



# EMV® QR Code\* Specifications

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

*\*QR Code is a registered trademark of DENSO WAVE.*

# Agenda

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- Introduction and background
  - EMV® QR Code - Consumer Presented Mode Specifications
  - EMV® QR Code - Merchant Presented Mode Specifications
  - EMV® Merchant Presented QR Code Use Cases
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# Introduction and Background

# EMV® QR Code Specification Releases

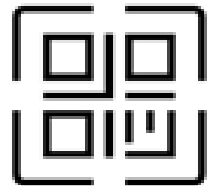


## In July 2017, EMVCo published two specifications:

- EMV® QR Code Specification for Payment Systems: Consumer-Presented Mode (EMV QRCPS-CPM), Version 1.0
- EMV® QR Code Specification for Payment Systems: Merchant-Presented Mode (EMV QRCPS-MPM), Version 1.0

## In 2018, EMVCo released:

- **Testing service:**
  - January – EMV® QR Code Self Evaluation for Consumer Presented Test Cases
  - November – EMV® QR Code Self Evaluation for Merchant-Presented ModeEMVCo does not perform certification nor provide approvals
- **Global acceptance mark:**
  - May - EMVCo submitted trademark application for the QR Payment and released Reproduction Requirements
- **Guidance for Merchant-Presented:**
  - November - EMV® Merchant-Presented QR Guidance and Examples



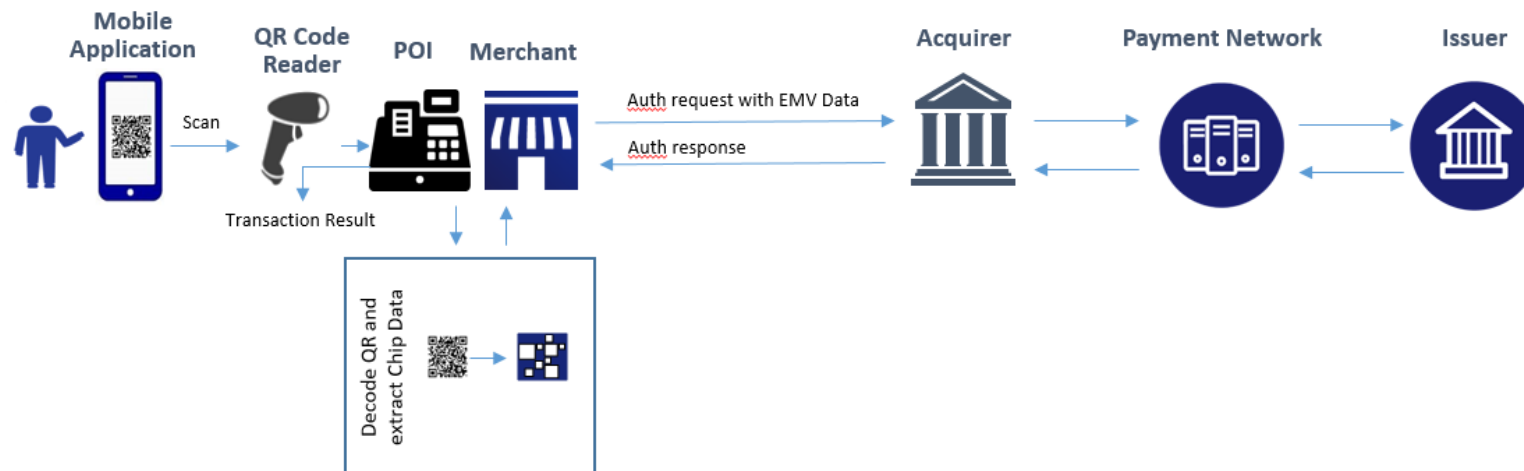
# EMV® QR Code - Consumer Presented Mode Specifications



