

January 23, 2025

Mr. James Tsai

Castles Technology Co., Ltd.

6F., No. 207-5, Sec. 3, Beixin Rd., Xindian District

New Taipei City 23143

TAIWAN, PROVINCE OF CHINA

Re: EMVCo Letter of Approval - Contact Terminal Level 2

EMV Application Kernel: CBM-EMV Version v1.0.10

Approval Number(s):
2-05552-1-1C-ICTK-0125-4.4b
2-05552-1-2C-ICTK-0125-4.4b
2-05552-1-3C-ICTK-0125-4.4b
2-05552-1-4C-ICTK-0125-4.4b
2-05552-1-5C-ICTK-0125-4.4b
2-05552-1-6C-ICTK-0125-4.4b
2-05552-1-1P-ICTK-0125-4.4b
2-05552-1-2P-ICTK-0125-4.4b
2-05552-1-1OS-ICTK-0125-4.4b

The EMV Application Kernel has been tested on the following terminal

Terminal: S1P2

PinPad: 1P = S1P2, CTOS v1.0.0 - PIN pad is valid for configuration(s): 1C, 2C, 3C, 4C, 5C, 6C

2P = VEGA3000 UltraLite, PCIPAD v1.0.0 - PIN pad is valid for configuration(s): 1C, 2C, 3C, 4C, 5C, 6C

Operating System: 1OS = CTOS, 32-bit Version v1.0.0

Renewal Date: 08-Jan-2029

Report ID Session 1: EDT24067 Version 1.0 - ICTK Co., Ltd.

Kernel Checksum:

4B2F504E4E9A066A9B97FDF0404977E88EC2A192

Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	Cfg12F8-1	12	61754985934F9E17DBC84884D12F091AAD859600
2C	Cfg22F8-3	22	3D9FFE991940E9126565A890CBBF34B58B80E460
3C	Cfg22F0-4	22	0626BF0F9B502A13AEC81A97DBA6FA8533CF64C0
4C	Cfg22D8-1	22	2D0665E34FA3FBB3412A7C2EDA5AF2AFE8DC40
5C	Cfg22D0-1	22	DA165E8D9690EC9E953F2E4FF4BA49E7ABC7A2C8
6C	Cfg25D0-2	25	8914289254614B800CF7E8FA100C2C015B325337

PIN Pads Checksums:

PinPad	Checksum
1P	
2P	

Dear Mr. Tsai:

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 and the Cryptographic Functions are part of the EMV specifications. This Contact Level 2 Kernel utilizes a specific Hardware component in the tested terminal to generate random numbers and/or Cryptographic Functions. 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				
Card Data Input Capability										
Terminal Type	12	22	22	22	22	25				
Manual Key Entry	Yes	Yes	Yes	Yes	Yes	No				
Magnetic Stripe	Yes	Yes	Yes	Yes	Yes	Yes				
IC with Contacts	Yes	Yes	Yes	Yes	Yes	Yes				
CVM Capability										
Plaintext PIN	Yes	Yes	Yes	Yes	Yes	Yes				
Online Enciphered PIN	Yes	Yes	Yes	Yes	Yes	Yes				
Signature (Paper)	Yes	Yes	Yes	No	No	No				
Offline Enciphered PIN (RSA)	Yes	Yes	Yes	Yes	Yes	Yes				
No CVM	Yes	Yes	No	Yes	No	No				
Offline Enciphered PIN (ECC)	No	No	No	No	No	No				
Biometric	No	No	No	No	No	No				
Offline Finger	No	No	No	No	No	No				
Online Finger	No	No	No	No	No	No				
Offline Facial	No	No	No	No	No	No				
Online Facial	No	No	No	No	No	No				
Offline Palm	No	No	No	No	No	No				
Online Palm	No	No	No	No	No	No				
Offline Iris	No	No	No	No	No	No				
Online Iris	No	No	No	No	No	No				
Offline Voice	No	No	No	No	No	No				
Online Voice	No	No	No	No	No	No				
Security Capability										
SDA & DDA	Yes	Yes	Yes	Yes	Yes	Yes				
Card Capture	No	No	No	No	No	No				
CDA	Mode 3	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1				
XDA	No	No	No	No	No	No				
Transaction Type Capability										
Tran Type - Cash	Yes	Yes	Yes	Yes	Yes	No				
Tran Type - Goods	Yes	Yes	Yes	Yes	Yes	Yes				
Tran Type - Services	Yes	Yes	Yes	Yes	Yes	Yes				
Tran Type - Cash Back	Yes	Yes	Yes	Yes	Yes	No				
Tran Type - Inquiry	Yes	Yes	No	No	Yes	No				
Tran Type - Transfer	Yes	Yes	No	No	Yes	No				
Tran Type - Payment	Yes	Yes	No	No	Yes	No				
Tran Type - Admin	Yes	Yes	No	No	Yes	No				
Tran Type - Cash Deposit	Yes	Yes	No	No	Yes	No				
Terminal Data Input Capability										
Keypad	Yes	Yes	Yes	Yes	Yes	Yes				
Numeric Keys	Yes	Yes	Yes	Yes	Yes	Yes				
Alpha and Special Character Keys	Yes	Yes	Yes	Yes	Yes	Yes				
Command Keys	Yes	Yes	Yes	Yes	Yes	Yes				
Function Keys	Yes	Yes	Yes	Yes	Yes	Yes				

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

(continued)	1C	2C	3C	4C	5C	6C				
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes	Yes	Yes	Yes	Yes				
TAC can be deleted or disabled	Yes	Yes	Yes	Yes	Yes	Yes				
How does offline only Terminal process Default Action Codes?	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?	N/A	N/A	N/A	N/A	N/A	N/A				
Completion Processing										
Forced Online	Yes	Yes	Yes	Yes	Yes	No				
Forced Acceptance	Yes	No	No	No	No	No				
Voice Referrals Initiated by Issuer	Yes	Yes	Yes	Yes	Yes	No				
Default TDOL	Yes	Yes	Yes	Yes	Yes	Yes				
Default TDOL not configured	Yes	Yes	Yes	Yes	Yes	Yes				
Exception Handling										
POS Entry Mode	8x	8x	8x	8x	8x	8x				
Miscellaneous										
Amount and PIN on same keypad	Yes	Yes	Yes	Yes	Yes	Yes				
ICC/Magstripe Reader Combined	No	No	No	No	No	No				
Supports account type selection	No	Yes	Yes	Yes	Yes	Yes				
Supports 'on fly' script processing	No	No	No	No	No	No				
Issuer Script device limit > 128 bytes	Yes	Yes	Yes	Yes	Yes	Yes				
If limit > 128, value supported?	1024	1024	1024	1024	1024	1024				
Internal Date Management	Yes	Yes	Yes	Yes	Yes	Yes				
Does the terminal support Receipt?	Yes	Yes	Yes	Yes	Yes	Yes				

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None