

June 10, 2024

Vipin K. Paul
Verifone, Inc.
2744 North University Drive
Coral Springs 33065
UNITED STATES OF AMERICA

Re: EMVCo Letter of Approval - Contact Terminal Level 2 - Restricted Renewal

EMV Application Kernel: EMV L2 Version 7.0.3l

Approval Number(s):

- 2-04358-1-1C-ULVS-1118-4.3g**
- 2-04358-1-2C-ULVS-1118-4.3g**
- 2-04358-1-3C-ULVS-1118-4.3g**
- 2-04358-1-4C-ULVS-1118-4.3g**
- 2-04358-1-5C-ULVS-1118-4.3g**
- 2-04358-2-6C-ULVS-1218-4.3g**
- 2-04358-2-7C-ULVS-1218-4.3g**
- 2-04358-2-8C-ULVS-1218-4.3g**
- 2-04358-3-9C-ULVS-0319-4.3g**
- 2-04358-3-10C-ULVS-0319-4.3g**
- 2-04358-3-11C-ULVS-0319-4.3g**
- 2-04358-3-12C-ULVS-0319-4.3g**
- 2-04358-4-13C-ULVS-0319-4.3g**
- 2-04358-5-14C-ULVS-0422-4.3j**
- 2-05111-3-15C-FSUL-0624-4.4b**
- 2-04358-1-10S-ULVS-1118-4.3g**

The EMV Application Kernel has been tested on the following terminal

Terminal: Vx520
PinPad: n/a
Operating System: IOS = Linux Version 2.6

Expiry Date: 28-Nov-2026

Report ID

- Session 1: 2 HYPE-RP14428941JD01A-ULVS & 22-106-RA-VERI-703I-10 Version 1.0 - UL VS Ltd**
- Session 2: 2 HYPE-RP14428941JD01B-ULVS & 22-106-RA-VERI-703I-10 Version 1.0 - UL VS Ltd**
- Session 3: 2 HYPE-RP15165359JD01A-FSUL.docx Version 1.0 - Fime Services UK Ltd.**

Kernel Checksum:

234576F7

Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	549D909B	22	5FC6AD1B
2C	572F73C1	22	F2C24AFA
3C	9D6F4632	22	3E05007C
4C	579BEB33	22	0F602A4C
5C	568049F4	25	ADBEBD4D
6C	336D22CD	24	FE48EA81
7C	31077982	24	3EB96771
8C	DBE7E79A	25	D196BA9D
9C	AF62A57C	22	A5F485F3
10C	679F3C65	25	49D432BB
11C	48ACCCDC	25	CD05C972
12C	2C6E6025	25	599008D3
13C	568049F4A	25	FBF17ACE
14C	E55CF50F	22	9871B12F
15C	59DA1C1A	25	F6F9059E

Dear Vipin K. Paul:

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 Restricted Renewal, 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. According to EMVCo Restricted Renewal policy the extension to the original Type Approval is granted for a period of three years. At the end of that additional validity period the Application Kernel will expire and cannot be submitted for another renewal.

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	2C	3C	4C	5C	6C	7C	8C	9C	10C
Card Data Input Capability										
Terminal Type	22	22	22	22	25	24	24	25	22	25
Manual Key Entry	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
Magnetic Stripe	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IC with Contacts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CVM Capability										
Plaintext PIN	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
Online Enciphered PIN	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Signature (Paper)	Yes	Yes	Yes	No	No	No	No	No	Yes	No
Offline Enciphered PIN (RSA)	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
No CVM	Yes	No	Yes	Yes	No	Yes	No	Yes	No	Yes
Offline Enciphered PIN (ECC)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Biometric	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Offline Finger	No	No	No	No	No	No	No	No	No	No
Online Finger	No	No	No	No	No	No	No	No	No	No
Offline Facial	No	No	No	No	No	No	No	No	No	No
Online Facial	No	No	No	No	No	No	No	No	No	No
Offline Palm	No	No	No	No	No	No	No	No	No	No
Online Palm	No	No	No	No	No	No	No	No	No	No
Offline Iris	No	No	No	No	No	No	No	No	No	No
Online Iris	No	No	No	No	No	No	No	No	No	No
Offline Voice	No	No	No	No	No	No	No	No	No	No
Online Voice	No	No	No	No	No	No	No	No	No	No
Security Capability										
SDA & DDA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Card Capture	No	No	No	No	No	No	No	No	No	No
CDA	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1
XDA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Transaction Type Capability										
Tran Type - Cash	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
Tran Type - Goods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tran Type - Services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tran Type - Cash Back	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
Tran Type - Inquiry	No	No	No	No	No	No	No	No	No	No
Tran Type - Transfer	No	No	No	No	No	No	No	No	No	No
Tran Type - Payment	No	No	No	No	No	No	No	No	No	No
Tran Type - Admin	No	No	No	No	No	No	No	No	No	No
Tran Type - Cash Deposit	No	No	No	No	No	No	No	No	No	No
Terminal Data Input Capability										
Keypad	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Numeric Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alpha and Special Character Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Command Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Function Keys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

