Communication & Education Working Committee
Dual-Interface Card Personalization

Webinar 1 – Issuing Dual-Interface Cards 101

10/13/2020

U.S. Payments Forum Mission

- *... the cross-industry body focused on supporting the **introduction and implementation of EMV and other new and emerging technologies** that protect the security of, and enhance opportunities for payment transactions within the U.S.*

Current EMV-related Topics and Issues

- COVID-era changes impacting the payments experience for consumers and merchants
- Petro, Transit and Hospitality merchants EMV-enablement issues
- EMV contactless/mobile acceptance testing & certification
- Issuer considerations for contactless EMV (dual interface, offline data authentication)

Beyond EMV – Advanced Payments Topics and Issues

- Mobile payment and tokenization
- Identity and authentication in payments: use of biometrics, mobile data elements, digital ID
- EMV 3-D Secure, Secure Remote Commerce, PAR and other online fraud mitigation tools

Forum Activities & Resources

- Collaboration on projects to develop resources to assist with U.S. EMV migration and implementation of other new and emerging payments technologies
    - White papers, educational resources
    - Best practices and technical recommendations
- Education programs for members and the industry
    - Webinars, workshops, Forum member meeting tutorials, published resources
- Communications
    - Market outreach with recommended best practices and industry positions
- Networking
    - Forum for industry stakeholders to interact with all payments industry stakeholders

Information and resources available at www.uspaymentsforum.org

Today's Speakers

Randy Vanderhoof, U.S. Payments Forum

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Mansour Karimzadeh, SCIL

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Nick Pisarev, G+D Mobile Security

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Berke Baydu, Mastercard

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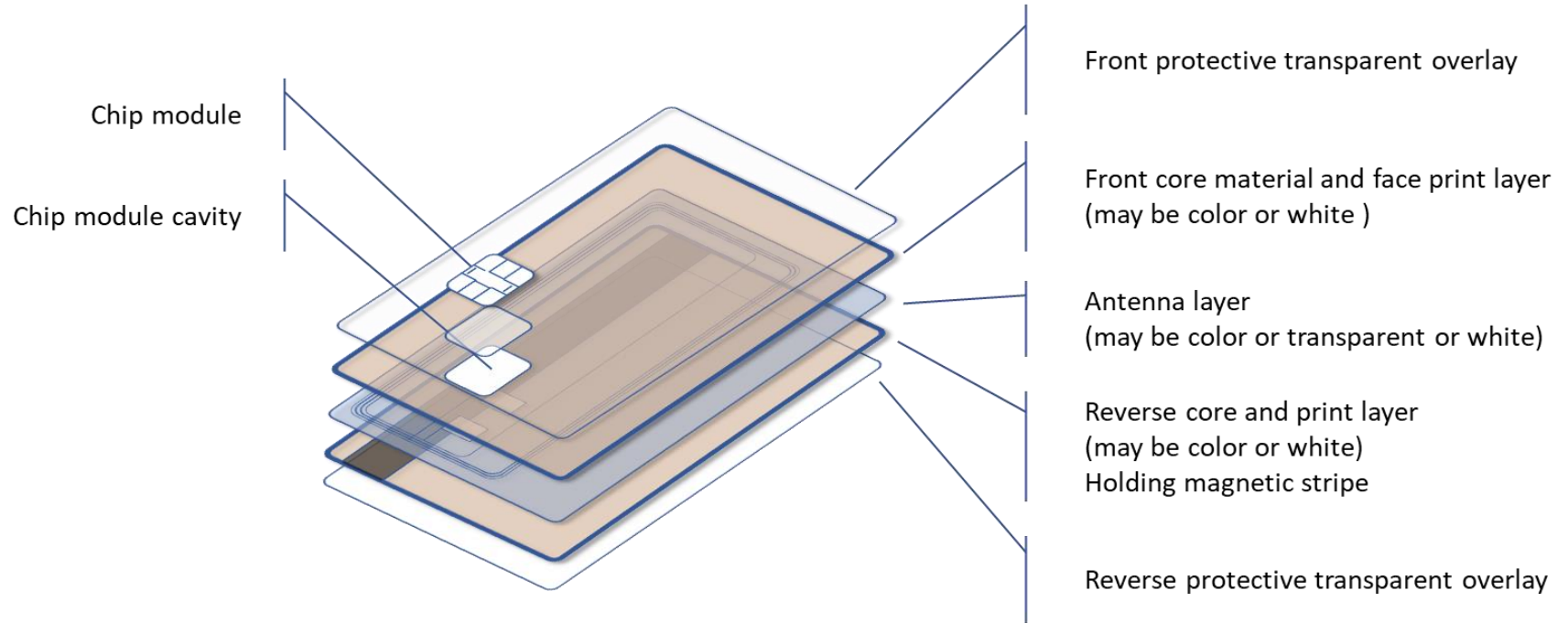# Dual-Interface Card Hardware

