October 13, 2026

Mr. DIEGO GONÇALVES SILVA
Perto S.A. Perifericos para Automacao
Rua Nissin Castiel, 640
Distrito Industrial -
Gravatai - RS 94045-420
Brazil

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

EMV Application Kernel: **e-Kardia Version e-Kardia-4.4c**

Approval Number(s): **2-05877-1-1S-1026-4.4c**
2-05877-1-1P-1026-4.4c
2-05877-1-1OS-1026-4.4c

The EMV Application Kernel has been tested on the following terminal

Terminal: **PPP100**
PinPad: **1P = PPP100, e-Kardia-4.4c**
Operating System: **1OS = F00TGI00-FreeRTOS - 32 bits Version 10.2.0**

Expiry Date: **30-Jun-2030**

Report ID Session 1: **TETPER016_01 Version M0 - LGAI Technological Center S.A.**

Kernel Checksum:

3CCADA20DE38E928AB434FCAEEC01B6D8A385630

Configuration Checksum:

Config	Vendor Config ID	Terminal	Checksum
1S		22	AB39D39F543FD35B4293332D7E4EAA44A4BF31FB

PIN Pads Checksums:

PinPad	Checksum
1P	N/A

Dear Mr. GONÇALVES SILVA:

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 refered 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 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	Value Supported
Card Data Input Capability	
Manual Key Entry	Yes
Magnetic Stripe	Yes
IC with Contacts	Yes
CVM Capability	
Plaintext PIN for ICC Verification	Yes
Enciphered PIN for online Verification	Yes
Signature (Paper)	Yes
Enciphered PIN for offline Verification (RSA ODE)	Yes
No CVM Required	Yes
Enciphered PIN for offline Verification (ECC ODE)	No
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	
Static Data Authentication and Dynamic Data Authentication	Yes
Card Capture	No
Combined Dynamic Data Authentication / Application Cryptogram Generation	Mode 1
Extended Data Authentication (XDA)	No
Transaction Type Capability	
Cash	No
Goods	Yes
Services	Yes
Cash Back	Yes
Inquiry	No
Transfer	No
Payment	No
Administrative	No
Cash Deposit	No
Terminal Data Input Capability	
Does terminal have keypad	Yes
Numeric Keys	Yes
Alphabetic and Special Character Keys	Yes
Command Keys	Yes
Function Keys	Yes
Terminal Data Output Capability	
Print, Attendant and/or Cardholder	Yes
Display, Attendant and/or Cardholder	Yes

Terminal Capabilities	Value Supported
Terminal Data Output Capability	
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	
Support PSE selection Method	Yes
Support Cardholder Selection & Confirmation	Yes
Does Terminal have a preferred order of displaying applications	No
Does terminal perfom partial AID selection	Yes
Does the terminal have multi language support	Yes
Does the terminal support the EMV Language Selection method	Yes
Does the terminal support the Common Character Set as defined in Annex B table 20 Book 4	Yes
Selectable Kernel Configurations	
Is your Multi-Configuration Kernel capable of dynamically selecting a configuration at the time of transaction	No
Data Authentication	
During data authentication does the terminal check validity for revocation of Issuer Public Key Certificate	Yes
When supporting certificate revocation, what is the Certificate Revocation List format?	RID, CA PK index, CSN
Does the terminal contain a default DDOL (Mandatory for terminals supporting DDA)	Yes
Cardholder Verification Method	
Terminal supports bypass PIN Entry	Yes
Terminal supports Subsequent bypass PIN Entry	No
Terminal supports Get Data for PIN Try Counter	Yes
Terminal supports Fail CVM	Yes
Are amounts known before CVM processing	Yes
Terminal Risk Management	
Floor Limit Checking (Mandatory for offline only terminals and offline terminals with online capability)	Yes
Random Transaction Selection (Mandatory for offline terminals with online capability, except when cardholder controlled)	Yes
Velocity Checking (Mandatory for offline only terminals and offline terminals with online capability)	Yes
Transaction Log	Yes
Exception File	Yes
Terminal Risk Management performed irrespective of AIP setting (expected behavior)	Yes

