



Implementation Guide for IC Terminals

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JCB International Co., Ltd.**

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Revision History

Item Number	Date of Revision	Chapter	Description
1	April 2021	-	Created a new entry.
2	December 2021	1.4	Added new TCI/TCI-CL Guide
3	December 2021	3.4, 3.4.1, 3.4.2	Added explanation about new TCI/TCI-CL
4	July 2022	2.18	Added JCB Sensory Materials
5	September 2022	3.4	Added documents for Tap on Mobile and Transit Reader
6	January 2023	1.4	Added EMV Level 1 Specifications for Payment Systems, EMV Contact Interface Specification
7	January 2023	2.1.2	Added notes for Contactless IC Terminal with Cash Advance Transactions
8	January 2023	2.1.2	Added Tap on Mobile Terminals as exceptions to have Contactless IC interface only
9	January 2023	2.8.1.2	Added Speedy Payment Service
10	January 2023	2.8.2.1	Added notes for TIP settings
11	January 2023	2.8.2.1	Prohibited On-Device CVM support for Contactless ATM
12	January 2023	2.10, 2.12.3	Prohibited Issuer Update support for Contactless IC Terminal
13	January 2023	2.12.2	Modified requirements for ARC
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22	October 2024	2.1	Added the notes for a terminal supporting Contactless IC Interface only
23	October 2024	2.8.1 2.8.2	Changed the cardholder verification method requirement. When the Unattended terminal, Signature shall not be supported as CVM.
24	October 2024	2.12.2	Changed the Referral requirement
25	October 2024	2.16	Added the description about an electronic format receipt
26	October 2024	Annex	Added Annex B which described the data format of Terminal Interchange Profile and Combination Options

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1. Introduction

This chapter describes the purpose, the intended readers and the scope of this document, references, definitions of terms, abbreviations and terminologies.

1.1. Purpose of this Document

This document defines IC Terminal requirements for Acquirers in countries outside Japan. The purposes of this document are:

1. To define the JCB's proprietary requirements for developing an IC Terminal deployed outside of Japan. The IC Terminal shall conform to one or both of the following specifications.

- Contact IC specifications
 - EMV® Integrated Circuit Card Specification for Payment Systems
- Contactless IC specifications
 - JCB Contactless IC Terminal Specification
 - EMV® Contactless Specifications for Payment Systems

 *NOTE: EMV® is a registered trademark in the U.S. and other countries and an unregistered trademark elsewhere. The EMV trademark is owned by EMVCo.*

2. To define the requirements for configuring an IC Terminal deployed outside of Japan. Please conform to local laws or regulations if they have any conflicts with this document.

A Contactless IC Terminal may be used for Transit with additional requirements defined in "**JCB Contactless Transit Transaction Implementation Guide**". Additional requirements for the Transit Reader are indicated with a note shown below.

 *"JCB Contactless Transit Transaction Implementation Guide"*

When an Acquirer or a related party implements an IC Terminal deployed in Japan, please contact JCB/JCBI for specific documents and requirements.

*✎ NOTE: For those who deploy **JCB Tap on Mobile** terminals, please refer to “Implementation Guide for **JCB Tap on Mobile**”.*

✎ NOTE: This document is produced by merging “Implementation Guide for Acquirers Version 1.9” and “JCB Terminal Requirements Version 2.5”. These two documents are no longer effective.

1.2. Intended Readers

The intended readers of this document are:

1. Acquirers and parties involved in the development of an IC Terminal deployed outside of Japan.
2. Acquirers and parties who configure an IC Terminal deployed outside of Japan.
3. Acquirers and parties who provide services regarding IC Transactions outside of Japan.

1.3. Scope of Document

- Chapter 1 Introduction
This chapter describes the purpose, the intended readers, the scope of this document, references, definitions of terms, abbreviations and terminologies.
- Chapter 2 Terminal Requirements
This chapter describes Terminal implementation requirements for each function or configuration parameter such as AID, Application Version Number, Terminal Type, Transaction Mode and Terminal Risk Management.
- Chapter 3 Acquiring Requirements
This chapter describes Terminal selection, Terminal settings, host system upgrade and the tests required to be performed by Acquirers.

1.4. References

Documents listed in **Table 1-1** are the references. In this document, the references are expressed by the abbreviations enclosed in double quotation marks.

Table 1-1 References

Reference documents	Intended Readers	
	Acquirers	Related parties
EMV Specifications		
EMV Integrated Circuit Card Specifications for Payment Systems	✓	✓
Book 1 – Application Independent ICC to Terminal Interface Requirements “EMV Book 1”		
Book 2 – Security and Key Management “EMV Book 2”		
Book 3 – Application Specification “EMV Book 3”		
Book 4 – Cardholder, Attendant, and Acquirer Interface Requirements “EMV Book 4”		
EMV Level 1 Specifications for Payment Systems, EMV Contact Interface Specification	✓	✓
EMV Contactless Specifications for Payment Systems	✓	✓
Book A – Architecture and General Requirements “EMV CL Book A”		
Book B – Entry Point Specification “EMV CL Book B”		
Book C-5 – Kernel 5 Specification “EMV CL Book C-5”		
Level 1 Specifications for Payment Systems, EMV Contactless Interface Specification “EMV CL Level 1”		
JCB Documents		
JCB Contactless IC Terminal Specification “JCB CL Term”	✓	✓
JCB Regulatory Publications	✓	*
JCB Regulatory Publications – JCB CA Interface Guide	✓	*
JCB Regulatory Publications – Terminal Check for Implementation Guide (TCI/TCI-CL) Guide ver.2.x	✓	*
JCB Regulatory Publications System Specifications - Online Interface Guide	✓	*
JCB Regulatory Publications System Specifications - Batch Interface Guide	✓	*
JCB Contactless Transit Transaction Implementation Guide	✓	*

(*) When a related party needs to refer to these documents, please contact your Acquirer.

1.5. Definitions of Terms

The terms in this document are defined in Table 1-2.

Table 1-2 Terms

#	Term	Definition
1	AAC	“Application Authentication Cryptogram” An Application Cryptogram indicating a request to decline the IC Transaction offline, generated by an IC Card.
2	AC	“Application Cryptogram” A cryptographic value generated by an IC Card using transaction related data. There are three types of AC: TC, AAC and ARQC.
3	AID	“Application Identifier” A code that consists of the first 5 byte data, which indicates the Registered Application Provider Identifier (RID) and up to 11 byte long data following RID, which indicates the Proprietary Application Identifier Extension (PIX).
4	Application PAN	“Application Primary Account Number” An account number stored in an IC Card application. When this is padded to the right with ‘F’, an IC Terminal shall ignore the padding.
5	Application Selection	A function of an IC Terminal to list the applications supported by both the IC Terminal and the IC Card and select the application to be performed.
6	ARQC	“Authorization Request Cryptogram” An Application Cryptogram indicating a request to process online for issuer authorization, generated by an IC Card.
7	CDA	“Combined Dynamic Data Authentication / Application Cryptogram Generation” An Offline Data Authentication method which an IC Terminal verifies the authenticity of an IC Card by using static application data stored in the IC Card, a random number specific to each IC Transaction and generated AC.
8	Completion	A function of an IC Terminal to complete the IC Transaction based on the final judgment of the IC Card.
9	Contact IC Card	An IC Card supporting a contact interface to communicate with a chip reader.



10	Contact IC Terminal	A payment device supporting Contact IC Transactions. In this document, a Contact IC Terminal indicates a Terminal which conforms to “EMV Integrated Circuit Card Specification for Payment Systems” .
11	Contact IC Transaction	A payment transaction conducted by an IC Card and a Contact IC Terminal using the Contact IC interface.
12	Contactless Floor Limit	A minimum transaction amount that requires authorization approval to accept Contactless IC Transactions.
13	Contactless IC Card	An IC Card supporting contact and contactless interface to communicate with a chip reader, or a Cardholder’s device supporting only the contactless interface.
14	Contactless IC Terminal	A payment device supporting Contactless IC Transactions. In this document, a Contactless IC Terminal indicates a Terminal which conforms to “JCB Contactless IC Terminal Specification” or “EMV Contactless Specifications for Payment Systems” .
15	Contactless IC Transaction	A payment transaction conducted by a Contactless IC Card and a Contactless IC Terminal using the Contactless IC interface.
16	Contactless Transaction Limit	A maximum transaction amount below which a contactless IC Transaction can be performed.
17	CVM	“Cardholder Verification Method” A method to verify the Cardholder during a payment transaction. The methods are Offline Enciphered PIN, Offline Plaintext PIN, Online Enciphered PIN, Signature and On-Device CVM.
18	CVM Required Limit	A minimum transaction amount that requires Cardholder Verification to accept Contactless IC Transactions.
19	DDA	“Dynamic Data Authentication” An Offline Data Authentication method, which an IC Terminal verifies the authenticity of an IC Card by using static application data stored in the IC Card and a random number specific to each IC Transaction.
20	EMV Contactless Symbol	EMV Contactless Symbol is used to show where a Contactless IC Card or a Cardholder’s device is tapped. EMVCo licenses EMV Contactless Symbol in accordance with its Reproduction Requirements.
21	Fallback	To perform a magnetic stripe transaction with the same IC Card after a failed IC Transaction.
22	GENERATE AC	A command issued by an IC Terminal to an IC Card, which requests the IC Card to generate AC.



