November 02, 2022

S.G Jung
Bitel co., Ltd.
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Gangnam gu
Seoul 06099
KOREA, REPUBLIC OF

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

EMV Application Kernel:	**BOSAJL2 Version V52**
Approval Number(s):	**2-05120-1-1S-CETM-1122-4.3k**
	2-05120-1-1OS-CETM-1122-4.3k

The EMV Application Kernel has been tested on the following terminal
   Terminal: **IC3600**
   PinPad: **n/a**
   Operating System: **1OS = BITEL OS Version V45A**

Renewal Date: **28-Oct-2026**

Report ID   Session 1: **2_BITE_K6030_22_05_CEM Version 1.0 - CETECOM Limited**

Kernel Checksum:

BC5859B66EAC28AD

Configuration Checksum:

Config	Vendor Config ID	Terminal	Checksum
1S		22	357C63F360ABC5B1

Dear S.G Jung:

     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 refered 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

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.

Terminal Capabilities	Value Supported
Card Data Input Capability	
Manual Key Entry	Yes
Magnetic Stripe	Yes
IC with Contacts	Yes
CVM Capability	
Plaintext PIN for ICC Verification	Yes
Enciphered PIN for online Verification	Yes
Signature (Paper)	Yes
Enciphered PIN for offline Verification	Yes
No CVM Required	Yes
SB185	No
Offline Finger	No
Online Finger	No
Offline Facial	No
Online Facial	No
Offline Palm	No
Online Palm	No
Offline Iris	No
Online Iris	No
Offline Voice	No
Online Voice	No
Security Capability	
Static Data Authentication and Dynamic Data Authentication	Yes
Card Capture	No
Combined Dynamic Data Authentication / Application Cryptogram Generation	Mode 1
Transaction Type Capability	
Cash	Yes
Goods	Yes
Services	Yes
Cash Back	No
Inquiry	No
Transfer	No
Payment	No
Administrative	No
Cash Deposit	No
Terminal Data Input Capability	
Does terminal have keypad	Yes
Numeric Keys	Yes
Alphabetic and Special Character Keys	No
Command Keys	Yes
Function Keys	Yes
Terminal Data Output Capability	
Print, Attendant (Mandatory for terminals supporting signature)	Yes
Print, Cardholder	No
Display, Attendant (Mandatory for Attended terminals)	Yes
Display Cardholder	No

Terminal Capabilities	Value Supported
Terminal Data Output Capability	
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
Application Selection	
Support PSE selection Method	Yes
Support Cardholder Selection & Confirmation	Yes
Does Terminal have a preferred order of displaying applications	No
Does terminal perfom partial AID selection	Yes
Does the terminal have multi language support	No
Does the terminal support the EMV Language Selection method	No
Does the terminal support the Common Character Set as defined in Annex B table 20 Book 4	Yes
Selectable Kernel Configurations	
Is your Multi-Configuration Kernel capable of dynamically selecting a configuration at the time of transaction	n/a
Data Authentication	
What is the maximun supported Certificate Authority Public Key Size (Mandatory for terminals supporting Data Authentication with minimal support for 248 bytes)	248
What exponents does the terminal support (Mandatory for terminals supporting Data Authentication, 3 and 2^16+1)	3 and 2^16+1
During data authentication does the terminal check validity for revocation of Issuer Public Key Certificate	Yes
When supporting certificate revocation, what is the Certificate Revocation List format?	RID+KeyIndex+CSN
Does the terminal contain a default DDOL (Mandatory for terminals supporting DDA)	Yes
Is operator action required when loading CA Public Key fails	No
CA Public Key verified with CA Public Key Check Sum	Yes
Cardholder Verification Method	
Terminal supports bypass PIN Entry	Yes
Terminal supports Subsequent bypass PIN Entry	Yes
Terminal supports Get Data for PIN Try Counter	Yes
Terminal supports Fail CVM	Yes
Are amounts known before CVM processing	No
Terminal Risk Management	
Floor Limit Checking (Mandatory for offline only terminals and offline terminals with online capability)	Yes
Random Transaction Selection (Mandatory for offline terminals with online capability, except when cardholder controlled)	Yes
Velocity Checking (Mandatory for offline only terminals and offline terminals with online capability)	Yes
Transaction Log	Yes
Exception File	Yes
Performance of Terminal Risk Management irrespective of AIP setting (expected behavior)	Yes

