

November 17, 2025

hyungtai choi

TJ Solution co., LTD.

#208, 76, LS-ro, Dongan-gu

anyang-si 14117

KOREA, REPUBLIC OF

Re: EMVCo Letter of Approval - Contact Terminal Level 2

EMV Application Kernel: TJ.EMV_API Version V4.4C

Approval Number(s):
2-05710-1-1C-CETM-1125-4.4c
2-05710-1-2C-CETM-1125-4.4c
2-05710-1-3C-CETM-1125-4.4c
2-05710-1-1P-CETM-1125-4.4c
2-05710-1-1OS-CETM-1125-4.4c

The EMV Application Kernel has been tested on the following terminal

Terminal: TJ-X20
PinPad: 1P = TJ-X20, TJ.EMV_API V4.4C - PIN pad is valid for configuration(s): 1C, 2C, 3C
Operating System: IOS = Linux 32bit Version 4.1.15

Renewal Date: 17-Nov-2029

Report ID Session 1: 2_TSCL_K6074_25_02_CEM Version 1.2 - CETECOM Limited

Kernel Checksum:

8487DDF9DBE9B9500804B0E4E24CFB7F

Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	C01	22	DF0D6609B19EE260A7C6C204FF494E03
2C	C02	22	BD8D436583560414B84744DDF49D5C3E
3C	C03	22	E6E56D2F2BC0AA9A89DB4AD3A6D90FD1

PIN Pads Checksums:

PinPad	Checksum
1P	

Dear hyungtai choi:

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

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

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

(continued)	1C	2C	3C							
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes	Yes							
TAC can be deleted or disabled	No	No	No							
How does offline only Terminal process Default Action Codes?	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							
Completion Processing										
Forced Online	Yes	Yes	Yes							
Forced Acceptance	Yes	Yes	Yes							
Voice Referrals Initiated by Issuer	Yes	Yes	Yes							
Default TDOL	Yes	Yes	Yes							
Default TDOL not configured	No	No	No							
Exception Handling										
POS Entry Mode	80	80	80							
Miscellaneous										
Amount and PIN on same keypad	No	No	No							
ICC/Magstripe Reader Combined	No	No	No							
Supports account type selection	No	No	No							
Supports 'on fly' script processing	No	No	No							
Issuer Script device limit > 128 bytes	No	No	No							
If limit > 128, value supported?										
Internal Date Management	Yes	Yes	Yes							
Does the terminal support Receipt?	Yes	Yes	Yes							

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None