23	IC Card	“Integrated Circuit Card” A Card with an IC chip embedded for Contact and/or Contactless IC Transactions or a Cardholder’s device that supports Contactless IC Transactions.
24	IQC service code	A Code encoded in the magnetic stripe which indicates whether the Card has an IC chip or not.
25	Issuer Script	A function initiated by an Issuer through Online Processing for updating data stored in an Application, and for blocking or unblocking an Application.
26	IC Terminal	The device used to perform a financial transaction. A generic term for Contact IC Terminal and Contactless IC Terminal.
27	IC Transaction	A generic term for Contact IC Transaction and Contactless IC Transaction.
28	No CVM	One of the CVMs, which Cardholder Verification is not required.
29	ODA	“Offline Data Authentication” A function in which the authenticity of an IC Card is verified offline to confirm the IC Card and the IC Transaction data are not tampered with.
30	Offline Enciphered PIN	One of the CVMs, which the PIN is enciphered and verified offline.
31	Offline Plain-text PIN	One of the CVMs, which the PIN is verified offline.
32	On-Device CVM	One of the CVMs using the verification function on a device owned by a Cardholder. On-Device CVM is a method allowing Cardholder Verification using data entered by a Cardholder on the device and/or using biometric data.
33	Online PIN	One of the CVMs, which the PIN is enciphered and sent to an Issuer for verification.
34	PIN	“Personal Identification Number” A numeric code that is used for Cardholder Verification.
35	Related Parties	Parties involved in the development, the configuration and processing of IC Transactions with Acquirers.
36	SDA	“Static Data Authentication” An Offline Data Authentication method, which an IC Terminal verifies the authenticity of an IC Card by using static application data stored in the IC Card.
37	TC	“Transaction Certificate” An Application Cryptogram generated by an IC Card as a result of an offline or online approved IC Transaction.
38	TCI	“Terminal Check for Implementation” The test to ensure that the Contact IC Terminal meets the requirements set forth by JCB before it is rolled out to the market.
39	TCI-CL	“Contactless IC Terminal Check for Implementation” The test to ensure that the Contactless IC Terminal meets the requirements set forth by JCB before it is rolled out to the market.



40	Terminal Floor Limit	A minimum transaction amount that requires authorization approval to accept a Contact IC Transaction.
41	Terminal Risk Management	A series of checks performed by an IC Terminal for the purpose of risk management, including Terminal Floor Limit Checking, Random Transaction Selection, and Terminal Velocity Checking.
42	Transit Transaction	A Contactless IC Transaction processed by tapping the Contactless IC Card on Transit Readers at the transit gates, instead of using a fare ticket on a public transportation.
43	Transit Reader	A Contactless IC Terminal which the transit agency has equipped with necessary transit transaction functions.
44	Transaction Mode	A Transaction Mode for performing Contactless IC Transactions. A Transaction Mode is selected depending on which modes are supported by both the Contactless IC Terminal and the Contactless IC Card. Magnetic Stripe Mode is no longer used. Please refer to Section 2.5 for details of Transaction Mode.
45	TVR	“Terminal Verification Results” Data to record the results of various functions performed by the IC Card and the IC Terminal.

1.6. Abbreviations

AAC	Application Authentication Cryptogram
AC	Application Cryptogram
AID	Application Identifier
ARC	Authorization Response Code
ARQC	Authorization Request Cryptogram
ATM	Automated Teller Machine
CDA	Combined DDA / Application Cryptogram Generation
CVM	Cardholder Verification Method
DDA	Dynamic Data Authentication
DDOL	Dynamic Data Authentication Data Object List
IC	Integrated Circuit
ICC	Integrated Circuit Card
ODA	Offline Data Authentication
PAN	Primary Account Number
PIN	Personal Identification Number
POS	Point-of-Sales
RFU	Reserved for Future Use
SDA	Static Data Authentication
TC	Transaction Certificate
TCI	Terminal Check for Implementation
TCI-CL	Contactless IC Terminal Check for Implementation
TVR	Terminal Verification Results

1.7. Terminologies

In this document, mandatory requirements and optional requirements are described with the wordings as specified in **Table 1-3**.

Table 1-3 Terminology

Terminology	Meaning
shall	Denotes a mandatory requirement
should	Denotes a recommended requirement
may or can	Denotes an optional requirement

In this document, some requirements are described in a tabular form. The meanings of words in the tables are as specified in **Table 1-4**.

Table 1-4 Terminology

Terminology	Meaning
Mandatory	Mandatory requirement
Optional	Optional requirement
Conditional	If the condition is applicable, the requirement is mandatory. If not, the requirement is optional.
Not required	Unnecessary requirement
Not Applicable	Not Applicable requirement
Shall not support	Prohibited requirements

2. Terminal Requirements

This chapter describes Terminal implementation requirements for each function or configuration parameter such as AID, Application Version Number, Terminal Type, Transaction Mode and Terminal Risk Management.

2.1. Basic Requirements

2.1.1. Common Requirements

Common requirements for Contact and Contactless IC Terminals are defined below.

- (a) Magnetic stripe interface
An IC Terminal shall have a magnetic stripe interface to initiate a magnetic stripe transaction in case it cannot perform an IC Transaction or the Card does not have an IC chip.
- (b) Processing when reading magnetic stripe
If a Terminal receives an IQC Service Code which begins with '2' indicating IC chip is embedded, the Terminal shall process Contact or Contactless IC Transaction.
- (c) Setting of PAN Entry Mode
An IC Terminal shall set the POS Entry Mode of Bit 22 to the PAN Entry Mode corresponding to the interface to read the Card data and Transaction Mode. **Table 2-1** shows the value of the PAN Entry Mode unless otherwise specified by the Acquirer.

Table 2-1 PAN Entry Mode

No.	Transaction Condition		PAN Entry Mode
	Interface	Transaction Mode	
1	Contact	-	'05'
2	Contactless	EMV Mode	'07'
3	Contactless	Legacy Mode	'07'
4	Magnetic stripe Fallback Transaction ¹		'97'

¹ Please refer to **Section 2.13** for details of Magnetic stripe Fallback Transaction.

 Please refer to **"Online Interface Guide"** for the details of PAN Entry Mode.

- (d) Processing with a blocked IC Card application
There are two states for an IC Card and an IC Card application: A normal state which is able to perform an IC Transaction and a blocked state which is unable to perform an IC Transaction. If the IC Terminal detects that the IC Card or the IC Card application is blocked during Application Selection, the



IC Terminal shall not initiate a magnetic stripe transaction.

- (e) Processing when an IC Transaction cannot be performed
If AID in the IC Terminal and the IC Card does not match during Application Selection, the IC Terminal shall prompt an error message **to swipe the Contact IC Card and process a magnetic stripe Transaction.**

*✍ **NOTE:** A Terminal supporting Contactless IC Interface only is not subject to (a), (b), (d) and (e). A Terminal supporting Contactless IC Interface only is allowed at Transit Readers, Airline in-flight devices, JCB Tap on Mobile Terminals and Cardmember Operated Terminals such as vending machines.*

2.1.2. Requirements for Contactless IC Terminals

Requirements for a Contactless IC Terminal are defined below.

- (a) Magnetic stripe and Contact IC interfaces
An IC Terminal supporting Contactless IC Transactions shall have three types of interfaces: Contactless IC, Contact IC and magnetic stripe, except when the IC Terminal is intended to support Contactless IC Transactions only in certain use cases specified by JCB.
- (b) Design and placement of Contactless IC readers
Design consideration shall be given to the contactless reader relative to other Card interfaces. As an example, if insertion of an IC Card with a Contact interface is detected, then the IC Terminal shall deactivate the Contactless interface to prevent the radio wave interference.
The contactless reader shall not be placed such that it could be activated when Cardholders attempt to use other interfaces.
- (c) Processing when a Contactless IC Transaction cannot be performed
If a IC Terminal initiates a Contactless IC Transaction but cannot perform an IC Transaction (except for the situation that the IC Card or the IC Card application is blocked), the IC Terminal shall prompt a message to insert the Contact IC Card and process a Contact IC Transaction.

*✍ **NOTE :** Cardholder's devices owned by Cardholders support Contactless IC Transactions only. Therefore, Contactless IC Transactions by Cardholder's devices cannot switch to Contact IC Transactions and fallback to magnetic stripe transactions. On the premise of this, the Acquirer shall determine the operation of Merchants.*

*✍ **NOTE:** A Terminal supporting Contactless IC Interface only is not subject to (a) and (c) this requirement. A Terminal supporting Contactless IC Interface only is allowed at Transit Readers, Airline in-flight devices, JCB Tap on Mobile Terminals and Cardmember Operated Terminals such as vending machines.*

*✍ **NOTE:** Please contact JCB/JCBI when considering implementation or installation of Contactless IC Terminals with Cash Advance Transactions including Contactless ATM*



Terminals.

2.2. AID

AID for an IC Terminal conforming to this document shall be set to “A0000000651010”. JCB strongly recommends the JCB Contactless terminal should be capable of setting multiple AIDs.

