

December 20, 2021

Mr. Jinoh Kim
Bluebird Inc.
3F, 115, Irwon-ro
Gangnam-gu
Seoul 06355
KOREA, REPUBLIC OF

Re: EMVCo Letter of Approval - Contact Terminal Level 2

EMV Application Kernel: Bluebird Payment EMV Kernel Version 3.3

Approval Number(s):
2-04942-1-1C-ICTK-1221-4.3j
2-04942-1-2C-ICTK-1221-4.3j
2-04942-1-1OS-ICTK-1221-4.3j

The EMV Application Kernel has been tested on the following terminal

Terminal: Bluebird Payment Terminal
PinPad: n/a
Operating System: IOS = Linux 32bit Version 2.6.32.9

Renewal Date: 25-Nov-2025

Report ID Session 1: EDT21014 Version 1.0 - ICTK Co., Ltd.

Kernel Checksum:

89539B89305D046C871E6D1BA2ADEA087078B805
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Configurations Checksums:

Config	Vendor Config ID	Terminal	Checksum
1C	1C	22	9D0475B6B64DD2F5854CA0C8A55A595E07964A04
2C	2C	22	48F510A412A7D2BA6C1B4AF379FFDB209026A3E9

Dear Mr. Kim:

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, 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.

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 Type Approval Chair

Terminal Capabilities	1C	2C								
Card Data Input Capability										
Terminal Type	22	22								
Manual Key Entry	Yes	Yes								
Magnetic Stripe	Yes	Yes								
IC with Contacts	Yes	Yes								
CVM Capability										
Plaintext PIN	Yes	Yes								
Online Enciphered PIN	Yes	No								
Signature (Paper)	Yes	Yes								
Offline Enciphered PIN	Yes	Yes								
No CVM	Yes	Yes								
SB185	No	No								
Offline Finger	No	No								
Online Finger	No	No								
Offline Facial	No	No								
Online Facial	No	No								
Offline Palm	No	No								
Online Palm	No	No								
Offline Iris	No	No								
Online Iris	No	No								
Offline Voice	No	No								
Online Voice	No	No								
Security Capability										
SDA & DDA	Yes	Yes								
Card Capture	No	No								
CDA	Mode 1	Mode 1								
Transaction Type Capability										
Tran Type - Cash	Yes	Yes								
Tran Type - Goods	Yes	Yes								
Tran Type - Services	Yes	Yes								
Tran Type - Cash Back	Yes	Yes								
Tran Type - Inquiry	No	No								
Tran Type - Transfer	No	No								
Tran Type - Payment	No	No								
Tran Type - Admin	No	No								
Tran Type - Cash Deposit	No	No								
Terminal Data Input Capability										
Keypad	Yes	Yes								
Numeric Keys	Yes	Yes								
Alpha and Special Character Keys	Yes	Yes								
Command Keys	Yes	Yes								
Function Keys	Yes	Yes								

(continued)	1C	2C								
Terminal Data Output Capability										
Print, Attendant	Yes	Yes								
Print, Cardholder	No	No								
Display, Attendant	Yes	Yes								
Display, Cardholder	No	No								
Code Table 10	No	No								
Code Table 9	No	No								
Code Table 8	No	No								
Code Table 7	No	No								
Code Table 6	No	No								
Code Table 5	No	No								
Code Table 4	No	No								
Code Table 3	No	No								
Code Table 2	No	No								
Code Table 1	Yes	Yes								
Application Selection										
PSE	Yes	Yes								
Cardholder Confirmation	Yes	Yes								
Preferred display order	No	No								
Partial AID Selection	Yes	Yes								
Multi language	Yes	Yes								
EMV Language Selection method	Yes	Yes								
Common Character Set	Yes	Yes								
Data Authentication										
MAX CA Public key	248	248								
Exponents	3 and 2 ¹⁶ +1	3 and 2 ¹⁶ +1								
Revocation of Issuer PK Certificate	Yes	Yes								
Certificate Revocation List Format	RID + CAPK Index + CertSN	RID + CAPK Index + CertSN								
Default DDOL	Yes	Yes								
Manual act. when CA PK loading fails	No	No								
CA PK verified with check sum	Yes	Yes								
Cardholder Verification Method										
Bypass PIN Entry	Yes	No								
Subsequent Bypass PIN Entry	Yes	No								
Get Data for PIN Try Counter	Yes	Yes								
Fail CVM	Yes	Yes								
Amount known before CVM proces.	Yes	Yes								
Terminal Risk Management										
Floor Limit Checking	Yes	Yes								
Random Transaction Selection	Yes	Yes								
Velocity Checking	Yes	Yes								
Transaction Log	No	No								
Exception File	Yes	Yes								
TRM irrespective of AIP setting (expected behavior)	Yes	Yes								

(continued)	1C	2C								
Terminal Action Analysis										
Terminal Action Codes supported	Yes	Yes								
TAC can be deleted or disabled	No	No								
How does offline only Terminal process Default Action Codes?	N/A	N/A								
How does online only terminal process TAC/IAC-Default when unable to go online?	N/A	N/A								
Completion Processing										
Forced Online	Yes	Yes								
Forced Acceptance	Yes	Yes								
Advices	Yes	Yes								
Voice Referrals Initiated by Issuer	Yes	Yes								
Batch Data Capture	No	No								
Online Data Capture	Yes	Yes								
Default TDOL	Yes	Yes								
Default TDOL not configured	Yes	Yes								
Exception Handling										
POS Entry Mode	80	80								
Miscellaneous										
Amount and PIN on same keypad	Yes	Yes								
ICC/Magstripe Reader Combined	No	No								
If Combined, is Magstripe read first?	n/a	n/a								
Supports account type selection	Yes	Yes								
Supports 'on fly' script processing	No	No								
Issuer Script device limit > 128 bytes	Yes	Yes								
If limit > 128, value supported?	256	256								
Internal Date Management	Yes	Yes								
Does the terminal support Receipt?	Yes	Yes								

Attachment 1

Specific Terms and Conditions to the Letter of Approval

Restriction:

None