

September 30, 2024

Mr. Jino 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: Payment EMV kernel Version 1.0**

**Approval Number(s):**  
**2-05487-1-1C-ICTK-0924-4.4b**  
**2-05487-1-2C-ICTK-0924-4.4b**  
**2-05487-1-1P-ICTK-0924-4.4b**  
**2-05487-1-1OS-ICTK-0924-4.4b**

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The EMV Application Kernel has been tested on the following terminal

**Terminal: SP60**  
**PinPad: 1P = SP60, BPOS 1.0.0 - PIN pad is valid for configuration(s): 1C, 2C**  
**Operating System: 1OS = BPOS(64-bit) Version 1.0.0**

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**Renewal Date: 11-Sep-2028**

**Report ID Session 1: EDT24057 Version 1.0 - ICTK Co., Ltd.**

**Kernel Checksum:**

09 46 43 1D
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**Configurations Checksums:**

Config	Vendor Config ID	Terminal	Checksum
1C	C1	22	3C 4D 2C 54
2C	C2	22	B0 17 DC 01

**PIN Pads Checksums:**

PinPad	Checksum
1P	

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 4.4 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](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.***

Authorised by Frédéric Fortin  
Terminal Testing Group Chair  
EMVCo, LLC

**Note:**

**The Random Number Generator and the Cryptographic Functions are part of the EMV specifications. This Contact Level 2 Kernel utilizes a specific Hardware component in the tested terminal to generate random numbers and/or Cryptographic Functions. To be EMV compliant, this Contact Level 2 Kernel shall be used in conjunction with terminals having this specific Hardware component.**

<b>Terminal Capabilities</b>	<b>1C</b>	<b>2C</b>								
<b>Card Data Input Capability</b>										
Terminal Type	22	22								
Manual Key Entry	Yes	Yes								
Magnetic Stripe	Yes	Yes								
IC with Contacts	Yes	Yes								
<b>CVM Capability</b>										
Plaintext PIN	Yes	Yes								
Online Enciphered PIN	Yes	No								
Signature (Paper)	Yes	Yes								
Offline Enciphered PIN (RSA)	Yes	Yes								
No CVM	Yes	Yes								
Offline Enciphered PIN (ECC)	No	No								
Biometric	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								
<b>Security Capability</b>										
SDA & DDA	Yes	Yes								
Card Capture	No	No								
CDA	Mode 1	Mode 1								
XDA	No	No								
<b>Transaction Type Capability</b>										
Tran Type - Cash	Yes	Yes								
Tran Type - Goods	Yes	Yes								
Tran Type - Services	Yes	Yes								
Tran Type - Cash Back	Yes	Yes								
Tran Type - Inquiry	Yes	Yes								
Tran Type - Transfer	Yes	Yes								
Tran Type - Payment	Yes	Yes								
Tran Type - Admin	Yes	Yes								
Tran Type - Cash Deposit	Yes	Yes								
<b>Terminal Data Input Capability</b>										
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								
<b>Terminal Data Output Capability</b>										
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								
<b>Application Selection</b>										
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								
<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	Yes								
Certificate Revocation List Format	RID+CAPKI NDEX+SN	RID+CAPKI NDEX+SN								
Default DDOL	Yes	Yes								
<b>Cardholder Verification Method</b>										
Bypass PIN Entry	Yes	Yes								
Subsequent Bypass PIN Entry	No	No								
Get Data for PIN Try Counter	Yes	Yes								
Fail CVM	Yes	Yes								
Amount known before CVM proces.	Yes	Yes								
<b>Terminal Risk Management</b>										
Floor Limit Checking	Yes	Yes								
Random Transaction Selection	Yes	Yes								
Velocity Checking	Yes	Yes								
Transaction Log	Yes	Yes								
Exception File	Yes	Yes								
TRM irrespective of AIP setting (expected behavior)	Yes	Yes								

<b>(continued)</b>	<b>1C</b>	<b>2C</b>								
<b>Terminal Action Analysis</b>										
Terminal Action Codes supported	Yes	Yes								
TAC can be deleted or disabled	Yes	Yes								
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								
<b>Completion Processing</b>										
Forced Online	Yes	Yes								
Forced Acceptance	Yes	Yes								
Voice Referrals Initiated by Issuer	Yes	Yes								
Default TDOL	Yes	Yes								
Default TDOL not configured	Yes	Yes								
<b>Exception Handling</b>										
POS Entry Mode	80	80								
<b>Miscellaneous</b>										
Amount and PIN on same keypad	Yes	Yes								
ICC/Magstripe Reader Combined	No	No								
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?	400	400								
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**

Conditions:

This product is not able to handle transaction date beyond the 19th of January 2038