2.3. Application Version Number for IC Terminal

There is no need to set the version number for a Contactless IC Terminal conforming to **EMV CL Book C-5** or **JCB CL Term** because the Contactless IC Terminal does not support the version number. The version number for a Contact IC Terminal conforming to **EMV Book 1**, **EMV Book 2**, **EMV Book 3** and **EMV Book 4** is 2.0 and Application Version Number value for the Terminal is ‘0200’.

2.4. Terminal Type

Terminal types supported by JCB are defined in **Table 2-2**.

Table 2-2 Terminal Type

Environment	Operational Control Provided By:	
	Financial Institution	Merchant
Attended		
Online only	11	21
Offline with online capability	Not Applicable	22
Offline only	Not Applicable	23
Unattended		
Online only	14	24
Offline with online capability	Not Applicable	25
Offline only	Not Applicable	26

*Please refer to **EMV Book4** for details of Terminal Type.*



2.5. Transaction Mode

Contactless IC Transactions have three Transaction Modes.

(1) EMV Mode

- EMV Mode is the Transaction Mode for global Contactless IC Transactions.
- EMV Mode is selected when both the Contactless IC Terminal and the Contactless IC Card support EMV Mode.

(2) Legacy Mode

- Legacy Mode is the Transaction Mode used for the IC Transactions with Contactless IC Cards, which conform to “**JCB Contactless IC Card Specification ver1.1**” and are issued in certain countries and regions.
- The IC Transaction performed in this mode is always processed online for authorization.

(3) Magnetic Stripe Mode

- Magnetic Stripe Mode is the Transaction Mode intended for Contactless payments using authorization networks that support only magnetic stripe authorization.
However, since all Contactless IC Cards support EMV Mode or Legacy Mode, Magnetic Stripe Mode shall not be performed.
- Contactless IC Terminals conforming to **EMV CL Book C-5** Version 2.9 or further versions and **JCB CL Term** Version 1.5 or further versions do not support Magnetic Stripe Mode.



2.5.1. Capability Requirements for Transaction Mode

Requirements for supporting Transaction Mode are defined in **Table 2-3**.
A Contactless IC Terminal shall support EMV Mode and Legacy Mode.
Support of Magnetic Stripe Mode depends on the specification version which the Contactless IC Terminal conforms to.

Table 2-3 Capability Requirements for Transaction Mode

Specification version	EMV Mode	Legacy Mode	Magnetic Stripe Mode
JCB CL Term v.1.5 and further versions. EMV CL Book C-5 v.2.9 and further versions.	Mandatory	Mandatory	Not Applicable
JCB CL Term v.1.4. EMV CL Book C-5 v.2.8.	Mandatory	Mandatory	Optional
JCB CL Term v.1.3. EMV CL Book C-5 v.2.7 and previous versions.	Mandatory	Mandatory	Mandatory



2.5.2. Configuration Requirements for Transaction Mode

Requirements for supporting Transaction Mode when configuring a Contactless IC Terminal are defined in **Table 2-4**. The Acquirer or the related party shall set or control the Contactless IC Terminal not to initiate Contactless IC Transactions with Magnetic Stripe Mode.

Table 2-4 Configuration Requirements for Transaction Mode

Specification version	EMV Mode	Legacy Mode	Magnetic Stripe Mode
JCB CL Term v.1.5 and further versions. EMV CL Book C-5 v.2.9 and further versions.	Mandatory	Mandatory	Not Applicable
JCB CL Term v.1.4. EMV CL Book C-5 v.2.8.	Mandatory	Mandatory	Shall not support ¹
JCB CL Term v.1.3. EMV CL Book C-5 v.2.7 and previous versions.	Mandatory	Mandatory	Shall not process ²

¹ Combination Options Byte 1 Bit 3 (Magnetic Stripe Mode Supported) shall be set to zero to disable this Mode.

² Magnetic Stripe Mode cannot be invalidated by configurations of the Contactless kernel. The Acquirer or the related party shall control the application outside the Contactless kernel or their authorization system in order not to process Contactless IC Transactions with Magnetic Stripe Mode.

Please refer to “JCB Approved Contactless IC Terminal Product List” or “Approved Products” on the EMVCo web site (<https://www.emvco.com/>) in order to confirm the specification version supported by the Contactless IC Terminal.



2.6. Terminal Risk Management

2.6.1. Terminal Floor Limit

Terminal Floor Limit is a minimum transaction amount that requires authorization approval to accept a Contact IC Transaction.

2.6.1.1. Configuration Requirements

The Acquirer shall determine Terminal Floor Limit in accordance with **Schedule K:JCB Maximum Merchant Floor Limit**.

2.6.2. Contactless Limits

A Contactless IC Terminal compares the transaction amount with the following Contactless Limits and perform the procedures based on the comparison results.

(a) Contactless Transaction Limit

A Contactless IC Transaction with an amount that is greater than or equal to Contactless Transaction Limit cannot be executed. If a Contactless IC Transaction is declined because its amount is greater than or equal to the Contactless Transaction Limit, the Contactless IC Terminal shall prompt a message to initiate a Contact IC Transaction and the Merchant shall switch to a Contact IC Transaction according to the message.

NOTE: Cardmember's devices such as mobile devices only support a Contactless IC Transaction. Therefore, when Contactless IC terminals are installed in the market, the Acquirer shall determine the operation of Merchants based on the premise that the transaction cannot be switched to a Contact IC Transaction even if a Contactless IC Transaction by a Cardmember's device is declined because its amount is greater than or equal to the Contactless Transaction Limit.

(b) CVM Required Limit

All Merchants shall conduct Cardholder Verification for a Contactless IC Transaction with an amount that is greater than or equal to the CVM Required Limit.

(c) Contactless Floor Limit

All Merchants shall obtain approval from the Issuer for a IC Transaction with an amount that is greater than or equal to the Contactless Floor Limit.

2.6.2.1. Configuration Requirements

The Acquirer shall determine Contactless Limits in accordance with **Schedule J JCB Maximum Merchant Contactless Limits** set forth by JCB.



2.6.3. Random Transaction Selection

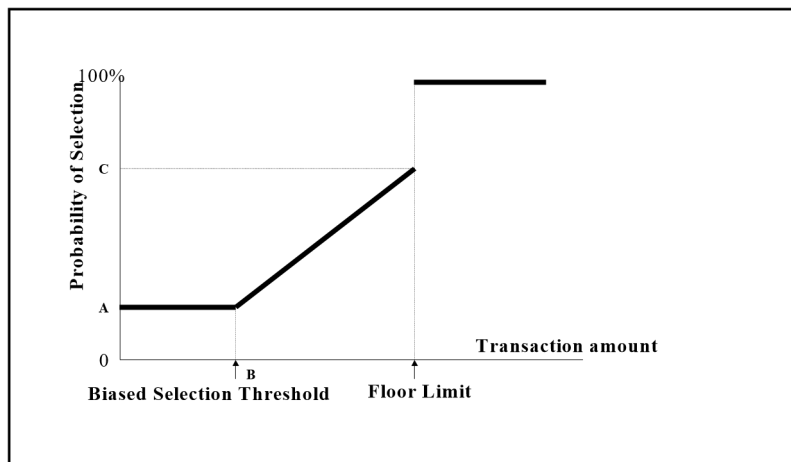
An IC Transaction is processed online randomly using Random Transaction Selection when the transaction amount is under the Terminal Floor Limit or the Contactless Floor Limit.

The probability of being processed online is determined as described in **Figure 2-1** according to the transaction amount and the values in **Table 2-5**.

Table 2-5 Random Transaction Selection

Data	Description
A. Target Percentage to be Used for biased Random Selection	Any IC Transaction with a transaction amount less than the Threshold Value is subject to selection at random without further regard for the value of the IC Transaction. The Terminal shall generate a random number in the range of 1 to 99. If this random number is less than or equal to this value, the IC Transaction shall be processed online.
B. Threshold Value for Biased Random Selection	This value shall be set to zero or a positive number less than the floor limit. Any IC Transaction with a transaction amount equal to or greater than the Threshold Value but less than the floor limit can be processed online more frequently based on the transaction amount.
C. Maximum Target Percentage to be Used for Biased Random Selection	This value shall be in the range of 0 to 99 but at least as high as the previous “Target Percentage to be Used for biased Random Selection”. Any IC Transaction with a transaction amount less than the floor limit can be processed online with this probability.

Figure 2-1 Random Transaction Selection



2.6.3.1. Configuration Requirements

Support of Random Transaction Selection is optional when configuring an IC Terminal. The Acquirer or the related party shall set the values in **Table 2-5** if they use Random Transaction Selection.

There is no need to support Random Transaction Selection at an offline-only Terminal and an online-only Terminal such as ATM in which all IC Transactions are processed online.



2.6.4. Terminal Action Code (TAC)

Terminal Action Code is used in Terminal Action Analysis to determine whether to decline the IC Transaction offline, request sending the IC Transaction online, or request approval of the IC Transaction offline.

2.6.4.1. Configuration Requirements

The Acquirer or the related party shall set Terminal Action Code value shown in **Table 2-6**. The meaning of each bit is listed in **Table 2-7**.

