



ACOSJ-P Java Card – PBOC 3.0

A Product Presentation

Tel: +852-2796-7873
Fax: +852-2796-1286
E-mail: info@acs.com.hk
Website: www.acs.com.hk



Advanced Card Systems Ltd.
Card & Reader Technologies

1. Product Overview
2. What is PBOC 3.0?
3. What is DC?
4. What is EC and QPBOC?
5. Product Features
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 - a. Bank Card Application
 - b. Third-Party Payment Application



Product Overview

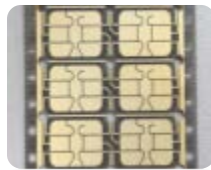


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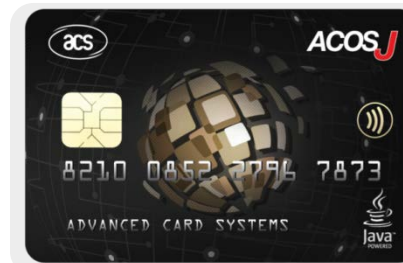
ACOSJ-P Products

**Contact\Contactless\Combi
(12 KB EEPROM)**



Module

**Contact Interface
(12 KB EEPROM)**



Full-sized Card

**Contactless Interface
(12 KB EEPROM)**

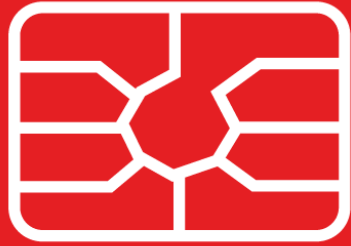


Full-sized Card

**Combi Interface
(12 KB EEPROM)**



Full-sized Card



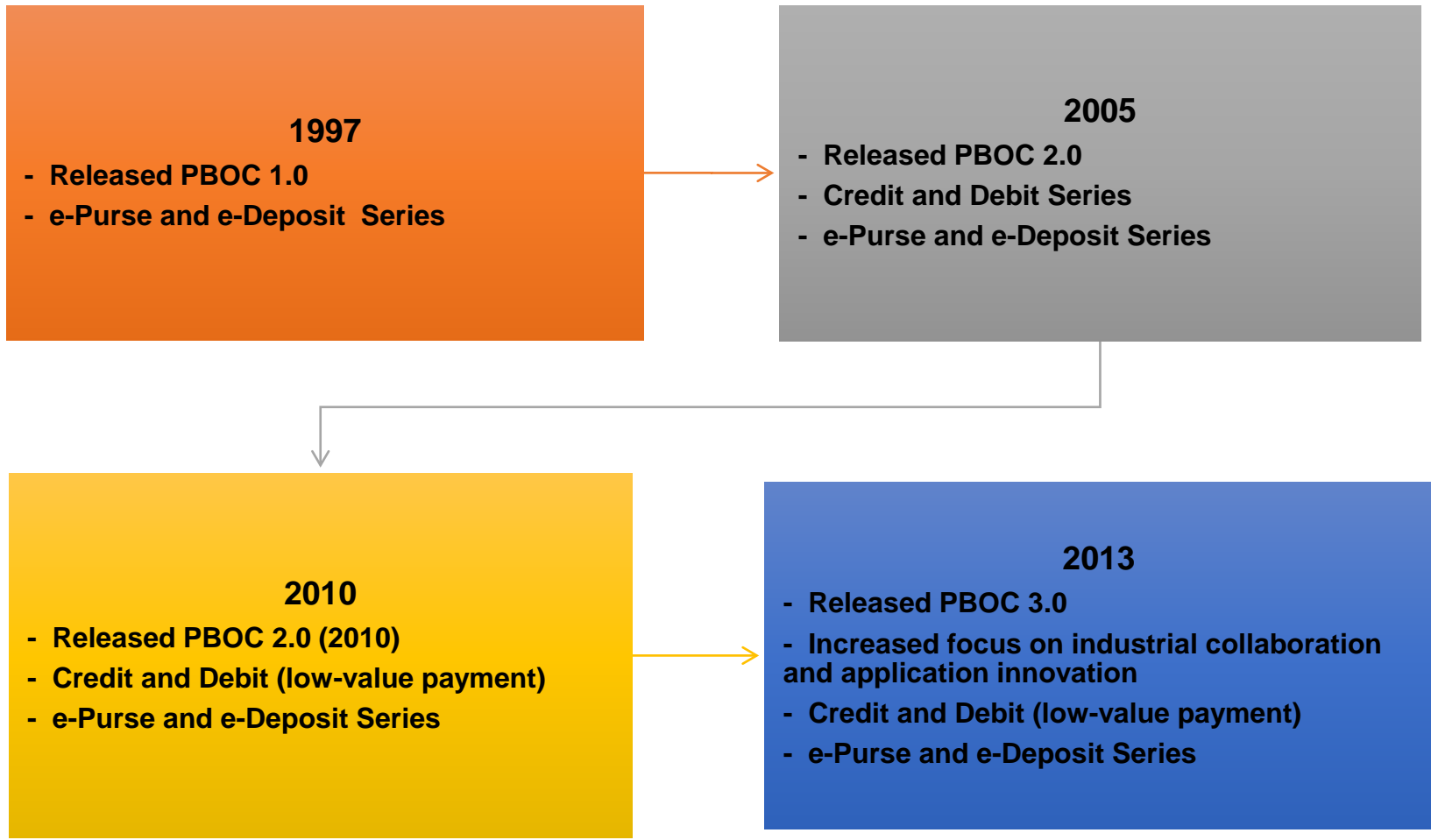
What is PBOC 3.0?