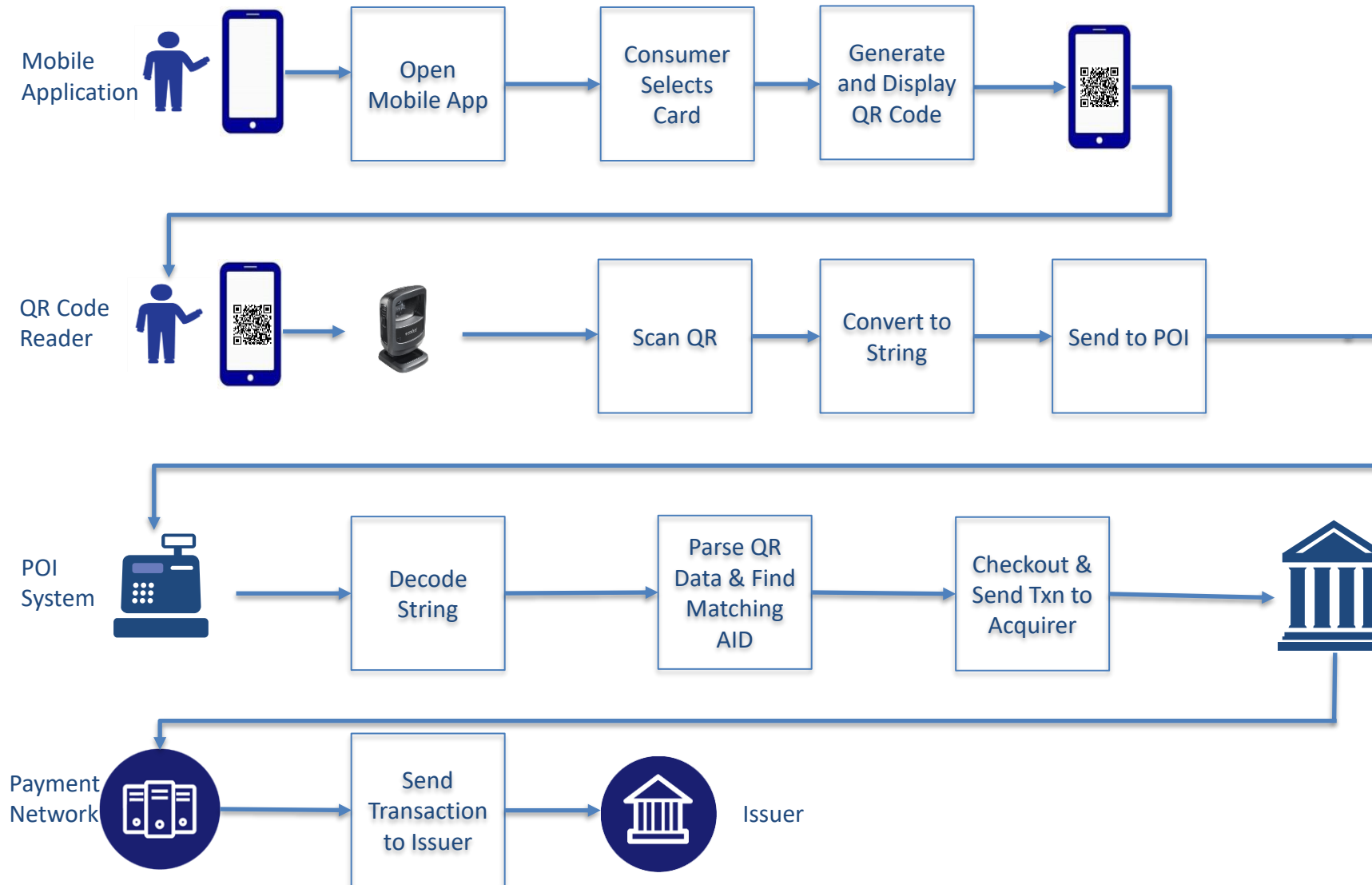
# EMV® Consumer-Presented QR Code: Overview



- The consumer displays a QR code on their mobile phone and the QR code is read by the merchant to conduct the payment transaction.
- The usage is similar to card-presented chip transactions.
  - Unlike with chip, communication is "one-way" (from QR code to merchant).
- EMV consumer-presented QR code transactions are online authorized and leverage the existing chip infrastructure.



# EMV® Consumer-Presented QR Code: Functional Flow



# EMV<sup>®</sup> QR Code - Merchant Presented Mode Specifications



# EMV® QR Code MPM Specification – Key Benefits (1/2)



- The EMV QR Code MPM Specification can enable account-based payment as well as card-based payment. This increases the interoperability, efficiency and flexibility of QR Code deployments based upon the EMV Specification, increases choice and participation for all parties and can work in any marketplace in this way
  - This acceptance can provide a wider and more inclusive consistent experience for both merchants and consumers
  - Merchants can be confident that they are deploying a solution that supports account-based payment and card-based payment payments that use the EMV QR Code MPM Specification
  - Domestic payment providers no longer have to maintain and enhance their own QR Code format specifications
- Recent lab tests of a range of mobile handsets demonstrate that the EMV® (specification-based) QR Codes supporting multiple payment systems can be read in approximately one second, without any degradation in performance, and without variance between the size of the QR Code payload
- The EMV QR Payment Mark and QR Scan Icon provide clarity and consistency in communicating QR Code acceptance
  - Avoiding multiple QRs display at merchants, and consumer confusion at the point of interaction
  - Promote global interoperability across EMV QR Code payments



## EMV® QR Code MPM Specification – Key Benefits (2/2)

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- The EMV® QR Code MPM Specification can enable multiple different domestic and international payment programs through a single QR Code
  - Deployments in Singapore and Thailand demonstrate this capability, and how domestic and international payment solutions can co-exist within a single QR Code based on the EMV Specification
  - This flexible approach could be adopted in any marketplace, and has the option to enable migration to the globally interoperable EMV framework to widen acceptance internationally
  - New payment providers can be easily added to the QR Code.
  - A key benefit to merchants in having a single QR Code is that it includes acceptance of the international payment brands and domestic networks as well as merchant proprietary data
  - This interoperable acceptance can provide a consistent consumer experience domestically and internationally
- As a global specification, the EMV QR Code can deliver lower deployment and implementation costs through greater efficiencies with vendors, as well as increased flexibility of processing options

# EMV<sup>®</sup> Merchant Presented QR Code Use Cases

# Use Cases Supported by Merchant Presented QR Codes



The merchant-presented QR Code enables consumers to make purchases using a merchant generated and displayed QR Code based on the merchant's details. EMV merchant-presented QR codes can be used in different C2B scenarios. Below are some examples from the *EMV Merchant-Presented QR Guidance and Examples* document.