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Table 2-6 Terminal Action Code value (hex)

Data	Value (hex)
Terminal Action Code – Denial	0010000000
Terminal Action Code – Online	FC60ACF800
Terminal Action Code – Default	FC6024A800 or FC60242800 (For Byte 4 – Bit 8, the Acquirer can choose the value)

Table 2-7 Terminal Action Code value

Byte	Bit	Meaning	TAC-Denial	TAC-Online	TAC-Default
1	8	Offline data authentication was not performed	0	1	1
	7	Offline static data authentication failed	0	1	1
	6	ICC data missing	0	1	1
	5	Card appears on Terminal exception file	0	1	1
	4	Offline dynamic data authentication failed	0	1	1
	3	Combined DDA/AC Generation failed	0	1	1
	2	SDA selected	0	0	0
	1	RFU	0	0	0
2	8	ICC and Terminal have different application versions	0	0	0
	7	Expired application	0	1	1
	6	Application not yet effective	0	1	1
	5	Requested service not allowed for card product	1	0	0
	4	New card	0	0	0
	3	RFU	0	0	0
	2	RFU	0	0	0
	1	RFU	0	0	0
3	8	Cardholder verification was not successful	0	1	0
	7	Unrecognized CVM	0	0	0
	6	PIN Try Limit exceeded	0	1	1
	5	PIN entry required and PIN pad not present or not working	0	0	0
	4	PIN entry required, PIN pad present, but PIN was not entered	0	1	0
	3	Online PIN entered	0	1	1
	2	RFU	0	0	0
	1	RFU	0	0	0
4	8	Transaction exceeds floor limit	0	1	1/0*
	7	Lower consecutive offline limit exceeded	0	1	0
	6	Upper consecutive offline limit exceeded	0	1	1
	5	Transaction selected randomly for online processing	0	1	0
	4	Merchant forced transaction online	0	1	1
	3	RFU	0	0	0
	2	RFU	0	0	0
	1	RFU	0	0	0
5	8	Default TDOL used	0	0	0
	7	Issuer authentication was unsuccessful	0	0	0
	6	Script processing failed before final GENERATE AC	0	0	0
	5	Script processing failed after final GENERATE AC	0	0	0
	4	RFU	0	0	0
	3	RFU	0	0	0
	2	RFU	0	0	0
	1	RFU	0	0	0

(*) The value shall be determined by the Acquirer.

2.7. Offline Data Authentication

The methods of Offline Data Authentication are the following.

- (1) Static Data Authentication (SDA)
- (2) Dynamic Data Authentication (DDA)
- (3) Combined DDA/Application Cryptogram Generation (CDA)

An IC Terminal verifies the authenticity of an IC Card offline to confirm the IC Card and the IC Transaction data are not tampered with. The difference among the three methods is that DDA implements more sophisticated technology than SDA, and CDA implements more sophisticated technology than DDA. Offline Data Authentication functions are defined in **EMV Book2**, **EMV Book3**, **EMV Book 4** and **EMV CL Book C-5** or **JCB CL Term**.

2.7.1. Requirements for Contact IC Terminals

2.7.1.1. Capability Requirements

Requirements for supporting Offline Data Authentication are defined in the **Table 2-8**.

Table 2-8 Capability Requirements for Offline Data Authentication for Contact IC Terminals

No.	Terminal Type	Support		
		SDA	DDA	CDA
1	Attended online-only Terminal (Terminal Type: '11', '21')	Optional ¹	Optional ¹	Optional ¹
2	Attended offline Terminal with online capability (Terminal Type: '22')	Mandatory	Mandatory	Optional
3	Attended offline-only Terminal (Terminal Type: '23')	Mandatory	Mandatory	Optional
4	Unattended online-only Terminal (Terminal Type: '24')	Optional ¹	Optional ¹	Optional ¹
5	Unattended offline Terminal with online capability (Terminal Type: '25')	Mandatory	Mandatory	Optional
6	Unattended offline-only Terminal (Terminal Type: '26')	Mandatory	Mandatory	Optional
7	Online-only ATM (Terminal Type: '14')	Optional ¹	Optional ¹	Optional ¹

¹ If the online-only terminal supports Offline Data Authentication, it shall support the combination of SDA and DDA or SDA, DDA and CDA.



2.7.1.2. Configuration Requirements

Offline Data Authentication shall be configured as listed in **Table 2-9** when deploying a Contact IC Terminal.

An offline-capable Terminal shall support Offline Data Authentication. Support of Offline Data Authentication is optional for an online-only Terminal.

An IC Terminal supporting Offline Data Authentication shall support not only SDA but also DDA, while support of CDA is optional.

Table 2-9 Configuration Requirements for Offline Data Authentication for Contact IC Terminals

No.	Terminal Type	Support		
		SDA	DDA	CDA
1	Attended online-only Terminal (Terminal Type: '11', '21')	Optional ¹	Optional ¹	Optional ¹
2	Attended offline Terminal with online capability (Terminal Type: '22')	Mandatory	Mandatory	Optional
3	Attended offline-only Terminal (Terminal Type: '23')	Mandatory	Mandatory	Optional
4	Unattended online-only Terminal (Terminal Type: '24')	Optional ¹	Optional ¹	Optional ¹
5	Unattended offline Terminal with online capability (Terminal Type: '25')	Mandatory	Mandatory	Optional
6	Unattended offline-only Terminal (Terminal Type: '26')	Mandatory	Mandatory	Optional
7	Online-only ATM (Terminal Type: '14')	Optional ¹	Optional ¹	Optional ¹

¹ If the online-only terminal supports Offline Data Authentication, it shall support the combination of SDA and DDA or SDA, DDA and CDA.

Terminal Capabilities represent the capability of reading Card information, Cardholder Verification and Offline Data Authentication

The Acquirer or the related party shall configure which Offline Data Authentication method is supported by setting Terminal Capabilities Byte 3 as shown in **Table 2-10**.

Table 2-10 Terminal Capabilities Byte 3

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1								Static data authentication
	1							Dynamic data authentication
				1				Combined Dynamic Data Authentication / Application Cryptogram Generation

2.7.2. Requirements for Contactless IC Terminals

2.7.2.1. Capability Requirements

Requirements for supporting Offline Data Authentication are defined in **Table 2-11**.

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Table 2-11 Capability and Configuration Requirements of Offline Data Authentication for Contactless IC Terminals

No.	Terminal Type	Support CDA
1	Attended online-only Terminal (Terminal Type: ‘11’, ‘21’)	Conditional ¹
2	Attended offline Terminal with online capability (Terminal Type: ‘22’)	Mandatory
3	Attended offline-only Terminal (Terminal Type: ‘23’)	Mandatory
4	Unattended online-only Terminal (Terminal Type: ‘24’)	Conditional ¹
5	Unattended offline Terminal with online capability (Terminal Type: ‘25’)	Mandatory
6	Unattended offline-only Terminal (Terminal Type: ‘26’)	Mandatory
7	Online-only ATM (Terminal Type: ‘14’)	Optional

¹ Mandatory if the Terminal is a Transit Reader.



2.7.2.2. Configuration Requirements

The Acquirer or the related party shall configure the Contactless IC Terminal as defined in **Table 2-11**.

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For a Contactless IC Terminal, Combination Options represents the support of Status Check, Exception File Check, Offline Data Authentication, Random Transaction Selection, EMV Mode and Legacy Mode.

The Acquirer or the related party shall set Combination Options Byte 1 as shown in **Table 2-12** when Offline Data Authentication is supported.

Table 2-12 Combination Options Byte 1

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
		1						Offline Data Authentication supported

2.8. Cardholder Verification Method

Cardholder Verification Method is used for ensuring that IC Card is being used by the genuine Cardholder.

The Acquirer may add other methods not defined in EMV Specifications such as biometrics authentication, but shall consult with JCB/JCBI before doing so.

2.8.1. Requirements for Contact IC Terminals

2.8.1.1. Configuration Requirements

Requirements for supporting Cardholder Verification Method when configuring a Contact IC Terminal are defined in **Table 2-13**. To prevent Card fraud and lost or stolen Card use, PIN verification is highly recommended depending on the Terminal capability. Regulators in some markets regulate the method of Cardholder Verification.



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2. Terminal Requirements

Table 2-13 Configuration Requirements for Cardholder Verification Method for Contact IC Terminals

No.	Terminal Used for	Support				
		Signature	Online PIN	Offline Plain-text PIN	Offline Enciphered PIN	No CVM
1	Attended online-only Terminal (Terminal Type: '11', '21')	Mandatory ^{1 2}	Optional	Conditional ⁴	Conditional ⁴	Optional ¹
2	Attended offline Terminal with online capability (Terminal Type: '22')	Mandatory ^{1 2}	Optional	Conditional ⁴	Conditional ⁴	Optional ¹
3	Attended offline-only Terminal (Terminal Type: '23')	Mandatory ^{1 2}	Shall not support	Conditional ⁴	Conditional ⁴	Optional ¹
4	Unattended online-only Terminal (Terminal Type: '24')	Shall not support	Optional ³	Optional ³	Conditional ^{3 5}	Optional ³
5	Unattended offline Terminal with online capability (Terminal Type: '25')	Shall not support	Optional ³	Optional ³	Conditional ^{3 5}	Optional ³
6	Unattended offline-only Terminal (Terminal Type: '26')	Shall not support	Shall not support	Optional ³	Conditional ^{3 5}	Optional ³
7	Online-only ATM (Terminal Type: '14')	Shall not support	Mandatory	Shall not support	Shall not support	Shall not support

¹ If the Acquirer obtains approval from JCB in advance, the attended Contact IC Terminal may only support No CVM.