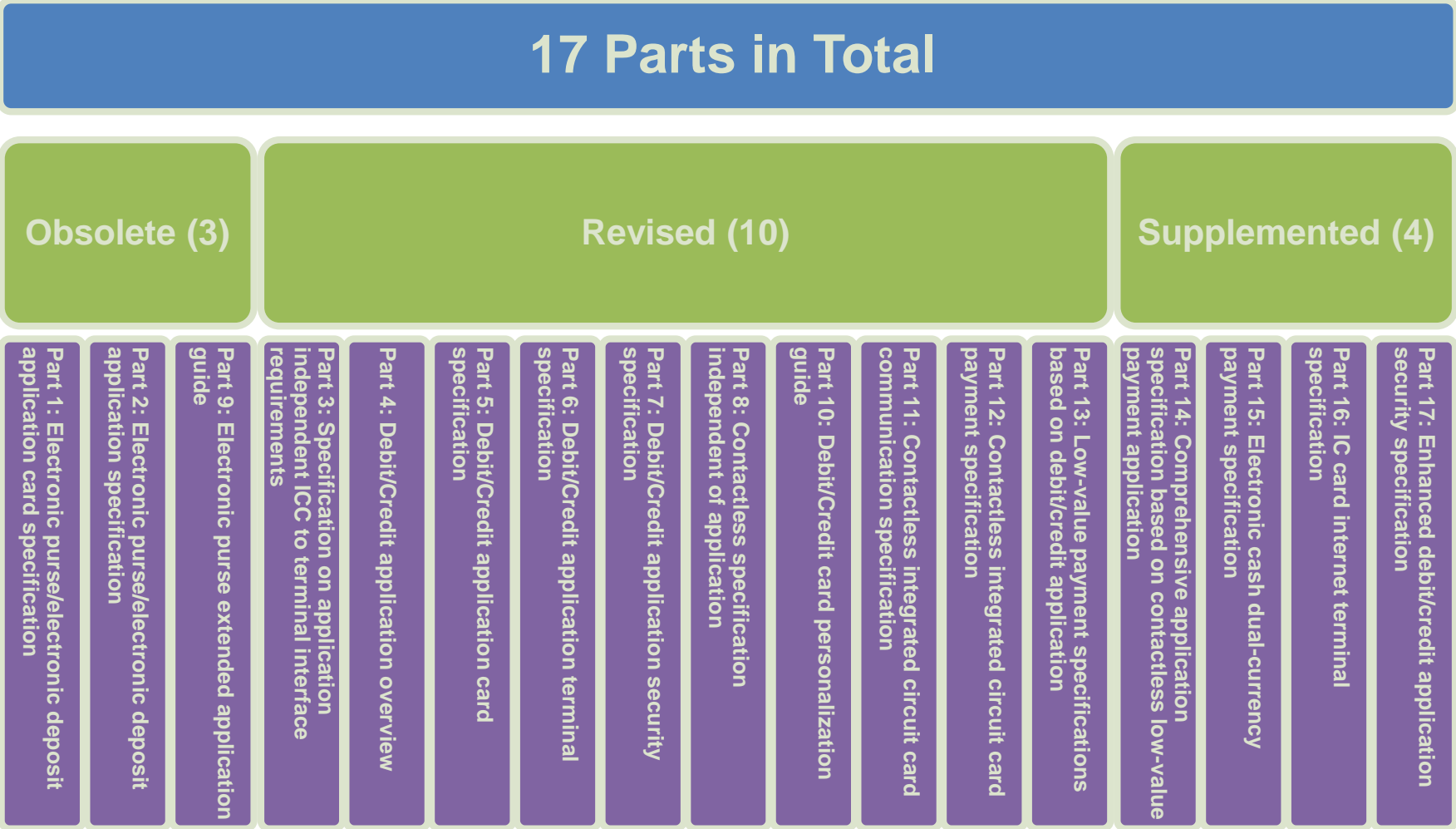
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Development Process of the PBOC Standard



