does offline only Terminal process Default Action Codes?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
How does online only terminal process TAC/IAC-Default when unable to go online?	Normal	Skipped	Normal	Skipped	Normal	Normal	Skipped	Normal	Skipped	Normal
Completion Processing										
Forced Online	Yes	No	No	No	Yes	Yes	No	No	No	Yes
Forced Acceptance	No	No	No	No	No	No	No	No	No	No
Advices	No	No	No	No	No	No	No	No	No	No
Voice Referrals Initiated by Issuer	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Batch Data Capture	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Online Data Capture	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Default TDOL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Default TDOL not configured	No	No	No	No	No	No	No	No	No	No
Exception Handling										
POS Entry Mode	80	80	80	80	80	80	80	80	80	80
Miscellaneous										
Amount and PIN on same keypad	No	No	No	No	No	No	No	No	No	No
ICC/Magstripe Reader Combined	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
If Combined, is Magstripe read first?	No	No	No	No	No	No	No	No	No	No
Supports account type selection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports 'on fly' script processing	No	No	No	No	No	No	No	No	No	No
Issuer Script device limit > 128 bytes	No	No	No	No	No	No	No	No	No	No
If limit > 128, value supported?										
Internal Date Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does the terminal support Receipt?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Terminal Capabilities	11C	12C	13C	14C	15C	16C	17C			
Card Data Input Capability										
Terminal Type	25	25	21	21	21	21	25			
Manual Key Entry	No	No	No	No	No	No	No			
Magnetic Stripe	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
IC with Contacts	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
CVM Capability										
Plaintext PIN	Yes	Yes	No	No	Yes	Yes	Yes			
Online Enciphered PIN	Yes	Yes	No	No	Yes	No	No			
Signature (Paper)	No	No	Yes	No	Yes	Yes	No			
Offline Enciphered PIN	Yes	Yes	No	No	Yes	Yes	Yes			
No CVM	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
SB185	No	No	No	No	No	No	No			
Offline Finger	No	No	No	No	No	No	No			
Online Finger	No	No	No	No	No	No	No			
Offline Facial	No	No	No	No	No	No	No			
Online Facial	No	No	No	No	No	No	No			
Offline Palm	No	No	No	No	No	No	No			
Online Palm	No	No	No	No	No	No	No			
Offline Iris	No	No	No	No	No	No	No			
Online Iris	No	No	No	No	No	No	No			
Offline Voice	No	No	No	No	No	No	No			
Online Voice	No	No	No	No	No	No	No			
Security Capability										
SDA & DDA	Yes	Yes	No	No	Yes	Yes	Yes			
Card Capture	No	No	No	No	No	No	No			
CDA	Mode 1	Mode 1	No	No	Mode 1	Mode 1	Mode 1			
Transaction Type Capability										
Transaction Type - Cash	No	No	Yes	Yes	Yes	Yes	No			
Transaction Type - Goods	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Transaction Type - Services	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Transaction Type - Cash Back	No	No	Yes	Yes	Yes	Yes	No			
Transaction Type - Inquiry	No	No	No	No	No	No	No			
Transaction Type - Transfer	No	No	No	No	No	No	No			
Transaction Type - Payment	No	No	No	No	No	No	No			
Transaction Type - Admin	No	No	No	No	No	No	No			
Transaction Type - Cash Deposit	No	No	No	No	No	No	No			
Terminal Data Input Capability										
Keypad	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Numeric Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Alpha and Special Character Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Command Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Function Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes			

(continued)	11C	12C	13C	14C	15C	16C	17C			
Terminal Data Output Capability										
Print, Attendant	No	No	Yes	Yes	Yes	Yes	No			
Print, Cardholder	Yes	Yes	No	No	No	No	Yes			
Display, Attendant	No	No	Yes	Yes	Yes	Yes	No			
Display, Cardholder	Yes	Yes	No	No	No	No	Yes			
Code Table 10	No	No	No	No	No	No	No			
Code Table 9	No	No	No	No	No	No	No			
Code Table 8	No	No	No	No	No	No	No			
Code Table 7	No	No	No	No	No	No	No			
Code Table 6	No	No	No	No	No	No	No			
Code Table 5	No	No	No	No	No	No	No			
Code Table 4	No	No	No	No	No	No	No			
Code Table 3	No	No	No	No	No	No	No			
Code Table 2	No	No	No	No	No	No	No			
Code Table 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Application Selection										
PSE	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Cardholder Confirmation	Yes	No	No	No	Yes	Yes	Yes			
Preferred display order	No	No	No	No	No	No	No			
Partial AID Selection	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Multi language	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
EMV Language Selection method	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Common Character Set	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Data Authentication										
MAX CA Public key	248	248			248	248	248			
Exponents	3 and 2 ¹⁶ +1	3 and 2 ¹⁶ +1			3 and 2 ¹⁶ +1	3 and 2 ¹⁶ +1	3 and 2 ¹⁶ +1			
Revocation of Issuer PK Certificate	Yes	Yes	No	No	Yes	Yes	Yes			
Certificate Revocation List Format	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN			RID/CA PK Index Cert SN	RID/CA PK Index Cert SN	RID/CA PK Index Cert SN			
Default DDOL	Yes	Yes	No	No	Yes	Yes	Yes			
Manual act. when CA PK loading fails	No	No	No	No	No	No	No			
CA PK verified with check sum	Yes	Yes	No	No	Yes	Yes	Yes			
Cardholder Verification Method										
Bypass PIN Entry	Yes	Yes	No	No	Yes	Yes	Yes			
Subsequent Bypass PIN Entry	Yes	Yes	No	No	Yes	Yes	Yes			
Get Data for PIN Try Counter	Yes	Yes	No	No	Yes	Yes	Yes			
Fail CVM	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Amount known before CVM proces.	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Terminal Risk Management										
Floor Limit Checking	Yes	Yes	No	No	No	No	Yes			
Random Transaction Selection	Yes	Yes	No	No	No	No	Yes			
Velocity Checking	Yes	Yes	No	No	No	No	Yes			
Transaction Log	Yes	Yes	No	No	No	No	Yes			
Exception File	No	No	No	No	No	No	No			
TRM irrespective of AIP setting (expected behavior)	Yes	Yes	Yes	Yes	Yes	Yes	Yes			

(continued)	11C	12C	13C	14C	15C	16C	17C			
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
TAC can be deleted or disabled	No	No	No	No	No	No	No			
How does offline only Terminal process Default Action Codes?	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
How does online only terminal process TAC/IAC-Default when unable to go online?	Normal	Normal	Skipped	Skipped	Skipped	Skipped	Normal			
Completion Processing										
Forced Online	No	No	No	No	No	No	No			
Forced Acceptance	No	No	No	No	No	No	No			
Advices	No	No	No	No	No	No	No			
Voice Referrals Initiated by Issuer	No	No	Yes	Yes	Yes	Yes	No			
Batch Data Capture	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Online Data Capture	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Default TDOL	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Default TDOL not configured	No	No	No	No	No	No	No			
Exception Handling										
POS Entry Mode	80	80	80	80	80	80	80			
Miscellaneous										
Amount and PIN on same keypad	No	No	No	No	No	No	No			
ICC/Magstripe Reader Combined	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
If Combined, is Magstripe read first?	No	No	No	No	No	No	No			
Supports account type selection	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Supports 'on fly' script processing	No	No	No	No	No	No	No			
Issuer Script device limit > 128 bytes	No	No	No	No	No	No	No			
If limit > 128, value supported?										
Internal Date Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Does the terminal support Receipt?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None