² Even if the Acquirer decides not to conduct signature Cardholder verification, signature shall be supported at attended POS to prevent IC Transactions from being unexpectedly declined due to Cardholder Verification Method mismatch.

³ At least one of the Cardholder Verification Methods shall be supported to prevent Cardholder Verification Method mismatch.

⁴ For attended terminals, both Offline Plain-text PIN and Offline Enciphered PIN shall be supported concurrently, otherwise neither shall be supported individually.

⁵ For unattended terminals, if Offline Plain-text PIN is supported, Offline Enciphered PIN shall also be supported.



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2. Terminal Requirements

The Acquirer or the related party shall configure which Cardholder Verification Methods are supported by setting Terminal Capabilities Byte 2 as shown in **Table 2-14**.

Table 2-14 Terminal Capabilities Byte 2

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1								Plaintext PIN for ICC verification
	1							Enciphered PIN for online verification
		1						Signature (paper)
			1					Enciphered PIN for offline verification
				1				No CVM required

2.8.1.2. Speedy Payment Service (without PIN as CVM)

PIN verification is not necessary by terminal configurations for the Contact IC Transactions meeting all following requirements up to the specific amounts determined per country or territory.

- A Merchant must obtain online authorization.
- The transaction amount is equal to or less than the transaction limit specified in “Speedy Payment Service Limit” in **Schedule L: Speedy Payment Service**.

However, notwithstanding the above conditions, Speedy Payment Service is not applicable for:

- A Merchant which is categorized in any of the Merchant Category in “Speedy Payment Service Merchant Category Code Exclusions” in **Schedule L: Speedy Payment Service**.
- A Cash Advance
- A Transaction where Dynamic Currency Conversion is performed

Speedy Payment Service can be implemented by Selectable Kernel.

1. If the transaction amount is equal to or less than the Speedy Payment Service Limit, select a Kernel that supports only No CVM.
2. If the transaction amount is more than the Speedy Payment Service Limit, select a Kernel that supports CVM according to Table 2-13.

2.8.2. Requirements for Contactless IC Terminals

2.8.2.1. Configuration Requirements

Requirements for supporting Cardholder Verification Method when configuring a Contactless IC Terminal are listed in **Table 2-15**.

An attended Terminal shall support Signature.



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2. Terminal Requirements

An online capable Terminal may support online PIN, while an offline-only Terminal shall not support online PIN.
Support of On-Device CVM is mandatory unless the IC Terminal is an ATM.

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Table 2-15 Configuration Requirements for Cardholder Verification Method for Contactless IC Terminals

No.	Terminal Used for	Support		
		Signature	Online PIN	On-Device CVM
1	Attended online-only Terminal (Terminal Type: ‘11’, ‘21’)	Mandatory ²	Optional	Mandatory
2	Attended offline Terminal with online capability (Terminal Type: ‘22’)	Mandatory ²	Optional	Mandatory
3	Attended offline-only Terminal (Terminal Type: ‘23’)	Mandatory ²	Shall not support	Mandatory
4	Unattended online-only Terminal (Terminal Type: ‘24’)	Shall not support	Optional ¹	Mandatory
5	Unattended offline Terminal with online capability (Terminal Type: ‘25’)	Shall not support	Optional ¹	Mandatory
6	Unattended offline-only Terminal (Terminal Type: ‘26’)	Shall not support	Shall not support	Mandatory
7	Online-only ATM (Terminal Type: ‘14’)	Shall not support	Mandatory	Shall not support

¹ It is recommended to support Online PIN for an Unattended Terminal because any Contactless IC Transaction for Card device exceeding the amount of CVM Required Limit is declined due to Cardholder Verification Method unmatched.

² Even if the Acquirer decides not to conduct signature Cardholder verification, signature shall be supported at attended POS to prevent IC Transactions from being unexpectedly declined due to Cardholder Verification Method unmatched.

Terminal Interchange Profile (static) represents the capability of Cardholder Verification, Issuer Update and processing Transit transactions.

The Acquirer or the related party shall configure which Cardholder Verification Methods are supported by setting Terminal Interchange Profile Byte 1 as shown in Table 2-16.

Table 2-16 Terminal Interchange Profile Byte 1

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
	1							Signature supported
		1						Online PIN supported
			1					On-Device CVM supported

Whether Cardholder Verification is required for a Contactless IC Transaction is firstly determined by the Contactless IC Terminal based on the transaction amount and CVM Required Limit. Subsequently, the Contactless IC Card makes the final decision on whether Cardholder Verification is required or not.

A Contactless IC Terminal cannot support No CVM as a Cardholder Verification Method, while it does not request Cardholder Verification if the transaction amount is under the CVM Required Limit. However, please note that a Contactless IC Card may request to perform Cardholder Verification if the transaction amount is under the CVM Required Limit.

If Signature is selected as the Cardholder Verification for a Contactless IC Transaction, or if there is no matching Cardholder Verification on the card and terminal, the Contactless IC Transaction may switch to Contact IC Transaction based on the card's settings. Since this function refers to Terminal Interchange Profile Byte 1 bits 1-2, the Terminal Interchange Profile Byte 1 bits 1-2 shall be 1, as shown in Table 2-17, if the Contact IC Terminal supports offline PIN.

Table 2-17 Terminal Interchange Profile Byte 1

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
						1		EMV contact chip supported
							1	(Contact Chip) Offline PIN supported

2.9. Exception File Check

2.9.1. Capability Requirements

Contact and Contactless IC Terminals may support Exception File Check.

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2.9.2. Configuration Requirements

Support of Exception File Check is optional for Contact and Contactless IC Terminals.

For a Contactless IC Terminal, when the Acquirer implements Exception File



Check for Terminal Risk Management, the Acquirer or the related party shall set Combination Options Byte 1 as shown in **Table 2-17**.

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Table 2-17 Combination Options Byte 1

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
			1					Exception File Check required

2.10. Issuer Update

2.10.1. Capability Requirements for Issuer Update

For a Contactless IC Terminal, Issuer Update enables Issuers to perform remote update of the IC Card data. However, support of Issuer Update is prohibited.

2.10.2. Configuration Requirements

Support of Issuer Update is prohibited for a Contactless IC Terminal.

To Indicate that Issuer Update is not supported, the Acquirer or the related party shall set Terminal Interchange Profile Byte 2 bit 8 to 0 as shown in **Table 2-18**.

Table 2-18 Terminal Interchange Profile Byte 2

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0								Issuer Update supported

 **NOTE:** 2nd Generate AC is not performed on Contactless IC Transactions due to the prohibition of Issuer Update support.

2.11. Status Check

2.11.1. Configuration Requirements

A Contactless IC Terminal may support Status Check. Support of Status Check is optional for an offline with online capability Terminal. Support of Status Check is not required for an online-only Terminal and an offline-only Terminal.

When an Acquirer supports Status Check, the Acquirer or the related party shall set Combination Options Byte 1 as shown in **Table 2-19**.



Status Check shall be set by the Acquirer's responsibility according to the use case.

Table 2-19 Combination Options Byte 1

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
	1							Status Check supported

2.12. Online Processing

2.12.1 Data Transmitted from the Terminal to the Acquirer

Table 2-20 shows the minimum required IC related data in the authorization request message transmitted from an IC Terminal to the Acquirer for an online transaction. Other data may be required by JCBI. The transaction shall not be terminated due to the existence of other data.

For data transmitted from the Acquirer to JCBI, the Acquirer shall comply with the requirements defined by JCBI.