(continued)	1C	2C	3C	4C	5C	6C	7C	8C	9C	10C
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TAC can be deleted or disabled	No	No	No	No	No	No	No	No	No	No
How does offline only Terminal process Default Action Codes?	N/A	N/A	N/A	N/A	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	Normal	Normal	N/A	N/A	N/A
Completion Processing										
Forced Online	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
Forced Acceptance	Yes	No	No	Yes	No	No	No	No	No	No
Voice Referrals Initiated by Issuer	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No
Default TDOL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Default TDOL not configured	No	No	No	No	No	No	No	No	No	No
Exception Handling										
POS Entry Mode	0x80	0x80	0x80	0x80	0x80	0x80	0x80	0x80	0x80	0x80
Miscellaneous										
Amount and PIN on same keypad	No	No	No	No	No	No	No	No	No	No
ICC/Magstripe Reader Combined	No	No	No	No	No	No	No	No	No	No
Supports account type selection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Supports 'on fly' script processing	No	No	No	No	No	No	No	No	No	No
Issuer Script device limit > 128 bytes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
If limit > 128, value supported?	0	0	0	0	0	0	0	0	0	0
Internal Date Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does the terminal support Receipt?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Terminal Capabilities	11C	12C	13C	14C	15C					
Card Data Input Capability										
Terminal Type	25	25	25	22	25					
Manual Key Entry	Yes	No	Yes	No	Yes					
Magnetic Stripe	Yes	Yes	Yes	Yes	Yes					
IC with Contacts	Yes	Yes	Yes	Yes	Yes					
CVM Capability										
Plaintext PIN	Yes	Yes	Yes	No	No					
Online Enciphered PIN	No	No	Yes	No	No					
Signature (Paper)	No	No	No	Yes	No					
Offline Enciphered PIN (RSA)	Yes	Yes	Yes	No	Yes					
No CVM	Yes	No	No	Yes	Yes					
Offline Enciphered PIN (ECC)	n/a	n/a	n/a	n/a	No					
Biometric	Yes	Yes	Yes	Yes	Yes					
Offline Finger	No	No	No	No	No					
Online Finger	No	No	No	No	No					
Offline Facial	No	No	No	No	No					
Online Facial	No	No	No	No	No					
Offline Palm	No	No	No	No	No					
Online Palm	No	No	No	No	No					
Offline Iris	No	No	No	No	No					
Online Iris	No	No	No	No	No					
Offline Voice	No	No	No	No	No					
Online Voice	No	No	No	No	No					
Security Capability										
SDA & DDA	Yes	Yes	Yes	Yes	Yes					
Card Capture	No	No	No	No	No					
CDA	Mode 1	Mode 1	Mode 1	Mode 1	Mode 1					
XDA	n/a	n/a	n/a	n/a	No					
Transaction Type Capability										
Transaction Type - Cash	Yes	No	No	Yes	Yes					
Transaction Type - Goods	Yes	Yes	Yes	Yes	Yes					
Transaction Type - Services	Yes	Yes	Yes	Yes	Yes					
Transaction Type - Cash Back	Yes	No	No	Yes	Yes					
Transaction Type - Inquiry	No	No	No	No	No					
Transaction Type - Transfer	No	No	No	No	No					
Transaction Type - Payment	No	No	No	No	No					
Transaction Type - Admin	No	No	No	No	No					
Transaction Type - Cash Deposit	No	No	No	No	No					
Terminal Data Input Capability										
Keypad	Yes	Yes	Yes	No	Yes					
Numeric Keys	Yes	Yes	Yes	No	Yes					
Alpha and Special Character Keys	Yes	Yes	No	No	Yes					
Command Keys	Yes	Yes	Yes	No	Yes					
Function Keys	Yes	Yes	Yes	No	Yes					

