August 16, 2023

Martin Lally
CR2 Ltd
9 Beckett Way
Park West Business Park
Nangor Road
Dublin Dublin 12
IRELAND

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

EMV Application Kernel:	**EmvEngine Version 4.4.1**
Approval Number(s):	**2-05235-1-1C-ULVS-0823-4.4a**
	2-05235-1-1P-ULVS-0823-4.4a
	2-05235-1-1OS-ULVS-0823-4.4a

The EMV Application Kernel has been tested on the following terminal

Terminal:	**ATM Simulator**
PinPad:	**1P = Cryptera USA1217-5613 R1A, 414-0697 R2F - PIN pad is valid for configuration(s): 1C**
Operating System:	**1OS = Microsoft Windows 10 Version 10.0**

Renewal Date:	**15-Aug-2027**

Report ID   Session 1: **2 CRLT-RP14833698JD01A-ULVS Version 3.0 - UL VS Ltd**

Kernel Checksum:

A3EF189E061CC265123ED530259686461FFDA198

Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	CR2Default	14	B36DEAAA279765031D56AFCC74DD1AE14EF20F48

PIN Pads Checksums:

PinPad	Checksum
1P	DCB5F71C2BE8CD57AC84FECC30CA4E4ECABDC208

Dear Martin Lally:

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.

EMVCo, LLC, a Delaware limited liability company

By:
Name: Frédéric Fortin
Title: EMVCo Terminal Testing Group Chair

Terminal Capabilities	1C									
Card Data Input Capability										
Terminal Type	14									
Manual Key Entry	No									
Magnetic Stripe	Yes									
IC with Contacts	Yes									
CVM Capability										
Plaintext PIN	No									
Online Enciphered PIN	Yes									
Signature (Paper)	No									
Offline Enciphered PIN (RSA)	No									
No CVM	No									
Biometric	Yes									
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										
SDA & DDA	No									
Card Capture	No									
CDA	No									
Transaction Type Capability										
Tran Type - Cash	Yes									
Tran Type - Goods	No									
Tran Type - Services	No									
Tran Type - Cash Back	No									
Tran Type - Inquiry	Yes									
Tran Type - Transfer	Yes									
Tran Type - Payment	Yes									
Tran Type - Admin	Yes									
Tran Type - Cash Deposit	Yes									
Terminal Data Input Capability										
Keypad	Yes									
Numeric Keys	Yes									
Alpha and Special Character Keys	No									
Command Keys	Yes									
Function Keys	Yes									

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

(continued)	1C									
Terminal Action Analysis										
Terminal Action Codes supported	Yes									
TAC can be deleted or disabled	Yes									
How does offline only Terminal process Default Action Codes?	N/A									
How does online only terminal process TAC/IAC-Default when unable to go online?	Skipped									
Completion Processing										
Forced Online	No									
Forced Acceptance	No									
Advices	Yes									
Voice Referrals Initiated by Issuer	No									
Batch Data Capture	No									
Online Data Capture	Yes									
Default TDOL	Yes									
Default TDOL not configured	Yes									
Exception Handling										
POS Entry Mode	92									
Miscellaneous										
Amount and PIN on same keypad	Yes									
ICC/Magstripe Reader Combined	Yes									
If Combined, is Magstripe read first?	Yes									
Supports account type selection	No									
Supports 'on fly' script processing	No									
Issuer Script device limit > 128 bytes	Yes									
If limit > 128, value supported?	256									
Internal Date Management	No									
Does the terminal support Receipt?	Yes									

Attachment 1
Specific Terms and Conditions to the Letter of Approval

Restriction:

None