Content of PBOC 3.0



Basic Functions

- Standard debit/credit
- Low-value payment based on standard debit/credit
- Contactless IC card payment

} PBOC 2.0

Note: PBOC 3.0 is added with the cash load log function, contactless transaction log function, new version FDDA, etc.

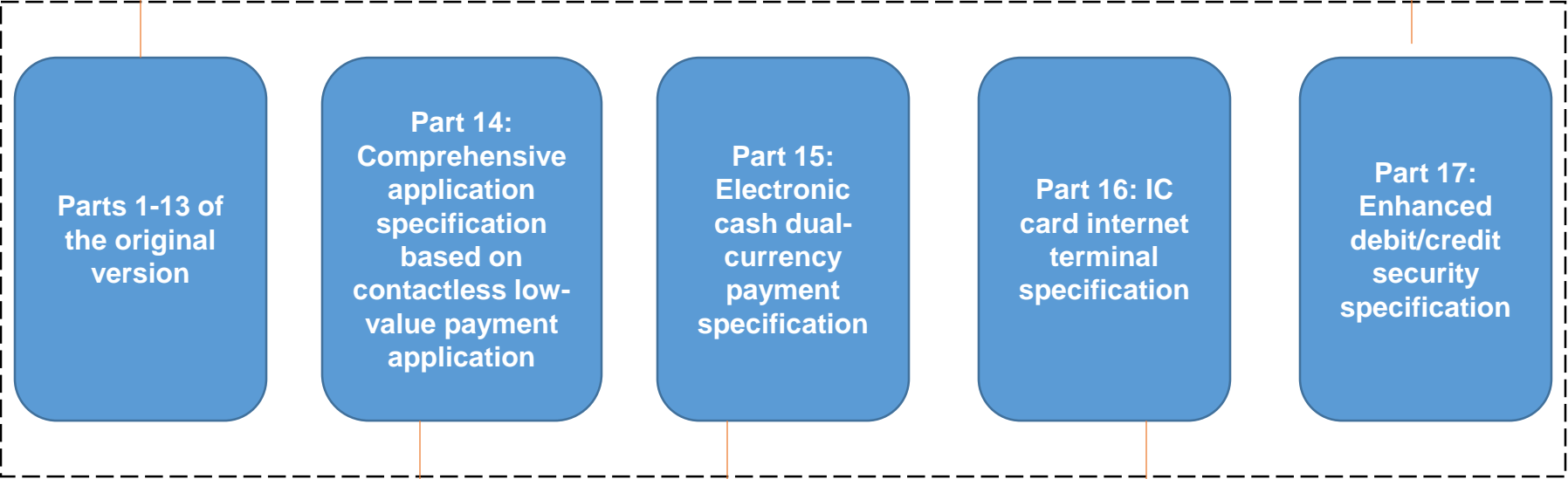
Extended Functions

- Contactless low-value payment application
- Dual-currency electronic cash (EC) application
- Enhanced security algorithm
- IC card Internet terminal

Main Functions Upgraded in PBOC 3.0

Specifications revised or abolished based on the original version, so as to improve the IC card transaction process, resolve problems occurred in financial IC card applications, adapt to international development trends, and keep pace with international norms

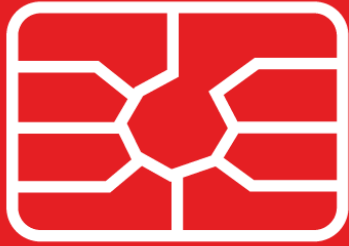
Specification supplemented to realize domesticization of cards and terminal cipher algorithms, ensure the security of financial transactions, and achieve independence and controllability



Specification supplemented to meet requirements of applying financial IC card in public services like bus, subway, high-speed railway, etc.