Terminal Capabilities	Value Supported	
Terminal Action Analysis		
Does the terminal support Terminal Action Codes	Yes	
Can the Terminal Action Codes be deleted or disabled? If yes what are the default TAC values supported? (according to Book 3 Section 10.7) **TAC Denial:**	Yes	
	0000000000	
TAC Online:	0000000000	
TAC Default:	0000000000	
How does Offline Only Terminal process Default Action Codes prior to First Generate AC? (Offline Only Terminal shall support one option)	N/A	
How does online only terminal process TAC/IAC-Default when unable to go online?	N/A	
Completion Processing		
Transaction Forced Online Capability	Yes	
Transaction Forced Acceptance Capability	No	
Does terminal Support advices	No	
Does the terminal support Issuer initiated Voice Referrals	Yes	
Does the terminal support Batch Data Capture	Yes	
Does the terminal support Online Data Capture	No	
Does the terminal support a Default TDOL	Yes	
If a Default TDOL is supported, can this default TDOL be not configured (or not loaded) in the terminal	Yes	
Default TDOL TVR bit set before or after the 1st Generate AC Terminal Action Analysis	After	
Exception Handling		
What is the POS Entry Mode value when IC cannot be read and the transaction falls back using Magstripe (Mandatory for attended terminals)	0x92	
Miscellaneous		
Is the terminal equipped with a PIN Pad	Yes	
Is the amount and PIN entered at the same keypad	Yes	
Is the ICC/Magstripe Reader combined	No	
If Combined ICC/Magstripe reader is supported, is Magstripe read first	No	
Does the terminal support account type selection	No	
Does the terminal support 'on fly' script processing (not recommended behavior)	No	
Is the Issuer Script device limit greater than 128 bytes	No	
If the Issuer Script device limit is greater than 128 bytes, what is the value supported		
Does the terminal support Internal Date Management	Yes	
Is the Level 2 Contact Kernel Random Generator using the algorithm described in SB144	No	
If the Level 2 Contact Kernel Random Generator is not using the algorithm described in SB144, is this function PCI approved	Yes	
If the Level 2 Contact Kernel Random Generator is not using the algorithm described in SB144, describe the function (such as algorithm used, etc)	please see the document 'TRNG.pdf'	
Is the Level 2 Contact Kernel Software dependent on the Terminal Hardware	Yes	
If answer to previous question is Yes, describe the function and the Hardware	please see the document 'TRNG.pdf'	
Are the Cryptographic functions (RSA, Hash, etc) of the Level 2 Contact Kernel Software dependent on the Terminal Hardware	Yes	
If answer to previous question is Yes, describe the Hardware	please see the document 'Crypto.pdf'	
Is any other functions of the Level 2 Contact Kernel Software dependent on the Terminal Hardware	Yes	
If answer to previous question is Yes, describe the functions and the Hardware	please see the document 'Crypto.pdf'	

Terminal Capabilities	Value Supported
Miscellaneous	
Does the terminal support Receipt (by printing or any electronic means)?	Yes
Does the terminal store declined transactions?	No
List the Currency Codes supported as for ISO 4217	392 414 840 978
Does the terminal support the Application Selection Registered Proprietary Data (ASRPD)?	Yes
List the Language(s) supported as for ISO 639 (minimum one shall be declared, and up to 4 if Multiple Languages are supported)	en
Can the Kernel be configured so the data object 'Terminal Risk Management Data' '9F1D' is absent or configured with no value (00 is a value)?	No
Can the Transaction Sequence Counter (TSC) be personalized to any value?	No
If answer to previous question is Yes, what is the Maximum Value of the Transaction Sequence Counter?	
Checksum	
Does the product comply with the Checksum rules as defined in Contact Terminal Level 2 administrative process	Yes
This is an Initial submission or Subsequent submission or renewal of the original approved product prior to the effective date of checksum rules (cf Terminal Type Approval Bulletin No. 134)	n/a
Configuration Checksum (Static Kernel only)	357C63F360ABC5B1

Attachment 1
Specific Terms and Conditions to the Letter of Approval

Restriction:

None