

September 26, 2024



Dr. Baidong Hu
Hangzhou Sunyard Technology Co.,Ltd.
3888 Jiangnan Avenue, Binjiang District
Hangzhou 310053
China

Re: EMVCo Letter of Approval - Contact Terminal Level 2

EMV Application Kernel: emvkernel Version V1.0.1

Approval Number(s):
2-05477-1-1C-BCTS-0924-4.4b
2-05477-1-1P-BCTS-0924-4.4b
2-05477-1-1OS-BCTS-0924-4.4b

The EMV Application Kernel has been tested on the following terminal

Terminal: S20
PinPad: 1P = S20, SP_SYS V1.0.0 - PIN pad is valid for configuration(s): 1C
Operating System: 1OS = SP_SYS Version V1.0.0

Renewal Date: 12-Sep-2028

Report ID **Session 1: TEMV244521T Version V1.0 - Beijing Unionpay Card Technology Co., Ltd. Shenzhen Branch**

Kernel Checksum:

E3DDA86535AD50F0A6500138B363E867632D62BE

Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	S20EMV1	22	C15119019D157A2BA6A302A6273A3717C58C2A5A

PIN Pads Checksums:

PinPad	Checksum
1P	E3DDA86535AD50F0A6500138B363E867632D62BE

Dear Dr. Hu:

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 4.4 of October 2022.

EMVCo hereby grants your Application EMVCo Type Approval for Terminal Level 2, based on the requirements stated in the EMV 4.4 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.

Authorised by Frédéric Fortin
Terminal Testing Group Chair
EMVCo, LLC

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									
Card Data Input Capability											
Terminal Type	22										
Manual Key Entry	Yes										
Magnetic Stripe	No										
IC with Contacts	Yes										
CVM Capability											
Plaintext PIN	Yes										
Online Enciphered PIN	Yes										
Signature (Paper)	No										
Offline Enciphered PIN (RSA)	Yes										
No CVM	Yes										
Offline Enciphered PIN (ECC)	No										
Biometric	No										
Offline Finger	No										
Online Finger	No										
Offline Facial	No										
Online Facial	No										
Offline Palm	No										
Online Palm	No										
Offline Iris	No										
Online Iris	No										
Offline Voice	No										
Online Voice	No										
Security Capability											
SDA & DDA	Yes										
Card Capture	No										
CDA	Mode 1										
XDA	No										
Transaction Type Capability											
Tran Type - Cash	No										
Tran Type - Goods	Yes										
Tran Type - Services	Yes										
Tran Type - Cash Back	Yes										
Tran Type - Inquiry	No										
Tran Type - Transfer	No										
Tran Type - Payment	No										
Tran Type - Admin	No										
Tran Type - Cash Deposit	No										
Terminal Data Input Capability											
Keypad	Yes										
Numeric Keys	Yes										
Alpha and Special Character Keys	Yes										
Command Keys	Yes										
Function Keys	Yes										

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

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

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None