

July 21, 2020



Mr. Anfernee Lin  
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 v1.0.6**

**Approval Number(s):**  
**2-04704-1-1C-ICTK-0720-4.3i**  
**2-04704-1-2C-ICTK-0720-4.3i**  
**2-04704-1-1P-ICTK-0720-4.3i**  
**2-04704-1-1OS-ICTK-0720-4.3i**

The EMV Application Kernel has been tested on the following terminal

**Terminal: VEGA3000**  
**PinPad: 1P = VEGA3000 UltraLite, PCIPAD v1.0.0 - PIN pad is valid for configuration(s): 1C, 2C**  
**Operating System: 1OS = CTOS Version v1.0.0**

**Renewal Date: 25-Jun-2024**

**Report ID Session 1: EDT20008 Version 1.0 - ICTK Co., Ltd.**

**Kernel Checksum:**

77C5DE19DC3F3BB89DC709F1AC3300B04AD27A5E

**Configurations Checksums:**

Config	Vendor Config ID	Terminal	Checksum
1C	Cfg12F8-1	12	8466CB934A4BA19E49FF69136D97F0CF39141A94
2C	Cfg1440-1	14	83BA1C43D2C6104136FF8239B66DBDF365C936FA

**PIN Pads Checksums:**

PinPad	Checksum
1P	1135D9142DD124619E912D9FD34ECCFAEAF9C99D6

Dear Mr. Lin:

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](http://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 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								
<b>Card Data Input Capability</b>										
Terminal Type	12	14								
Manual Key Entry	Yes	No								
Magnetic Stripe	Yes	Yes								
IC with Contacts	Yes	Yes								
<b>CVM Capability</b>										
Plaintext PIN	Yes	No								
Online Enciphered PIN	Yes	Yes								
Signature (Paper)	Yes	No								
Offline Enciphered PIN	Yes	No								
No CVM	Yes	No								
SB185	No	No								
Offline Finger	No	No								
Online Finger	No	No								
Offline Facial	No	No								
Online Facial	No	No								
Offline Palm	No	No								
Online Palm	No	No								
Offline Iris	No	No								
Online Iris	No	No								
Offline Voice	No	No								
Online Voice	No	No								
<b>Security Capability</b>										
SDA & DDA	Yes	Yes								
Card Capture	No	No								
CDA	Mode 3	Mode 1								
<b>Transaction Type Capability</b>										
Tran Type - Cash	Yes	Yes								
Tran Type - Goods	Yes	No								
Tran Type - Services	Yes	No								
Tran Type - Cash Back	Yes	No								
Tran Type - Inquiry	Yes	Yes								
Tran Type - Transfer	Yes	Yes								
Tran Type - Payment	Yes	Yes								
Tran Type - Admin	Yes	Yes								
Tran Type - Cash Deposit	Yes	Yes								
<b>Terminal Data Input Capability</b>										
Keypad	Yes	Yes								
Numeric Keys	Yes	Yes								
Alpha and Special Character Keys	Yes	Yes								
Command Keys	Yes	Yes								
Function Keys	Yes	Yes								

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

(continued)	1C	2C								
<b>Terminal Action Analysis</b>										
Terminal Action Codes supported	Yes	Yes								
TAC can be deleted or disabled	Yes	Yes								
How does offline only Terminal process Default Action Codes?	N/A	N/A								
How does online only terminal process TAC/IAC-Default when unable to go online?	N/A	Skipped								
<b>Completion Processing</b>										
Forced Online	Yes	No								
Forced Acceptance	Yes	No								
Advices	Yes	No								
Voice Referrals Initiated by Issuer	Yes	No								
Batch Data Capture	Yes	Yes								
Online Data Capture	Yes	Yes								
Default TDOL	Yes	Yes								
<b>Exception Handling</b>										
POS Entry Mode	8x	8x								
<b>Miscellaneous</b>										
Amount and PIN on same keypad	Yes	Yes								
ICC/Magstripe Reader Combined	No	No								
If Combined, is Magstripe read first?	No	No								
Supports account type selection	No	Yes								
Supports 'on fly' script processing	No	No								
Issuer Script device limit > 128 bytes	Yes	Yes								
If limit > 128, value supported?	1024	1024								
Internal Date Management	Yes	Yes								
Does the terminal support Receipt?	Yes	Yes								

# **Attachment 1**

## **Specific Terms and Conditions to the Letter of Approval**

Restriction:

**None**