(continued)	11C	12C	13C	14C	15C					
Terminal Data Output Capability										
Print, Attendant	No	No	No	Yes	No					
Print, Cardholder	Yes	Yes	Yes	No	Yes					
Display, Attendant	No	No	No	Yes	No					
Display, Cardholder	Yes	Yes	Yes	No	Yes					
Code Table 10	No	No	No	No	No					
Code Table 9	No	No	No	No	No					
Code Table 8	No	No	No	No	No					
Code Table 7	No	No	No	No	No					
Code Table 6	No	No	No	No	No					
Code Table 5	No	No	No	No	No					
Code Table 4	No	No	No	No	No					
Code Table 3	No	No	No	No	No					
Code Table 2	No	No	No	No	No					
Code Table 1	Yes	Yes	Yes	Yes	Yes					
Application Selection										
PSE	Yes	Yes	Yes	Yes	Yes					
Cardholder Confirmation	Yes	Yes	Yes	No	Yes					
Preferred display order	No	No	No	No	No					
Partial AID Selection	Yes	Yes	Yes	Yes	Yes					
Multi language	Yes	Yes	Yes	Yes	Yes					
EMV Language Selection method	Yes	Yes	Yes	Yes	Yes					
Common Character Set	Yes	Yes	Yes	Yes	Yes					
Data Authentication										
MAX CA Public key	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					
Revocation of Issuer PK Certificate	Yes	Yes	Yes	Yes	Yes					
Certificate Revocation List Format	RID, CAPK index and Certificate Serial Number	RID, CAPK index and Certificate Serial Number	RID, CAPK index and Certificate Serial Number	RID, CAPK index and Certificate Serial Number	RID, CAPK index and Certificate Serial Number					
Default DDOL	Yes	Yes	Yes	Yes	Yes					
Cardholder Verification Method										
Bypass PIN Entry	No	No	No	No	No					
Subsequent Bypass PIN Entry	No	No	No	No	No					
Get Data for PIN Try Counter	Yes	Yes	Yes	No	Yes					
Fail CVM	Yes	Yes	Yes	Yes	Yes					
Amount known before CVM proces.	Yes	Yes	Yes	Yes	Yes					
Terminal Risk Management										
Floor Limit Checking	Yes	Yes	Yes	Yes	Yes					
Random Transaction Selection	Yes	Yes	Yes	Yes	Yes					
Velocity Checking	Yes	Yes	Yes	Yes	Yes					
Transaction Log	Yes	Yes	Yes	Yes	Yes					
Exception File	Yes	Yes	No	Yes	Yes					
TRM irrespective of AIP setting (expected behavior)	Yes	Yes	Yes	Yes	Yes					

(continued)	11C	12C	13C	14C	15C					
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes	Yes	Yes	Yes					
TAC can be deleted or disabled	No	No	No	No	No					
How does offline only Terminal process Default Action Codes?	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					
Completion Processing										
Forced Online	No	No	No	Yes	No					
Forced Acceptance	No	No	No	No	No					
Voice Referrals Initiated by Issuer	No	No	No	Yes	No					
Default TDOL	Yes	Yes	Yes	Yes	Yes					
Default TDOL not configured	No	No	No	No	No					
Exception Handling										
POS Entry Mode	0x80	0x80	0x80	0x80	0x80					
Miscellaneous										
Amount and PIN on same keypad	No	No	No	No	No					
ICC/Magstripe Reader Combined	No	No	Yes	No	No					
Supports account type selection	Yes	Yes	No	No	Yes					
Supports 'on fly' script processing	No	No	No	No	No					
Issuer Script device limit > 128 bytes	Yes	Yes	Yes	Yes	Yes					
If limit > 128, value supported?	0	0	0	0	0					
Internal Date Management	Yes	Yes	Yes	Yes	Yes					
Does the terminal support Receipt?	Yes	Yes	Yes	Yes	Yes					

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None

Conditions:

SB272 is not supported. Kernel treats year 'YY' associated with Application Expiration and Certificate Expiration dates in the range of 50-99 as 1950-1999. Contact Vendor for more information