Mansour Karimzadeh, SCIL

October 13, 2020

Market Considerations

Dual-interface cards have been successful globally, with the UK, Canada and Australia leaders in contactless adoption. Experience in countries that have moved to contactless has shown the contactless-capable cards displace cash and drive increased transactions (i.e., "top of wallet" behavior)

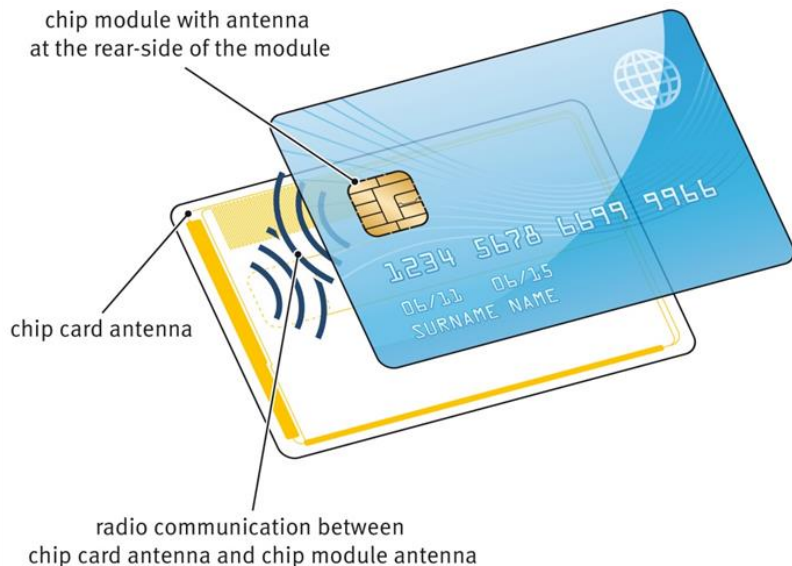# Visual Difference from a Contact Card

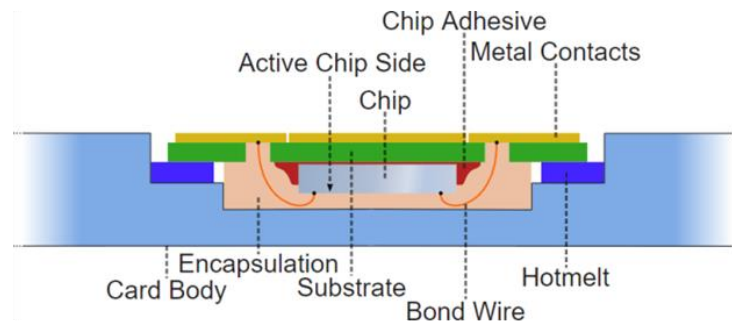# Manufacturing Difference from a Contact Card

Chip module

Chip module cavity

Front protective transparent overlay

Front core material and face print layer
(may be color or white)

Antenna layer
(may be color or transparent or white)

