

June 01, 2023



Mr. IL-YONG HAN  
HANMEGA Co.,Ltd.  
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Seoul 08505  
KOREA, REPUBLIC OF

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

**EMV Application Kernel:** HANMEGA LINUX EMV Kernel Version 4.3k

**Approval Number(s):**  
2-05209-1-1C-ICTK-0623-4.3k  
2-05209-1-2C-ICTK-0623-4.3k  
2-05209-1-1P-ICTK-0623-4.3k  
2-05209-1-1OS-ICTK-0623-4.3k  
2-05209-1-2OS-ICTK-0623-4.3k

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The EMV Application Kernel has been tested on the following terminal

**Terminal:** GK1500  
**PinPad:** 1P = EPP-B5, HANMEGA EPP FIRMWARE and V05.08.00 - PIN pad is valid for configuration(s): 1C, 2C  
**Operating System:** 1OS = Linux (32 bits) Version 4.15  
2OS = Linux (64 bits) Version 4.15

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**Renewal Date:** 30-May-2027

**Report ID** Session 1: EDT23025 Version 1.0 - ICTK Co., Ltd.

**Kernel Checksum:**

|          |
|----------|
| 6f95d01e |
|----------|

**Configurations Checksums:**

| Config | Vendor Config ID | Terminal | Checksum |
|--------|------------------|----------|----------|
| 1C     | CONF14           | 14       | 167f7832 |
| 2C     | CONF24           | 24       | b03b9df5 |

**PIN Pads Checksums:**

| PinPad | Checksum |
|--------|----------|
| 1P     | b398a16b |

Dear Mr. HAN:

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](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  |  |  |  |  |  |  |  |  |
|---------------------------------------|-----|-----|--|--|--|--|--|--|--|--|
| <b>Card Data Input Capability</b>     |     |     |  |  |  |  |  |  |  |  |
| Terminal Type                         | 14  | 24  |  |  |  |  |  |  |  |  |
| Manual Key Entry                      | No  | No  |  |  |  |  |  |  |  |  |
| Magnetic Stripe                       | Yes | Yes |  |  |  |  |  |  |  |  |
| IC with Contacts                      | Yes | Yes |  |  |  |  |  |  |  |  |
| <b>CVM Capability</b>                 |     |     |  |  |  |  |  |  |  |  |
| Plaintext PIN                         | No  | No  |  |  |  |  |  |  |  |  |
| Online Enciphered PIN                 | Yes | Yes |  |  |  |  |  |  |  |  |
| Signature (Paper)                     | No  | No  |  |  |  |  |  |  |  |  |
| Offline Enciphered PIN                | No  | No  |  |  |  |  |  |  |  |  |
| No CVM                                | No  | No  |  |  |  |  |  |  |  |  |
| 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  |  |  |  |  |  |  |  |  |
| <b>Security Capability</b>            |     |     |  |  |  |  |  |  |  |  |
| SDA & DDA                             | No  | No  |  |  |  |  |  |  |  |  |
| Card Capture                          | No  | No  |  |  |  |  |  |  |  |  |
| CDA                                   | No  | No  |  |  |  |  |  |  |  |  |
| <b>Transaction Type Capability</b>    |     |     |  |  |  |  |  |  |  |  |
| Tran Type - Cash                      | Yes | Yes |  |  |  |  |  |  |  |  |
| Tran Type - Goods                     | No  | No  |  |  |  |  |  |  |  |  |
| Tran Type - Services                  | No  | No  |  |  |  |  |  |  |  |  |
| Tran Type - Cash Back                 | No  | No  |  |  |  |  |  |  |  |  |
| Tran Type - Inquiry                   | Yes | Yes |  |  |  |  |  |  |  |  |
| Tran Type - Transfer                  | Yes | Yes |  |  |  |  |  |  |  |  |
| Tran Type - Payment                   | No  | No  |  |  |  |  |  |  |  |  |
| Tran Type - Admin                     | No  | No  |  |  |  |  |  |  |  |  |
| Tran Type - Cash Deposit              | No  | No  |  |  |  |  |  |  |  |  |
| <b>Terminal Data Input Capability</b> |     |     |  |  |  |  |  |  |  |  |
| Keypad                                | Yes | Yes |  |  |  |  |  |  |  |  |
| Numeric Keys                          | Yes | Yes |  |  |  |  |  |  |  |  |
| Alpha and Special Character Keys      | No  | No  |  |  |  |  |  |  |  |  |
| Command Keys                          | Yes | Yes |  |  |  |  |  |  |  |  |
| Function Keys                         | No  | No  |  |  |  |  |  |  |  |  |

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

| (continued)   | 1C      | 2C      |  |  |  |  |  |  |  |  |
|---|---------|---------|--|--|--|--|--|--|--|--|
| <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? | Skipped | Skipped |  |  |  |  |  |  |  |  |
| <b>Completion Processing</b>  |         |         |  |  |  |  |  |  |  |  |
| Forced Online   | No      | No      |  |  |  |  |  |  |  |  |
| Forced Acceptance   | No      | No      |  |  |  |  |  |  |  |  |
| Advices   | No      | No      |  |  |  |  |  |  |  |  |
| Voice Referrals Initiated by Issuer   | No      | No      |  |  |  |  |  |  |  |  |
| Batch Data Capture  | No      | No      |  |  |  |  |  |  |  |  |
| Online Data Capture   | Yes     | Yes     |  |  |  |  |  |  |  |  |
| Default TDOL  | Yes     | Yes     |  |  |  |  |  |  |  |  |
| Default TDOL not configured   | No      | No      |  |  |  |  |  |  |  |  |
| <b>Exception Handling</b>   |         |         |  |  |  |  |  |  |  |  |
| POS Entry Mode  | 02      | 02      |  |  |  |  |  |  |  |  |
| <b>Miscellaneous</b>  |         |         |  |  |  |  |  |  |  |  |
| Amount and PIN on same keypad   | Yes     | Yes     |  |  |  |  |  |  |  |  |
| ICC/Magstripe Reader Combined   | Yes     | Yes     |  |  |  |  |  |  |  |  |
| If Combined, is Magstripe read first?   | 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?  | 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**