

December 05, 2023



Weiquan Ouyang

Shenzhen Topwise Communication Co., Ltd.

5/F, Shengtang Building East Block, Tairan Road 9, Futian District

Shenzhen 518042

China

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

EMV Application Kernel: EMV LIB Version V214

Approval Number(s): 2-05292-1-1C-BCTS-1223-4.4a
2-05292-1-1OS-BCTS-1223-4.4a

The EMV Application Kernel has been tested on the following terminal

Terminal: **MP45P**

PinPad: **n/a**

Operating System: **1OS = AOS Version 2.0.0**

Renewal Date: 01-Nov-2027

Report ID Session 1: **TEMV234Z71T Version V1.0 - Beijing Unionpay Card Technology Co., Ltd. Shenzhen Branch**

Kernel Checksum:

C9 52 D8 28

Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	1C	22	41 45 45 31

Dear Weiquan Ouyang:

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.

EMVCo, LLC, a Delaware limited liability company

By:

Name: Frédéric Fortin

Title: EMVCo Terminal Testing Group 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									
Card Data Input Capability										
Terminal Type	22									
Manual Key Entry	Yes									
Magnetic Stripe	Yes									
IC with Contacts	Yes									
CVM Capability										
Plaintext PIN	Yes									
Online Enciphered PIN	Yes									
Signature (Paper)	Yes									
Offline Enciphered PIN (RSA)	Yes									
No CVM	Yes									
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									
Transaction Type Capability										
Tran Type - Cash	Yes									
Tran Type - Goods	Yes									
Tran Type - Services	Yes									
Tran Type - Cash Back	Yes									
Tran Type - Inquiry	Yes									
Tran Type - Transfer	Yes									
Tran Type - Payment	Yes									
Tran Type - Admin	Yes									
Tran Type - Cash Deposit	Yes									
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	Yes									
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	No									
Partial AID Selection	Yes									
Multi language	Yes									
EMV Language Selection method	Yes									
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, Index, CSN									
Default DDOL	Yes									
Manual act. when CA PK loading fails	Yes									
CA PK verified with check sum	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	Yes									
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	Yes										
Forced Acceptance	Yes										
Advices	Yes										
Voice Referrals Initiated by Issuer	Yes										
Batch Data Capture	Yes										
Online Data Capture	Yes										
Default TDOL	Yes										
Default TDOL not configured	Yes										
Exception Handling											
POS Entry Mode	92										
Miscellaneous											
Amount and PIN on same keypad	Yes										
ICC/Magstripe Reader Combined	No										
If Combined, is Magstripe read first?	No										
Supports account type selection	Yes										
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?	Yes										

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None