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2. Terminal Requirements

Table 2-20 Data in Messages Transmitted from the Terminal to the Acquirer

M: Mandatory, C: Conditional, O: Optional, N/A: Not Applicable

No.	Tag	Data name	Source	Format	Length (Byte)	Contact	Contactless	
							EMV	Legacy
1	'9F26'	Application Cryptogram (AC)	ICC	b	8	M	M	M
2	'9F27'	Cryptogram Information Data (CID)	ICC	b	1	M	M	M
3	'9F10'	Issuer Application Data (IAD)	ICC	b	var. up to 32	M	M	M
4	'9F37'	Unpredictable Number	Terminal	b	4	M	M	M
5	'9F36'	Application Transaction Counter (ATC)	ICC	b	2	M	M	M
6	'95'	Terminal Verification Result (TVR)	Terminal	b	5	M	M	M
7	'9A'	Transaction Date	Terminal	n6	3	M	M	M
8	'9C'	Transaction Type	Terminal	n2	1	M	M	M
9	'9F02'	Amount, Authorized (Numeric)	Terminal	n12	6	M	M	M
10	'5F2A'	Transaction Currency Code	Terminal	n3	2	M	M	M
11	'82'	Application Information Profile (AIP)	ICC	b	2	M	M	M
12	'9F1A'	Terminal Country Code	Terminal	n3	2	M	M	M
13	'9F03'	Amount, Other (Numeric)	Terminal	n12	6	M	M	M
14	'9F34'	Cardholder Verification Method (CVM) Results	Terminal	b	3	M	M	M
15	'9F35'	Terminal Type	Terminal	n2	1	C ¹	M	M
16	'9F09'	Terminal Application Version Number	Terminal	b	2	C ¹	N/A	N/A
17	'9F33'	Terminal Capabilities	Terminal	b	3	C ¹	N/A	N/A
18	'9F1E'	Interface Device (IFD) Serial Number	Terminal	an8	8	O	O	O
19	'4F'	Application Dedicated File (ADF) Name	ICC	b	5-16	C ²	C ²	C ²



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No.	Tag	Data name	Source	Format	Length (Byte)	Contact	Contactless	
							EMV	Legacy
20	'9F41'	Transaction Sequence Counter	Terminal	n4-8	var. ≤ 4	O	O	O
21	'84'	Dedicated File Name	ICC	b	var. ≤ 16	C ²	C ²	C ²
22	'9F6E'	Device Information	ICC	b	4	N/A	C ³	C ³
23	'9F7C'	Partner Discretionary Data	ICC	b	var. up to 32	N/A	C ³	N/A
24	'5A'	Application PAN	ICC	cn var. ≤ 19	var. up to 10	M	M	M
25	'5F34'	Application PAN Sequence Number	ICC	n2	1	C ²	C ²	C ²
26	'9F39'	POS Entry Mode	Terminal	n2	1	M	M	M

¹ Mandatory if the data are supported by the Terminal.

² Mandatory if the data are provided by the IC Card.

³ Mandatory if the data are provided by the IC Card. "N/A" for IC Terminals conforming to **EMV CL Book C-5** Version 2.7 or earlier version and **JCB CL Term** Version 1.3 or earlier version.

2.12.2. Issuer Response

If online authorization is required, the IC Terminal sends the transaction data to the Acquirer and receives the response from the Issuer. **Table 2-21** shows the ARC indicating response from the Issuer.

Table 2-21 ARC values

ARC	Meaning (response from Issuer)
00, 10, 11	Approval
01, 02	Referral
Other than above	Decline

If the Issuer responds with the Referral, the IC Terminal shall decline the IC Transaction. In this case, the IC Terminal should notify the Cardholder that the Issuer responded with the Referral.



2.12.3. Data Transmitted from the Acquirer to the Terminal

For Contact IC Transactions, an Acquirer shall send the data sent by the Issuer to the Contact IC Terminal.

Since support for Issuer Update is prohibited for Contactless IC Transactions, an Acquirer is not required to send Tag '91', '71' and '72' sent by the Issuer to the Contactless IC Terminal, while Tag '8A' shall always be sent. The Contactless IC Terminal shall ignore Tag '91', '71' and '72' and shall not restart the processing with the IC Card.

Table 2-22 shows the minimum required IC related data in the authorization response message from an Acquirer to the IC Terminal for an online transaction. An Acquirer shall send the authorization response message defined in **Table 2-22**. Other data may be required by JCBI as the need arises.

Table 2-22 Data in Messages Transmitted from the Acquirer to the Terminal

M: Mandatory, C: Conditional, O: Optional

No.	Tag	Data name	Format	Length (Byte)	Contact	Contactless
1	'91'	Issuer Authentication Data	b	var.	C ¹	O ²
2	'71'	Issuer Script Template 1	b	var.	C ¹	O ²
3	'72'	Issuer Script Template 2	b	var.	C ¹	O ²
4	'8A'	Authorization Response Code ³	an	2	M	M

¹ Transmitted from the Acquirer if the data is sent by the Issuer.

² Since support for Issuer Update is prohibited for Contactless IC Transactions, the Acquirer is not required to send the data sent by the Issuer to the Contactless IC Terminal. If the Contactless IC Terminal receives IC related data for the Contactless IC Transaction, the Contactless IC Terminal shall ignore IC related data and shall not restart the processing with the IC Card.

³ Transmitted from the Acquirer according to Bit 39 in the authorization response message. An IC Terminal shall set Tag '8A' to 'Y3' or 'Z3' when it is unable to process Contact IC Transaction online. The IC Terminal shall set the value of Tag '8A' to 'Y1' when the IC Transaction is approved offline and set the value of Tag '8A' to 'Z1' when the IC Transaction is declined offline.



2.13. Fallback

If an IC Card or an IC Card application is blocked, fallback to the magnetic stripe is prohibited. Moreover, when a Contact or Contactless IC Transaction is declined, the IC Terminal shall not perform a fallback transaction.

An IC Terminal supporting the magnetic stripe shall attempt an IC Transaction before a magnetic stripe transaction.

*✍ **NOTE:** Cardholder's devices owned by Cardholders support only Contactless IC Transactions. Therefore, Contactless IC Transactions by Cardholder's devices cannot switch to Contact IC Transactions and fallback to magnetic stripe transactions. On the premise of this, Merchants shall determine the operation.*

2.14. Completion

Completion shall conform to **EMV Book3**.

At the end of processing, including Issuer Script processing, an IC Terminal shall display a message indicating whether the IC Transaction has been approved or declined.

2.15. Advice Message

An IC Terminal may support online advice message.



2.16. Receipt

When a printer supports receipt printing **or the Merchant may provide the cardholder with an electronic format receipt**, the receipt shall **display** the items **shown** in **Table 2-23**.

Table 2-23 Receipt Print Items (Mandatory)

#	Item
1	Application Primary Account Number ¹
2	Merchant's name
3	Transaction Amount in the Transaction Currency
4	Currency symbol or words denoting the Transaction Currency
5	Authorization Approval Code
6	Transaction Date
7	AID or other code that identifies the application.

¹ It is recommended that at least 4 digits of the Cardnumber except the last 4 digits are masked.

 Please refer to **Regulations – 4.3.2.6** for details of Receipt Requirements.

JCB recommends that receipts should also display the following additional information shown in Table 2-24.

Table 2-24 Receipt Print Items (Recommended)

#	Item
1	A code that indicates whether it is a Contact IC Transaction, Contactless IC Transaction or magnetic stripe transaction.
2	Information of the IC Card or the Cardholder's device for the Contactless IC Transaction using Tag '9F6E'.
3	Information that indicates which Cardholder Verification Method is performed if Cardholder Verification (except signature) is performed.
4	A line for Cardholder signature when the applicable Cardholder Verification Method is signature unless an electronic signature capture device is supported.

2.17. Logo

When an IC Terminal supports Contactless IC Transactions, the EMV Contactless Symbol shown in **Figure 2-2** shall be displayed on the contactless reader to indicate where to tap a Contactless IC Card.

To obtain EMV Contactless Symbol, please contact “icsupport@info.jcb.co.jp”.

When other brand Logos are displayed on an IC Terminal, the JCB Logo shall be also displayed. The J/Speedy Logo shall not be used for a new Contactless IC Terminal.

 Please refer to **Regulations - .1.16** for details of EMV Contactless Indicator and Contactless Symbol.

Figure 2-2 EMV Contactless Symbol



2.18 Sensory Materials

Please contact JCB/JCBI for details of JCB sensory materials when an Acquirer and the related parties use JCB sensory materials to indicate success of Contactless IC Transaction.

 Please refer to **EMV CL Book A** for details of user interface recommendations including timing, volume of audio indication and display.

2.19. Guidelines for Implementation at Contact ATM

A Contact ATM shall be compliant with the ATM specific requirements in the following sections.

All the following requirements are based on the assumption that ATMs are “Online-only” Terminals (Terminal Type: 14). The scope of the following requirements is limited to “Cash Advance” transactions.

2.19.1. Offline Data Authentication

2.19.1.1. Capability Requirements

Support for Offline Data Authentication is optional.

Support for SDA and DDA is mandatory if an ATM supports Offline Data Authentication.

 Please refer to **section 2.7.1.1.** for details of capability requirements for supporting Offline Data Authentication.

2.19.1.2. Configuration Requirements

Support for Offline Data Authentication is optional.

Support for SDA and DDA is mandatory if an ATM supports Offline Data Authentication.

 Please refer to **section 2.7.1.2.** for details of configuration requirements for supporting Offline Data Authentication.

2.19.2. Cardholder Verification Method

2.19.2.1. Capability Requirements

Only “Online PIN” shall be supported.

 Please refer to **section 2.8.1.1.** for details of capability requirements for supporting Cardholder Verification Method.

2.19.2.2. Configuration Requirements

Only “Online PIN” shall be supported.

 Please refer to **section 2.8.1.1.** for details of configuration requirements for supporting Cardholder Verification Method.



2.19.3. Terminal Floor Limit

2.19.3.1. Configuration Requirements

Terminal Floor Limit shall be set to zero.

2.19.4. Reversal at 2nd GAC Response

If a Contact IC Card responded with “AAC” at the 2nd GAC after an approval from the Issuer, the Contact IC Transaction shall be declined and the ATM shall transmit a reversal after the Contact IC Transaction.

