

**Bluebird Soft Inc.**  
558-5, Sinsa-dong,  
Kangnam-gu,  
Seoul,  
KOREA

October 28, 2014

### MasterCard Contactless Reader Vendor Product – Letter of Approval

Approval Identifier: TLOA-BLUE140902-141028, Expires on 28, October 2017  
Product Vendor: Bluebird Soft Inc.  
Product Type: Fully Integrated Terminal

Product Identification	Terminal
Product Commercial Name	BIP-1500 0.1
Product Identifier Name	BIP-1500 0.1
PayPass Kernel	Bluebird Payment PayPass Kernel 2.0
Application Selection Module	Bluebird PayPass Application Selection Module 1.0
PayPass Application	BBPCID 2
Product Registration Number	FIT-BLUE-140902

EMVCo LoA – Terminal Level 1: 10323 0714 231 231a CEM  
Test Assessment Level 2: TL2-BLUE140902-141028(a)  
PIN Entry Device: Yes

Implementation Options (*):	Supported?
EMV transaction flow	Yes
Data Exchange	Yes

(\* ) Please contact the product vendor to obtain the full description of all the technical features

Under the terms of the *PayPass* Specification License Agreement dated February 20, 2007, this letter permits you to advise your customers that the above product has successfully completed the requirements for a vendor product approval by MasterCard as a **MasterCard Contactless Reader v3.0**.

#### Please see page 2 for the Conditions of Approval.

This letter does not constitute an endorsement or warranty by MasterCard regarding the functionality, quality or performance of the submitted product, including without limitation any warranties of merchantability, fitness for purpose or non-infringement, all of which are expressly disclaimed by MasterCard.

The product will be listed on the MasterCard customer portal as an approved MasterCard Contactless Reader vendor product until the Approval Expiration Date. Any change to the product must be promptly notified to MasterCard.

MasterCard reserves the right to use any approved MasterCard Contactless Reader product as a reference for future testing, certification or approval of other MasterCard Contactless products.

Yours sincerely,

Arnaud du Chéné  
VP, Senior Business Leader  
EMV & Digital Devices / Quality Development  
Emerging Payments / Platforms

## Detail of Vendor Product Approval

Book D – EMV Contactless Communication Protocol Specification, Version 2.3.1 – November 2013
<i>PayPass</i> – M/Chip Reader Card Application Interface Specification - Version 3.0.2 – May 2013
MasterCard Contactless Performance Requirement – Application Note #7 – March 2014

### Conditions of Approval

The following actions are to be taken by the vendor for this approval to be valid:

- i. During the Term of the Letter of Approval, the vendor shall ensure that all terminals are produced so that they are materially identical with the samples that were submitted for testing. Any change in the terminal that generates a different behavior of the terminal with respect to the *PayPass* Specifications and *PayPass* Test Assessments, in MasterCard's sole discretion, will be considered a major modification subject to a requirement of new vendor product testing and approval.
- ii. If the POS terminal supports PIN Entry, new installations must use models with a valid PCI PTS approval. The validity of the approval should be verified at the [PCI SSC web site](#). For more details on the MasterCard PIN Entry Device standards please contact [POI\\_security@mastercard.com](mailto:POI_security@mastercard.com).
- iii. The vendor must make buyers of the product aware of the above conditions.

### Note

- i. The MasterCard Data Exchange mechanism allows data to be exchanged between the *PayPass* kernel and the terminal application during the course of a payment transaction. MasterCard testing has demonstrated the capability of the product to perform as expected using a test application in place of the final terminal application. However, as the *PayPass* kernel to terminal application interface remains specific to the reader's vendor, any terminal application developer intending to use this mechanism must work closely with the *PayPass* reader's vendor to ensure successful integration.



June 14, 2013

Yong-Jae Kim  
Bluebird Inc.  
SEI Tower 13-14F  
467-14, Dogok-dong  
Kangnam-gu,  
Seoul 135-964  
Korea

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

**EMV Application Kernel:** Bluebird Payment EMV Kernel 2.0

**Approval Number(s):** 2-02498-1-1C-BCT-0613-4.3.b  
2-02498-1-1OS-BCT-0613-4.3.b

---

The EMV Application Kernel has been tested on the following terminal

**Terminal:** Bluebird Payment Layer  
**PinPad:** n/a  
**Operating System:** 1OS = Windows Embedded Handheld Version 6.5

---

**Report ID** Session 1: TEMV1302010 - Beijing Unionpay Card Technology Co., Ltd (Bank Card Test Center)

*Approved Configurations:*

Config	Vendor Config ID	Terminal	Checksum
1C	1C	22	15848E2C7CF5545A271502C7C6A4268D36D2589F

*Renewal Date: 14-Jun-2016*

Dear Yong-Jae Kim:

EMVCo, LLC ("EMVCo"), a Delaware limited liability company, has received your request for Level 2 terminal type approval for the EMV Application Kernel (hereafter referred to as Application) identified above. 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 Kernel sufficiently conform to EMV Integrated Circuit Card Specifications for Payment Systems, Version 4.3 of November 2011.