Reverse core and print layer
(may be color or white)
Holding magnetic stripe

Reverse protective transparent overlay

Inductive / Magnetic Coupling

chip module with antenna at the rear-side of the module

chip card antenna

radio communication between chip card antenna and chip module antenna

Direct Antenna Connect

Chip Adhesive
Active Chip Side
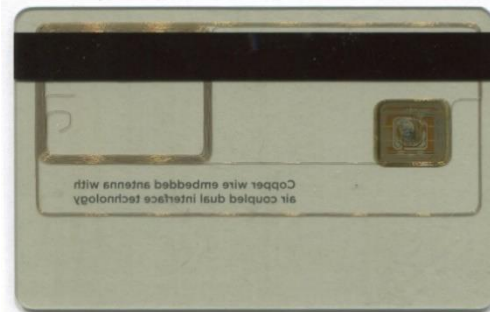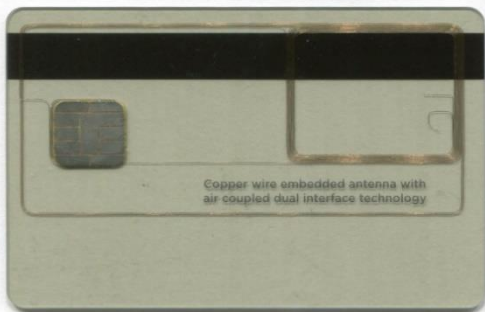Metal Contacts
Chip
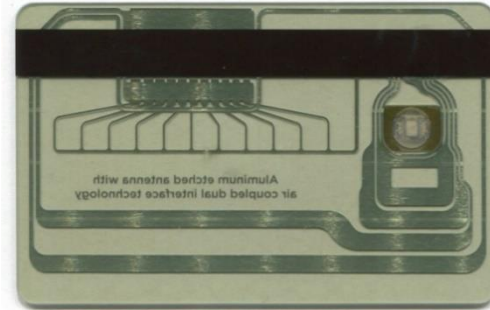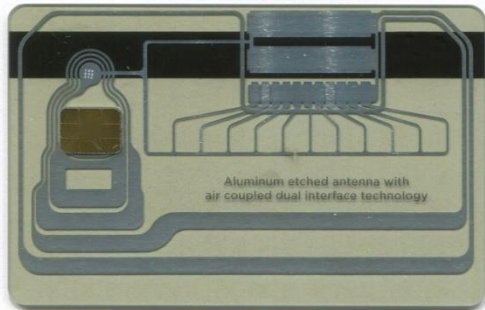Encapsulation
Card Body
Substrate
Bond Wire
Hotmelt

OR

antenna connection pad on module

physical electrical connection between module and antenna in card

antenna connection pad on antenna inlay

antenna inlay

Antenna

Aluminum etched antenna with
air coupled dual interface technology

Aluminum etched antenna with
air coupled dual interface technology

Copper wire embedded antenna with
air coupled dual interface technology

Copper wire embedded antenna with
air coupled dual interface technology

Antenna

Copper wire embedded antenna with air coupled dual interface technology

Dual-Interface Card Software

Nick Pisarev, G+D

October 13, 2020

DI Card - Software

Operating System (OS)

Proximity Payment System Environment (PPSE)

Payment Application

Same
Application Transaction Counter
(ATC)

No access to cardholder data

Different Cardholder Verification
Method (CVM)

ODA may be supported on both or
one of interfaces

Card Personalization Profile

	STANDARD PROFILES (Y/N)	ODA REQUIRED (Y/N)	Online Authorization Only (Y/N)	EMV Contactless Support	MSD Support	US Debit Contactless	ODA Support on US Common AID
AMERICAN EXPRESS	Y	Y	N	Required for all dual-interface cards	Required for all dual-interface cards	N/A	N/A
DISCOVER	Y	Required for contactless; optional for contact interface	N	Required	MSD with dCVV only	US Common AID required on contactless interface	Y
mastercard	Y	Y	N (online required, but offline supported)	Required	MSD	US Common AID required on contactless interface	Y
UnionPay 银联	Y	Y	Y	Required	N/A	US Common AID required on contactless interface	Y
VISA	Y - Processor Express	ODA on contactless interface only	Y	Required	MSD with dCVV only	US Common AID required on contactless interface	N*

*Technically possible, but separate contactless certificate must be created and provisioned. Please contact the debit payment networks for more information

Issuer Considerations in Implementing Dual-Interface Cards
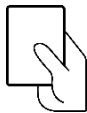
Additional cryptographic keys