2.19.5. Application and Routing for ATM Transactions

When J/Smart application is selected for a Contact IC Transaction, the Acquirer shall route the authorization message data to JCBI.

2.20. Guidelines for Implementation at Contactless ATM

A Contactless ATM shall be compliant with the ATM specific requirements in the following sections.

All the following requirements are based on the assumption that ATMs are “Online-only” Terminals (Terminal Type : 14). The scope of the following requirements is limited to “Cash Advance” transaction.

 **NOTE:** Please contact JCB/JCBI when considering implementation or installation of Contactless ATM Terminals.

2.20.1. Offline Data Authentication

2.20.1.1. Capability Requirements

Support for Offline Data Authentication is optional.

 Please refer to **section 2.7.2.1.** for details of capability requirements for supporting Offline Data Authentication.

2.20.1.2. Configuration Requirements

Support for Offline Data Authentication is optional.

 Please refer to **section 2.7.2.2.** for details of configuration requirements for supporting Offline Data Authentication.



2.20.2. Cardholder Verification Method

2.20.2.1. Capability Requirements

Only “Online PIN” shall be supported.

 Please refer to **section 2.8.2.1.** for details of capability requirements for supporting Cardholder Verification Method.

2.20.2.2. Configuration Requirements

Only “Online PIN” shall be supported.

 Please refer to **section 2.8.2.1.** for details of configuration requirements for supporting Cardholder Verification Method.

2.20.3. CVM Required Limit

2.20.3.1. Configuration Requirements

CVM Required Limit shall be set to zero.

2.20.4. Contactless Floor Limit

2.20.4.1. Configuration Requirements

Contactless floor Limit shall be set to zero.

3. Acquirer Implementation Requirements

This chapter describes Terminal selection, Terminal settings, host system upgrade and the tests required to be performed by Acquirers.

3.1. Terminal Selection

The Acquirer or the related party shall select the Contact IC Terminal approved by EMVCo.

 Please refer to “**Approved Products**” on the EMVCo web site (<https://www.emvco.com/>) for products that have been approved by EMVCo and for their Renewal Date.

The Acquirer or the related party shall select the Contactless IC Terminal which meets the following requirements:

- The Contactless IC Terminal is approved by EMVCo, if the Terminal conforms to **EMV CL Book C-5**.
- The Contactless IC Terminal is approved by JCB if the Terminal conforms to **JCB CL Term**.

 Please refer to “**Approved Products**” on the EMVCo web site (<https://www.emvco.com/>) for products which have been approved by EMVCo and for their Renewal Date.

 Please refer to “**JCB Approved Contactless IC Terminal List**” for products which have valid approval from JCB.

 “**JCB Contactless Transit Transaction Implementation Guide**”

 **NOTE:** To prevent interoperability issues, JCB recommends that the Acquirer or the related party select an IC Terminal that has been approved as compliant with the latest EMV Specifications. You may find information about the latest EMV Specifications on the EMVCo web site. “Issues List” of known interoperability issues is also published on the EMVCo web site (<https://www.emvco.com/>).



3.2. Terminal Settings

3.2.1. JCB CA Public Key Setting

The Acquirer or the related party shall set JCB CA Public Keys in the IC Terminal if the IC Terminal supports Offline Data Authentication. The Acquirer shall follow the instruction of “**JCB CA Interface Guide**”, which describes the required procedures between the Acquirer and JCB/CA when distributing JCB CA Public Keys.

 Please refer to **CA Interface Guide** for details of the distribution procedure of JCB CA Public Keys.

3.2.2. Terminal Configuration Data Setting

3.2.2.1. Data for Contact IC Transaction

The Acquirer or the related party shall set the data listed in **Table 3-1** in the Contact IC Terminal.

Table 3-1 Data for Contact IC Transaction

#	Data Name	Data Setting	Support
1	Application Identifier (AID)	A0000000651010	Mandatory
2	Application Version Number	‘0200’ See Section 2.3.	Mandatory
3	CA Public Key Index	Value to be set is specified in “ CA Interface Guide ”.	Conditional ¹
4	CA Public Key Modulus		
5	CA Public Key Exponent		
6	Maximum Target Percentage to be Used for Biased Random Selection	Value to be set is specified in Section 2.6.3 .	Conditional ²
7	Target Percentage to be Used for Biased Random Selection		
8	Threshold Value for Biased Random Selection		
9	Merchant Category Code	The Acquirer shall assign the Merchant Category Code in accordance with “ JCB Regulatory Publications - Code List ”.	Optional
10	Merchant Name and Location	Value to be set is specified in EMV Book 3 .	Mandatory
11	Terminal Action Code - Denial	‘0010000000’ See Section 2.6.4.1.	Mandatory
12	Terminal Action Code – Online	‘FC60ACF800’ See Section 2.6.4.1.	
13	Terminal Action Code – Default	‘FC6024A800 or FC60242800’ See Section 2.6.4.1.	



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14	Terminal Capabilities	Value to be set is specified in Section 2.7, Section 2.8 and EMV Book 4.	Mandatory
15	Terminal Floor Limit	Value to be set is specified in Section 2.6.1.1.	Mandatory
16	Terminal Country Code	Value to be set is specified in “JCB Regulatory Publications - Code List”.	Mandatory
17	Terminal Type	Value to be set is specified in Section 2.4.	Mandatory
18	Transaction Currency Code	Value to be set is specified in ISO 4217.	Mandatory
19	Transaction Currency Exponent	Value corresponding to the Transaction Currency Code	Mandatory
20	Default DDOL	9F3704	Conditional ³

¹ Mandatory if the Terminal supports Offline Data Authentication and/or Offline PIN Encipherment.

² Mandatory if the Terminal supports Random Transaction Selection.

³ Mandatory if the Terminal supports DDA.

3.2.2.2. Data for Contactless IC Transaction

The Acquirer or the related party shall set the data described in **Table 3-2** in the Contactless IC Terminal.

“JCB Contactless Transit Transaction Implementation Guide”

Table 3-2 Data for Contactless IC Transaction

#	Data Name	Data Setting	Support
1	Application Identifier (AID)	A0000000651010	Mandatory
2	Acquirer Identifier	LCID shall be set. Value to be provided by JCB.	Mandatory
3	CA Public Key	Value to be set is specified “JCB CA Interface Guide”.	Conditional ¹
4	CA Public Key Modulus		
5	CA Public Key Exponent		
6	Combination Options	Value to be set is specified in Section 2.7.2, 2.9.2, 2.11.1 of this document and A.3 of JCB CL Term	Mandatory
7	Contactless Floor Limit	Value to be set is specified in Section 2.6.2.1.	Conditional ²
8	Contactless Transaction Limit		
9	CVM Required Limit		
10	Maximum Target Percentage to be Used for Biased Random Selection	Value to be set is in Section 2.6.3.	Conditional ³
11	Target Percentage to be Used for Biased Random Selection		



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3. Acquirer Implementation Requirements

12	Threshold Value for Biased Random Selection		
13	Merchant Category Code	The Acquirer shall assign the Merchant Category Code in accordance with “ JCB Regulatory Publications – Code List ”.	Optional
14	Merchant Name and Location	Indicates the name and location of the Merchant	Mandatory
15	Terminal Action Code - Denial	‘0010000000’ See Section 2.6.4.1.	Mandatory
16	Terminal Action Code - Online	‘FC60ACF800’ See Section 2.6.4.1.	
17	Terminal Action Code - Default	‘FC6024A800’ or ‘FC60242800’ See Section 2.6.4.1.	
18	Terminal Country Code	Value to be set is specified in “ JCB Regulatory Publications – Code List ”.	Mandatory
19	Terminal Interchange Profile (static)	Value to be set is in Section 2.8.2.1. and Section 2.10.2 of this document and A.9 of JCB CL Term.	Mandatory
20	Terminal Type	Value to be set is in Section 2.4.	Mandatory
21	Transaction Currency Code	Value to be set is specified in “ JCB Regulatory Publications – Code List ”.	Mandatory
22	Transaction Currency Exponent	Value corresponding to the Transaction Currency Code.	Mandatory

¹ Mandatory if Offline Data Authentication is supported

² Mandatory if the Terminal supports Contactless Limits. Please refer to **Schedule J:JCB Maximum Merchant Contactless Limits**.

³ Mandatory if the Terminal supports Random Transaction Selection.

3.2.3. IC Transaction Record (TC Processing)

The Acquirer shall retain or have its Merchant retain, a transaction document or the relevant data, which proves that the transaction is an IC Transaction.

3.3. Host System Upgrade

An Acquirer shall update JCBI authorization message and JCBI interchange format file to include IC related data by referring to Online Interface Guide and Batch Interface Guide in JCB Regulatory Publications. The introduction of Contact and Contactless IC Transaction increases the size of data and introduces new data, thus the Acquirer is required to upgrade its host system to accept Contact and Contactless IC Transaction messages. The followings are the requirements for host system upgrade.



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3. Acquirer Implementation Requirements

3.3.1. Authorization Message Requirement

The Acquirer shall ensure that an authorization message complies with the latest version of the “**System Specifications - Online Interface Guide**”.