EMVCo hereby (a) grants your Application EMVCo Type Approval for Terminal Level 2, based on the requirements stated in the EMV 4.3 Specifications, and (b) agrees to include your Application Kernel in EMVCo's approved Application list.

EMVCo's grant to your Application Kernel 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 Application Kernels published on the EMVCo website ([www.emvco.com](http://www.emvco.com)).

Bluebird Inc.

***This Letter of Approval is effective on dispatch from EMVCo.***

EMVCo, LLC, a Delaware limited liability company

By:

Name: Arnaud du Chéné

Title: EMVCo Terminal Type Approval

<b>Terminal Capabilities</b>	<b>1C</b>									
<b>Card Data Input Capability</b>										
Terminal Type	22									
Manual Key Entry	Yes									
Magnetic Stripe	Yes									
IC with Contacts	Yes									
<b>CVM Capability</b>										
Plaintext PIN	Yes									
Online Enciphered PIN	Yes									
Signature (Paper)	Yes									
Offline Enciphered PIN	Yes									
No CVM	Yes									
<b>Security Capability</b>										
SDA and DDA	Yes									
Card Capture	No									
CDA	Yes									
<b>Transaction Type Capability</b>										
Tran Type - Cash	Yes									
Tran Type - Goods	Yes									
Tran Type - Services	Yes									
Tran Type - Cash Back	Yes									
Tran Type - Inquiry	No									
Tran Type - Transfer	No									
Tran Type - Payment	No									
Tran Type - Admin	No									
Tran Type - Cash Deposit	No									
<b>Terminal Data Input Capability</b>										
Keypad	Yes									
Numeric Keys	Yes									
Alpha and Special Character Keys	Yes									
Command Keys	Yes									
Function Keys	Yes									
<b>Terminal Data Output Capability</b>										
Print, Attendant	Yes									
Print, Cardholder	No									
Display, Attendant	Yes									
Display, Cardholder	Yes									
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									

(continued)	1C									
<b>Application Selection</b>										
PSE	Yes									
Cardholder Confirmation	Yes									
Preferred display order	No									
Partial AID Selection	Yes									
Multi language	No									
EMV Language Selection method	Yes									
Common Character Set	Yes									
<b>Data Authentication</b>										
MAX CA Public key	248									
Exponents	3 and 2 <sup>16</sup> +1									
Revocation of Issuer PK Certificate	Yes									
Certificate Revocation List Format	RID+CAPKI NDEX+SN									
Default DDOL	Yes									
Manual act. when CA PK loading fails	No									
CA PK verified with check sum	Yes									
<b>Cardholder Verification Method</b>										
Bypass PIN Entry	Yes									
Subsequent Bypass PIN Entry	Yes									
Get Data for PIN Try Counter	Yes									
Fail CVM	Yes									
Amount known before CVM proces.	Yes									
<b>Terminal Risk Management</b>										
Floor Limit Checking	Yes									
Random Transaction Selection	Yes									
Velocity Checking	Yes									
Transaction Log	Yes									
Exception File	Yes									
TRM irrespective of AIP setting (expected behavior)	Yes									
<b>Terminal Action Analysis</b>										
Terminal Action Codes supported	Yes									
TAC can be changed	Yes									
TAC can be deleted or disabled	Yes									
Default Act. Codes prior to 1stGenAC	No									
Default Action Codes after 1stGenAC	No									
TAC/IAC-Default skipped	No									
TAC/IAC-Default normal processing	No									
CDA failure detected prior TA Analysis	Yes									
Mode 1	Yes									
Mode 2	No									
Mode 3	No									
Mode 4	No									

<b>(continued)</b>	<b>1C</b>									
<b>Completion Processing</b>										
Forced Online	Yes									
Forced Acceptance	Yes									
Advices	Yes									
Issuer Referrals	Yes									
Batch Data Capture	Yes									
Online Data Capture	Yes									
Default TDOL	Yes									
<b>Exception Handling</b>										
POS Entry Mode	80									
<b>Miscellaneous</b>										
PIN Pad	Yes									
Amount and PIN on same keypad	No									
ICC/Magstripe Reader Combined	No									
If Combined, is Magstripe read first?	No									
Supports account type selection	Yes									
Supports 'on fly' script processing	No									
Issuer Script device limit > 128 bytes	Yes									
If limit > 128, value supported?	1024									
Internal Date Management	Yes									

# **Attachment 1**

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

Restriction:

**None**





October 09, 2014

Yonghee Kang  
Bluebird Inc.  
SEI Tower 13-14F467-14, Dogok-dong, Gangnam-gu  
Seoul, 135-856 Korea

RE: Visa Approval Reference Number: CDBLUE0650

Dear Yonghee Kang,

We are pleased to advise you that Visa has approved the chip card reader component product identified by the above Visa Reference Number ("the Product") for inclusion in Visa's Approved Product List, subject to the conditions set forth herein:

When granted, Visa approval is provided to ensure certain security and operational characteristics important to Visa's systems as a whole, but Visa approval does not under any circumstances include any endorsement, guarantee or warranty regarding the functionality, quality, security or performance of any particular product or service. Visa does not warrant any products or services provided by third parties. Visa approval does not under any circumstances include or imply any product warranties from Visa, including, without limitation, any implied warranties of merchantability, fitness for purpose, or non-infringement, all of which are expressly disclaimed by Visa.

**Chip Card Acceptance Device "the Product"**

Manufacturer:	Bluebird Inc.
Hardware Model Number:	BIP-1500_PCD
Application Software:	Bluebird Payment Paywave Kernel 2.0
EMVCo CL L1 Approval Number:	10323 0714 231 231a CEM

Visa performs limited testing to ascertain a Product's compliance with any required specifications and may perform interoperability testing with other approved products. Visa's limited testing program is not designed to establish the functionality of your approved Product in all potential conditions in which it may be used. Visa's approval does not in any circumstances include or imply any guarantees, assurances or warranties that the approved Product will operate in all possible settings or in connection with any other approved product.

Visa's approval is limited to the Product supporting the following:

**VISA EVALUATED INTERFACE**

Contactless Interface

**VISA EVALUATED APPLICATION(S)**

Magnetic Stripe Data  
Quick Visa Smart Debit/Credit

**VISA EVALUATED SPECIFICATION(S)**

Visa Contactless Payment Specification, Version 2.1.1, July 2009  
Visa Contactless Payment Specification, Version 2.1.1, December 2009

**SCOPE OF APPROVAL**

This Product is approved for issuance anywhere in the world.

Visa  
P.O. Box 8999  
San Francisco, CA  
94128-8999  
U.S.A

## **CONDITIONS**

Visa only performs limited testing and the onus is on the manufacturer of the Product to conduct testing to ensure that the Product interoperates with other Visa approved products and that environmental issues do not adversely affect performance of the Product.

Visa's approval only applies to products that are identical to the Product tested by Visa and/or Visa-Recognized Laboratory. A product should not be considered approved by Visa, nor promoted as approved, if any aspect of the product is different from that which was tested by Visa and/or a Visa-Recognized Laboratory, even if the product conforms to the basic Product description contained in this letter. For example, if a product contains chips, applications or operating systems that have the same name or model number as those tested by Visa and/or a Visa-Recognized Laboratory, but in fact are not identical to those tested by Visa and/or a Visa-Recognized Laboratory, the product should not be considered or promoted as approved by Visa. Further, to retain Visa approval, all products must be produced at production sites that are approved by Visa.

All products submitted for testing and approval are required to be submitted pursuant to a Visa International Service Association Approval Services Testing Agreement. The approval granted in this letter is subject in all respects to the terms and conditions of the Visa International Service Association Approval Services Testing Agreement.

The issuance of this letter is conditioned upon all necessary agreements having been executed, including without limitation, the applicable license agreements with Visa and this approval letter shall be of no force and effect unless such agreements have been executed contemporaneously with or prior to the issuance of this letter. The issuance of this letter is further conditioned upon CDBLUE0629A maintaining its approval from Visa. Upon the expiration or revocation of the approval granted to CDBLUE0629A, Visa may revoke this approval.

Approval granted by Visa does not supersede additional testing requirements as may be imposed by national testing bodies, financial institutions, network services providers, Visa Region Specific Requirements or other customers. The Manufacturer is encouraged to ensure that testing requirements from all relevant parties have been met and approvals granted prior to sale or installation of the product.

Visa's approval is granted solely in connection with the product tested and to the submitting vendor. Such approval may not be assigned, transferred or sublicensed, either directly or indirectly, by operation of law or otherwise. Only those chip card acceptance device manufacturers receiving Visa approval for a product may claim that they have the approval.


Visa may revoke the approval at any time. Because this approval may be revoked at any time, no third party should rely on this letter at any time without first confirming the continued effectiveness of the approval with Visa's Approval Services. Unless revoked earlier, Visa's approval of the Product shall remain in effect until July 17, 2016. Visa reserves the right to modify the terms or duration of this approval at its sole discretion to accommodate business or security requirements. Even though Visa and or a Visa-Recognized Laboratory has tested and approved this Product, as described in this letter, the manufacturer of each product shall be responsible for compliance with all applicable specifications and for all liabilities resulting from the use or distribution of the product.