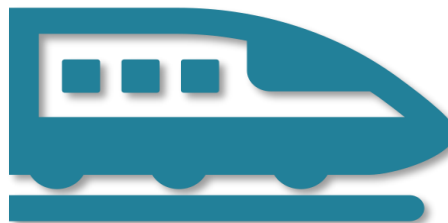Processor readiness

Card issuance planning

Instant issuance

Education

Use case: Transit Vertical

Contactless payment cards create an opportunity to optimize operations and improve the customer proposition for transit.
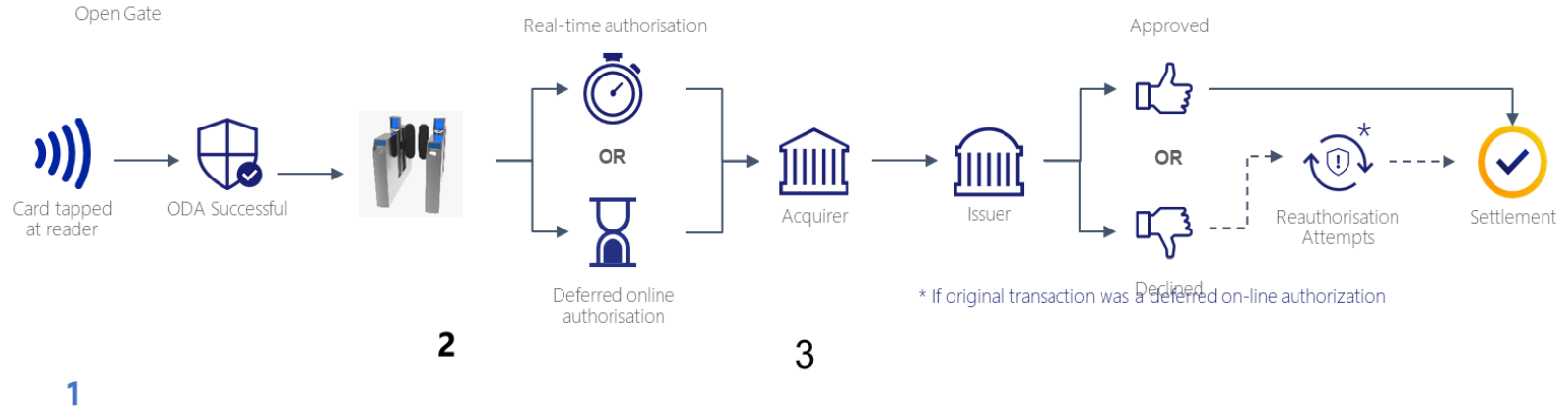
Transit agencies simply deploy a system that can accept the cards customers already have.

This can help reduce barriers to system entry, and can improve the customer experience by allowing them to take transit as soon as they arrive in a city

Open Gate

Real-time authorisation

Approved

Card tapped at reader

ODA Successful

OR

Deferred online authorisation

Acquirer

Issuer

OR

Reauthorisation Attempts

Settlement

Declined

* If original transaction was a deferred on-line authorization

1

2

3

The card and reader use asymmetric cryptography to authenticate the card. This ensures that the card is genuine and allows the transit gate to open

The online authorization message is sent later using the same online transaction data and cryptogram

CAM service or issuer validates cryptogram and sends response

ODA – Testing & Certification

Berke Baydu, Mastercard

October 13, 2020

Personalization validation processes

Personalization validation required/recommended

BIN Level Validation

!   Payment networks may have simplified validation options.

!   Consult your payment network or technology partners for further details

Contactless Testing and Certification

- The same set of testing is currently done for both contact and contactless interfaces on EMV chip cards.

- Different types of transactions may be included in test cases, including declined transactions.

- If Magnetic Stripe Mode (MSD) contactless is supported, it may need to be separately tested.

Issuer Host System Testing for Transit-specific Transaction Types

Issuer

- Issuer host system testing for transit-specific transaction types, such as new transit data fields and reauthorization attempts

US PAYMENTS FORUM

Q&A

- Dual-Interface Card Personalization White Paper
  - https://www.uspaymentsforum.org/dual-interface-card-personalization/
- EMV Connection
  - https://www.emv-connection.com
- Get Contactless
  - https://www.getcontactless.com
- mDLConnection
  - https://www.mdlconnection.com

NOVEMBER 2020 VIRTUAL MEETING
NOVEMBER 9-12 & 17-19

The November meeting will feature sessions on:

- A cross-industry update on the impact of COVID-19 on payments
- EMV 3DS data element implementation and the impact on customer experience
- Mobile driver's license implementation in the U.S.
- Use of QR codes in physical retail
- Stakeholder considerations for Payment Account Reference (PAR) implementation
- Mobile pay-at-the-pump trends and technology
- Discussion/birds-of-a-feather session on the stakeholder impact of eight-digit BINs
- Education session on contactless limits and the impact on consumer experience
- Merchant, issuer, acquirer and payment network stakeholder reports
- Working Committee sessions: ATM, CNP Fraud, Communications and Education, Debit Routing, Mobile and Contactless Payments, Petroleum, Testing and Certification and Transit Contactless Open Payments.

www.uspaymentsforum.org/november-2020-meeting/

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Thank You