

August 19, 2021

Paola Araco  
NCR Financial Solutions Group Limited  
Discovery Centre (2nd Floor - East)  
3 Fulton Road  
Dundee DD2 4SW  
UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN  
IRELAND

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

**EMV Application Kernel: APTRA EMV Kernel Version 8.00**

**Approval Number(s):**  
**2-04007-1-1C-CETI-0917-4.3f**  
**2-04007-1-2C-CETI-0917-4.3f**  
**2-04007-1-3C-CETI-0917-4.3f**  
**2-04007-1-4C-CETI-0917-4.3f**  
**2-04007-1-5C-CETI-0917-4.3f**  
**2-04007-1-6C-CETI-0917-4.3f**  
**2-04007-1-1OS-CETI-0917-4.3f**  
**2-04007-1-2OS-CETI-0917-4.3f**

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The EMV Application Kernel has been tested on the following terminal

**Terminal: NCR SelfServ™ ATM**  
**PinPad: n/a**  
**Operating System: 1OS = Microsoft Windows Version 10**  
**2OS = Windows 7 Version 6.1**

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**Expiry Date: 19-Sep-2025**

**Report ID Session 1: 2NCRF\_1-2515-2-3-21\_CETI Version Initial - CTC advanced GmbH**

**Kernel Checksum:**

A02D5D0F8102988C8265
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**Configurations Checksums:**

Config	Vendor Config ID	Terminal	Checksum
1C	C-ITA-1	14	B39AB94576ECE03B9078
2C	C-STD-2	14	EA57F687903BD029D447
3C	C-STD-3	14	8C82EF198AF3FA48FCAA
4C	C-GER-4	14	BA4C3805B9562BAA1AFF
5C	C-T24_5	24	0BA7D9D18D042E51D34E
6C	C-STD-6	14	63D66AD48510E5A4A645

Dear Paola Araco:

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](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

Terminal Capabilities	1C	2C	3C	4C	5C	6C				
<b>Card Data Input Capability</b>										
Terminal Type	14	14	14	14	24	14				
Manual Key Entry	No	No	No	No	No	No				
Magnetic Stripe	Yes	Yes	Yes	Yes	Yes	Yes				
IC with Contacts	Yes	Yes	Yes	Yes	Yes	Yes				
<b>CVM Capability</b>										
Plaintext PIN	Yes	No	No	No	No	No				
Online Enciphered PIN	Yes	Yes	Yes	Yes	Yes	Yes				
Signature (Paper)	No	No	No	No	No	No				
Offline Enciphered PIN	Yes	No	No	No	No	No				
No CVM	No	No	No	No	No	No				
SB185	No	No	No	No	No	No				
Offline Finger	No	No	No	No	No	No				
Online Finger	No	No	No	No	No	No				
Offline Facial	No	No	No	No	No	No				
Online Facial	No	No	No	No	No	No				
Offline Palm	No	No	No	No	No	No				
Online Palm	No	No	No	No	No	No				
Offline Iris	No	No	No	No	No	No				
Online Iris	No	No	No	No	No	No				
Offline Voice	No	No	No	No	No	No				
Online Voice	No	No	No	No	No	No				
<b>Security Capability</b>										
SDA & DDA	Yes	No	No	No	No	Yes				
Card Capture	Yes	Yes	Yes	Yes	Yes	Yes				
CDA	Mode 1	No	No	No	No	Mode 1				
<b>Transaction Type Capability</b>										
Tran Type - Cash	Yes	Yes	Yes	Yes	Yes	Yes				
Tran Type - Goods	Yes	Yes	Yes	No	Yes	Yes				
Tran Type - Services	Yes	Yes	Yes	No	Yes	Yes				
Tran Type - Cash Back	No	No	No	No	No	No				
Tran Type - Inquiry	Yes	Yes	Yes	No	Yes	Yes				
Tran Type - Transfer	Yes	Yes	Yes	No	Yes	Yes				
Tran Type - Payment	Yes	Yes	Yes	No	Yes	Yes				
Tran Type - Admin	No	No	No	No	No	No				
Tran Type - Cash Deposit	Yes	Yes	Yes	No	Yes	Yes				
<b>Terminal Data Input Capability</b>										
Keypad	Yes	Yes	Yes	Yes	Yes	Yes				
Numeric Keys	Yes	Yes	Yes	Yes	Yes	Yes				
Alpha and Special Character Keys	No	No	No	No	No	No				
Command Keys	Yes	Yes	Yes	Yes	Yes	Yes				
Function Keys	Yes	Yes	Yes	Yes	Yes	Yes				

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

(continued)	1C	2C	3C	4C	5C	6C				
<b>Terminal Action Analysis</b>										
Terminal Action Codes supported	Yes	Yes	Yes	Yes	Yes	Yes				
TAC can be deleted or disabled	Yes	Yes	Yes	Yes	Yes	Yes				
How does offline only Terminal process Default Action Codes?	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?	Skipped	Skipped	Skipped	Skipped	Skipped	Skipped				
<b>Completion Processing</b>										
Forced Online	No	No	No	No	No	No				
Forced Acceptance	No	No	No	No	No	No				
Advices	No	No	No	No	No	No				
Voice Referrals Initiated by Issuer	No	No	No	No	No	No				
Batch Data Capture	No	No	No	No	No	No				
Online Data Capture	Yes	Yes	Yes	Yes	Yes	Yes				
Default TDOL	Yes	Yes	Yes	Yes	Yes	Yes				
Default TDOL not configured	Yes	Yes	Yes	Yes	Yes	Yes				
<b>Exception Handling</b>										
POS Entry Mode	N/A	N/A	N/A	80	N/A	N/A				
<b>Miscellaneous</b>										
Amount and PIN on same keypad	Yes	Yes	Yes	Yes	Yes	Yes				
ICC/Magstripe Reader Combined	Yes	Yes	Yes	Yes	Yes	Yes				
If Combined, is Magstripe read first?	Yes	Yes	Yes	Yes	Yes	Yes				
Supports account type selection	No	No	No	No	No	No				
Supports 'on fly' script processing	No	No	No	No	No	No				
Issuer Script device limit > 128 bytes	Yes	Yes	Yes	Yes	Yes	Yes				
If limit > 128, value supported?	0	0	0	0	0	0				
Internal Date Management	Yes	Yes	Yes	Yes	Yes	Yes				
Does the terminal support Receipt?	Yes	Yes	Yes	No	Yes	Yes				

## **Attachment 1**

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

Restriction:

**None**