You may communicate to third parties that the Product is Visa approved provided, however, that you also communicate any of the limitations on Visa's approval described above under the heading, (a) Scope of Approval, (b) Comments and/or Specification Deviation(s), (c) Condition(s), and all written communications referring to Visa approval shall contain the following legend:

"When granted, Visa approval is provided by Visa to ensure certain security and operational characteristics important to Visa's systems as a whole, but Visa approval does not under any circumstances include any endorsement or warranty regarding the functionality, quality or performance of any particular product or service. Visa does not warrant any products or services provided by third

parties. Visa approval does not under any circumstances include or imply any product warranties from Visa, including, without limitation, any implied warranties of merchantability, fitness for purpose, or non-infringement, all of which are expressly disclaimed by Visa. All rights and remedies regarding products and services which have received Visa approval shall be provided by the party providing such products or services, and not by Visa."

Sincerely,

A handwritten signature in black ink, appearing to read 'Sherri Tasto', with a long, sweeping flourish extending to the right.

Sherri Tasto

Senior Business Leader

Chip Testing and Approval Services

Visa International Service Association

cc: Approval Services

Visa Reference Number: CDBLUE0650A



August 1, 2011

Jaemin Ko  
Bluebird Soft Inc.  
1242, Gaepo-dong,  
Kangnam-gu  
135-240 Seoul  
Korea

**Re: EMVCo Letter of Approval - Contact Terminal Level 1**

**Approval Number: 12561 0811 400 21 BCT**

**IFM Identification: BB-ICM-1000 Version 1.0**

**Hardware: BB-ICM-1000H Version 1.0**

**Software: BB-ICM-1000S Version 1.0**

**As Tested In: BIP-1500**

**Renewal Date: 01-Aug-2015**

Dear Jaemin Ko:

EMVCo, LLC ("EMVCo"), a Delaware limited liability company, has received your request for Level 1 terminal type approval for the interface module identified above. In connection with your request, we have reviewed your report, identified by file number TEMV1101002 which was generated by Beijing Unionpay Card technology Co., Ltd (Bank Card Test Center).

After assessing such file, EMVCo has found reasonable evidence that the submitted samples of the above referenced interface module sufficiently conform to EMV Integrated Circuit Card Specifications, Book 1, Version 4.0 of December 2000.

EMVCo hereby (a) grants your interface module EMVCo Type Approval for Terminal Level 1, based on the requirements stated in the EMV 4.0 Specifications, and (b) agrees to include your interface module in EMVCo's approved interface module list.

EMVCo's grant to your interface module 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 interface modules published on the EMVCo website ([www.emvco.com](http://www.emvco.com)).

***This Letter of Approval is effective on dispatch from EMVCo.***

EMVCo, LLC, a Delaware limited liability company

By:

Name: Arnaud du Chéné

Title: EMVCo Terminal Type Approval

# **Attachment 1**

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

Restriction:

**None**



July 15, 2014

Lee Jaeho  
Bluebird Inc.  
SEI Tower 13-14F  
467-14, Dogok-dong  
Gangnam-gu  
Seoul 135-856  
Korea

**Re: EMVCo Letter of Approval - Contactless Terminal Level 1**

**Approval Number:** 10323 0714 231 231a CEM  
**PCD Identification:** BIP-1500\_PCD Version: 0.1  
**Hardware:** BIP-1500\_HW Version: 0.1  
**Software:** BIP-1500\_SW Version: 2.3.0  
**As tested In:** BIP-1500 Version 0.1  
**PCD/Terminal Configuration:** Samples are Fully Integrated Terminals (FIT)

**Renewal Date:** 09-Jul-2018

Dear Lee Jaeho:

EMVCo, LLC ("EMVCo"), a Delaware limited liability company, has received your request for Level 1 terminal type approval for the proximity coupling device identified above. In connection with your request, we have reviewed your report, identified by file number 3\_BLUE\_K6044\_14\_03\_CEM which was generated by CETECOM MOVON Ltd.

After assessing such file, EMVCo has found reasonable evidence that the submitted samples of the above referenced proximity coupling device sufficiently conform to Book D - EMV Contactless Communication Protocol Specification, Version 2.3.1 of November 2013.

EMVCo hereby (a) grants your proximity coupling device EMVCo Type Approval for Terminal Level 1, based on the requirements stated in the EMV 2.3.1 Specifications, and (b) agrees to include your proximity coupling device in EMVCo's approved proximity coupling device list.

EMVCo's grant to your proximity coupling device 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 proximity coupling devices published on the EMVCo website ([www.emvco.com](http://www.emvco.com)).

***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: Arnaud du Chéné

Title: EMVCo Terminal Type Approval

# **Attachment 1**

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

Restriction:

**None**