Terminal Capabilities	Value Supported
Terminal Action Analysis	
Does the terminal support Terminal Action Codes	Yes
Can the Terminal Action Codes be deleted or disabled? If yes, the default TAC values of the TAC-Online, TAC-default and TAC-denial shall be set to zeroes	Yes
If Offline Only is supported, which option of the Offline Only Terminal processing is implemented? (according to Book3, section 10.7)	N/A
How does online only terminal process TAC/IAC-Default when unable to go online?	N/A
Completion Processing	
Transaction Forced Online Capability	Yes
Transaction Forced Acceptance Capability	No
Does the terminal support Issuer initiated Voice Referrals	Yes
Does the terminal support a Default TDOL	Yes
If a Default TDOL is supported, can this default TDOL be not configured (or not loaded) in the terminal	Yes
Default TDOL TVR bit set before or after the 1st Generate AC Terminal Action Analysis	After
Exception Handling	
What is the POS Entry Mode value when IC cannot be read and the transaction falls back using Magstripe (Mandatory for attended terminals)	80
Miscellaneous	
Is the terminal equipped with a PIN Pad	Yes
Is the amount and PIN entered at the same keypad	Yes
Is the ICC/Magstripe Reader combined	No
Does the terminal support account type selection	No
Does the terminal support 'on fly' script processing (not recommended behavior)	No
Is the Issuer Script device limit greater than 128 bytes	No
If the Issuer Script device limit is greater than 128 bytes, what is the value supported	
Does the terminal support Internal Date Management	Yes
Is the Level 2 Contact Kernel Random Generator using the algorithm described in Book2, section 11.3	No
If the Level 2 Contact Kernel Random Generator is not using the algorithm described in Book2, section 11.3, is this function PCI approved	Yes
If the Level 2 Contact Kernel Random Generator is not using the algorithm described in Book2, section 11.3, describe the function (such as algorithm used, etc)	The TRNG (True Random Number Generator) embedded in the MAX32560 chip is designed to efficiently generate a 128-bit true random number in 128 system clock cycles. It's based on the Galois (gal-wah) accelerator.
Is the Random Generator function of the Level 2 Contact Kernel Software dependent on the Terminal Hardware?	Yes
If answer to previous question is Yes, describe the function and the Hardware	The TRNG is integrated in the MAX32560 secure SOC. It's battery-backed Real Time Clock, environmental and tamper detection circuitry to facilitate system-level security for the application. The TRNG passes NIST 800-22 and DIEHARD test suites. For more details refer to the Maxim MAX32560 user guide reference UG90H04.
Are the Cryptographic functions (RSA, Hash, etc) of the Level 2 Contact Kernel Software dependent on the Terminal Hardware	No
If answer to previous question is Yes, describe the Hardware	
Is any other functions of the Level 2 Contact Kernel Software dependent on the Terminal Hardware	No
If answer to previous question is Yes, describe the functions and the Hardware	

Terminal Capabilities	Value Supported
Miscellaneous	
Does the terminal support Receipt (by printing or any electronic means)?	Yes
List the Currency Codes supported as for ISO 4217 (one currency shall be declared at a minimum, and up to 10 if multiple currencies are supported with at least one per currency exponent supported)	124 36 392 410 702 756 826 840 978 986
Does the terminal support the Application Selection Registered Proprietary Data (ASRPD)?	No
List the Language(s) supported as for ISO 639 (minimum one shall be declared, and up to 10 if Multiple Languages are supported)	eng fra deu
Can the Kernel be configured so the data object 'Terminal Risk Management Data' '9F1D' is absent or configured with no value (00 is a value)?	Yes
Can the Transaction Sequence Counter (TSC) be personalized to any value?	No
If answer to previous question is Yes, what is the Maximum Value of the Transaction Sequence Counter?	
Checksum	
Does the product comply with the Checksum rules as defined in Contact Terminal Level 2 administrative process	Yes
This is an Initial submission or Subsequent submission or renewal of the original approved product prior to the effective date of checksum rules (cf Terminal Type Approval Bulletin No. 134)	n/a
Configuration Checksum (Static Kernel only)	AB39D39F543FD35B4293332D7E4EAA44A4BF31FB

Attachment 1
Specific Terms and Conditions to the Letter of Approval

Restriction:

None