 Please refer to **Section 2.12** and **Online Interface Guide** for the details of authorization message Requirement.

- **Point of Service Entry Mode (Bit 22)**
New codes are defined for PAN Entry Mode, located in position 1-2 of Bit 22.
 Please refer to **section 2.1.1.** for details of PAN Entry Mode.
- **Card Sequence Number (Bit 23)**
Bit 23 is defined to support the Card sequence number, which is used to distinguish between two or more separate Cards having the same PAN.
- **Track 2 Data (Bit 35)**
The Acquirer shall set Track 2 data in Bit 35 of the authorization message. If an IC Card is read, Track2 equivalent data in the IC Card is to be set.
- **Integrated Circuit Card System Related Data (Bit 55)**
Bit 55 is defined to support the IC Transaction related data.

Table 3-3 Authorization Message Requirement

Transaction Condition		Bit 22	Bit 23	Bit 35	Bit 55
Interface	Transaction Mode				
Magnetic stripe	-	02	Not set	Track 2 data	Not set
Contact IC	-	05	ICC data if exists	Track 2 equivalent data	IC related data
Magnetic stripe Fallback Transaction	-	97	Not set	Track 2 data	Not set
Contactless IC	EMV Mode	07	ICC data if exists	Track 2 equivalent data	IC related data
Contactless IC	Legacy Mode	07	ICC data if exists	Track 2 equivalent data	IC related data

 Please refer to “**JRP System Specifications – Online Interface Guide**” for details of authorization message Requirement.



3.3.2. Interchange File

The Acquirer shall ensure that its system supports the IC related data called “DT04” or “format 4”.

 Please refer to *JRP System Specifications - “Batch Interface Guide”* for details of the Interchange File.

3.3.3. Refunds

The Acquirer is required to determine the process of refund both for IC and Magnetic stripe transactions. If it is an IC Transaction, the Acquirer has to make sure that refund data does not reach the Issuer’s host system before the Acquirer sends the original transaction data to JCBI.



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3. Acquirer Implementation Requirements

3.4. Testing

Acquires are required to pass TCI/TCI-CL ver.2.x (in accordance with TCI/TCI-CL Guide ver.2.x).

Table 3-4 Documents to refer

	For Contact IC Terminals	For Contactless IC Terminals		
		POS/ATM	JCB Tap on Mobile	Transit Reader
Specifications	EMV Integrated Circuit Card Specifications for Payment Systems	- JCB CL Term - EMV CL Book C-5	- JCB CL Term - JCB Tap on Mobile Core Requirements for Developers and Implementers	- JCB CL Term - EMV CL Book C-5
Implementation	Implementation Guide for IC Terminals	Implementation Guide for IC Terminals	Implementation Guide for JCB Tap on Mobile	- Implementation Guide for IC Terminals - JCB Contactless Transit Transaction Implementation Guide
TCI/TCI-CL	Terminal Check for Implementation Guide (TCI/TCI-CL Guide) ver.2.x			

3.4.1. Terminal Check for Implementation (TCI)

Prior to Contact IC Terminal deployment, the Acquirer shall perform TCI to verify the Terminal functions and settings. All the Terminal settings other than CA Public Keys shall be set in the same way as those actually deployed at merchants before performing TCI. After TCI is completed, the Acquirer shall set the production CA Public Keys to the Terminal.

Please refer to "Terminal Check for Implementation Guide (TCI/TCI-C Guide) ver.2.x" for details of TCI.

3.4.2. Contactless IC Terminal Check for Implementation (TCI-CL)

Prior to Contactless IC Terminal deployment, the Acquirer shall perform TCI-CL to verify the Terminal functions and settings. Except for production CA Public Keys, all the Terminal settings shall be same as the settings in TCI-CL. After TCI-CL is completed, the Acquirer shall set the production CA Public Keys to the Terminal. If the Terminal supports Contact IC Transactions as well, the Acquirer shall perform TCI prior to TCI-CL, or both in parallel.

Please refer to "Terminal Check for Implementation Guide (TCI/TCI-C Guide) ver.2.x" for details of TCI-CL.

3.4.3. JCBI Licensee Host System Test

For all JCBI Licensees planning to support Contact IC Transactions and Contactless IC Transactions, in order to confirm that the host system satisfies JCBI requirements, the following test requirements shall be passed.

- Functional Test

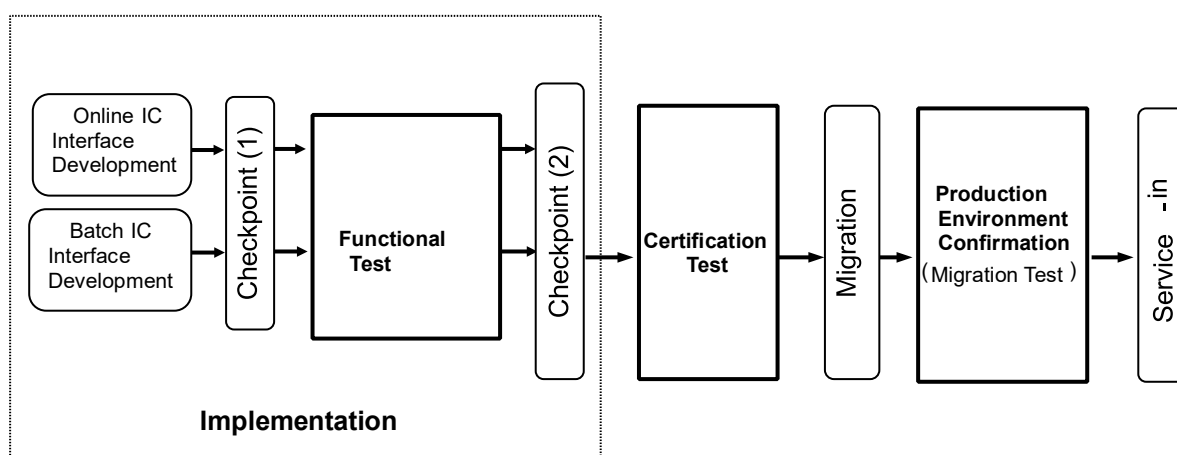
- Certification Test
- Migration Test

The diagram below depicts the general flow of the testing procedure for the online and batch interfaces.

 Please refer to “*JCB Licensee Testing*” for details of Issuer Host Certification.

3.4.3.1. Production Environment Confirmation

Figure 3-1 Production Environment Confirmation



The Acquirer is required to perform a migration test on either a Terminal connected to its actual host or an actual Merchant Terminal used in the production environment before proceeding with a full rollout to all Terminals. JCBI provides the Acquirer with live Cards to settle a transaction and refund at the said Merchant.

Annex A. Coding of Data Elements

A-1. Terminal Interchange Profile

Table A-1.1 Terminal Interchange Profile Byte 1 (Leftmost)

b8	b7	b6	b5	b4	b3	b2	b1	Meaning	Value ¹	Reference
1/0								CVM required by reader / N/A	N/A ²	-
	1/0							Signature supported	V	Section 2.8.2
		1/0						Online PIN supported	V	Section 2.8.2
			1/0					On-Device CVM supported	V	Section 2.8.2
				0				RFU	F	-
					1/0			Reader is a Transit Reader	V	Section 4.1 of “JCB Contactless Transit Transaction Implementation Guide ”
						1/0		EMV contact chip supported	V	Section 2.8.2
							1/0	(Contact Chip) Offline PIN supported	V	Section 2.8.2

¹ F= Fixed; V = Variable

² This bit is not applicable for the static Terminal Interchange Profile data element. It is dynamically set by Kernel for the dynamic Terminal Interchange Profile data element.

Table A-1.2 Terminal Interchange Profile Byte 2

b8	b7	b6	b5	b4	b3	b2	b1	Meaning	Value	Reference
0								Issuer Update supported*	F	Section 2.10.2
	0	0	0	0	0	0	0	Each bit RFU	F	-

(*) Applies only if Issuer Update is supported as an Implementation Option.

Table A-1.3 Terminal Interchange Profile Byte 3 (Rightmost)

b8	b7	b6	b5	b4	b3	b2	b1	Meaning	Value	Reference
0	0	0	0	0	0	0	0	Each bit RFU	F	-

A-2 Combination Options

Table A-2.1 Combination Options Byte 1 (Leftmost)

b8	b7	b6	b5	b4	b3	b2	b1	Meaning	Value	Reference
0								RFU	F	-



	1/0							Status Check supported	V	Section 2.11.1
		1/0						Offline Data Authentication supported	V	Section 2.7.2
			1/0					Exception File Check required*	V	Section 2.9.2
				1/0				Random Transaction Selection supported	V	Section 3.2.4
					0			fixed to 0b	F	-
						1		EMV Mode Supported (fixed to 1b)	F	Section 2.5.2
							1	Legacy Mode Supported	F	Section 2.5.2

(*) Applies only if Exception File Check is supported as an Implementation Option.

Table A-2.2 Combination Options Byte 2 (Rightmost)

b8	b7	b6	b5	b4	b3	b2	b1	Meaning	Value	Reference
0	0	0	0	0	0	0	0	Each bit RFU	F	-



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