Specification supplemented to meet the requirements of domestic cardholders for payments with financial IC cards in Hong Kong and Macau

Specification supplemented to realize the integration of financial IC card application with internet payment, mobile payment, and other innovative payments



What is DC?



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PBOC debit/credit (DC) application is rooted in EMV 2000. The application realizes offline/online payment at POS terminals and cash withdraw transactions at ATM terminals by:

- Using the format of PKI digital certificates
- Realizing the asymmetric algorithm through “public key pair”
- Adopting static and dynamic data authentication
- Referring to different parameter settings in the card and the terminal

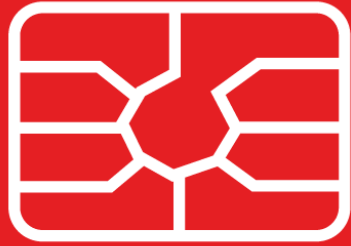
Standard DC Transaction Process and Types

- Debit for Purchase
- Cash Withdraw
- Query
- Authorization
- Refund
- Cancel
- Reversal
- EC Load
- EC Unload
- EC Offline Sale
- EC Balance Inquiry
- EC Detail Inquiry
- Payment

Online Process

Offline Process

Debit/Credit Transaction Process



What are EC and QPBOC?



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**Low-value payment
based on standard
debit/credit (EC)**

**Low-value payment
based on quick
debit/credit (QPBOC)**

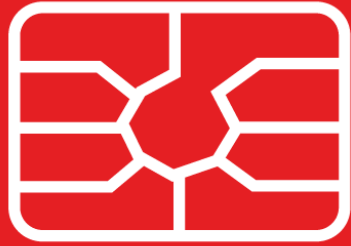
**Combi
(Contact\Contactless)**

Contactless

Standard debit/credit

- The concept of EC is defined in PBOC Part 13: Low-value payment specifications based on debit/credit application. EC is a low-value payment application that can be used in offline transactions.
- To complete low-value EC offline payment transactions, data elements such as EC Balance, EC Balance Upper Limit, EC Single Transaction Limit, and EC Reset Threshold are added on the basis of the original DC application.

- QPBOC is described in PBOC Part 12: Contactless integrated circuit card payment specification. In a nutshell, QPBOC is a combination of the PBOC DC application with improved transaction speed and the EC small-value payment application.
- In aspects of transaction process handling, encryption algorithm implementation, and authentication data selection, QPBOC is greatly different from the standard DC application and the low-value payment EC application developed on the basis of the standard DC application. The main difference is the QPBOC process is simplified to speed up the transaction handling of the contactless interface.



Product Features



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Contact Interface

- Large-sized EEPROM: 12 KB
- Compliance with ISO 7816 Parts 1-4
- T=0 protocol
- T=1 protocol

Combi Interface

- Same chip supports both the contact interface and the contactless interface.
- 12 KB EEPROM
- Compliance with ISO 7816 Parts 1-4
- Compliance with ISO 14443 Type A and Type B standards
- T=0 protocol
- T=1 protocol
- Protocol T=CL (for contactless interface)

Contactless Interface

- 12 KB EEPROM
- Compliance with ISO 14443 Type A and Type B standards
- Protocol T=CL (for contactless interface)

Common Features

- Compliance with Java Card 3.0.4
- Compliance with Global Platform 2.2.1
- Compliance with Mapping Guidelines 1.0.1
- Support AES, DES/3DES, RSA (RSA key contains at most 2048 bits), SHA1 algorithm, SHA256 algorithm, and SM2/3/4 cryptographic algorithms
- CC EAL5+ (chip level)
- EMVCo (chip level)
- Passed PBOC 3.0 authentication of Bank Card Test Center (BCTC)
- Full support for DC/EC QPBOC defined in PBOC 3.0



Product Application



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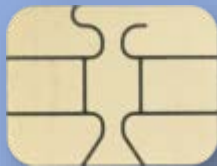
Bank Card Related Application



e-Payment



Low-value Payment



Social Security Card



Bank Card

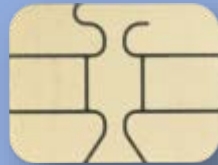


Deposit and withdraw at an ATM

Third-Party Payment Related Application



Loyalty Program



Social Security Card



Payment of Utility Bills



Citizen Card



Prepaid Card



Thank you!

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