Examples	Description
Base Example	A basic merchant QR Code used in simple purchases with no additional services.
Transaction Amount Provided Example	A merchant QR Code containing the transaction amount, used at merchant POIs capable of displaying a different merchant QR Code for each transaction.
Multiple Payment Network Example	A merchant QR Code containing both an EMV payment network and a non-EMV payment network.
Tip or Convenience Fee Example	Merchant QR Codes containing a tip or convenience fee.
Alternate Language Example	A merchant QR Code containing the Merchant Name in an alternate language.
Bill Pay Example	A merchant QR code printed on a bill and used for
Additional Data Field Examples	Describes the data objects that are contained within the Additional Data Field template.

# Merchant Presented QR Example #1: Base Example



Scenario description:

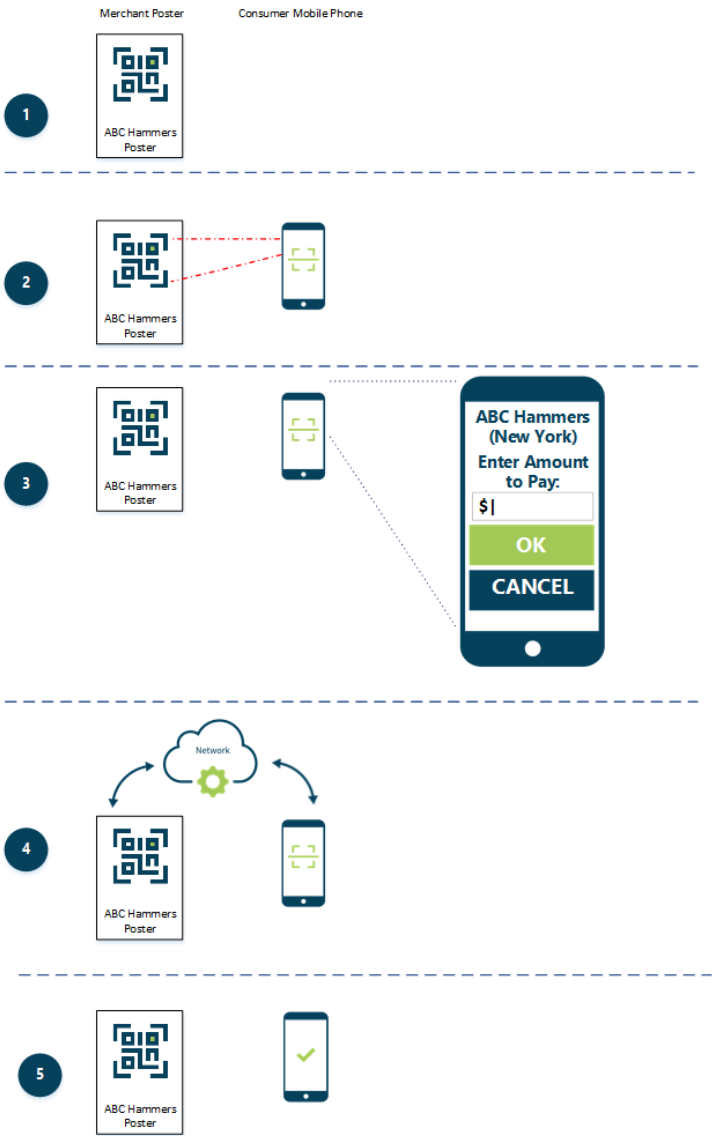
- Commonly displayed on a sticker or poster
- Suitable for merchants that do not use a digital display, e.g., a coffee cart

Example Data Payload

Data	ID	Example Value
Payload Format Indicator	"00"	"01"
Merchant Account Information	"02"	"4000123456789012"
Merchant Category Code	"52"	"5251"
Transaction Currency	"53"	"840"
Country Code	"58"	"US"
Merchant Name	"59"	"ABC Hammers"
Merchant City	"60"	"New York"
CRC	"63"	Calculated using the algorithm defined in EMV specification



Transaction Experience





# Merchant Presented QR Example #2: Txn Amount Provided



Scenario description:

- The merchant POI includes a digital display that is capable of displaying a different merchant QR Code for each transaction.
- The merchant QR Code contains the transaction amount, improving the consumer experience, reducing the transaction time, and minimising the possibility for input error by not requiring the consumer to enter the transaction amount.

Data Payload

Data	Value
Data objects in Base Example	
Transaction Amount	"10"



Transaction Experience



# Merchant Presented QR Example #3: Multiple Payment Systems



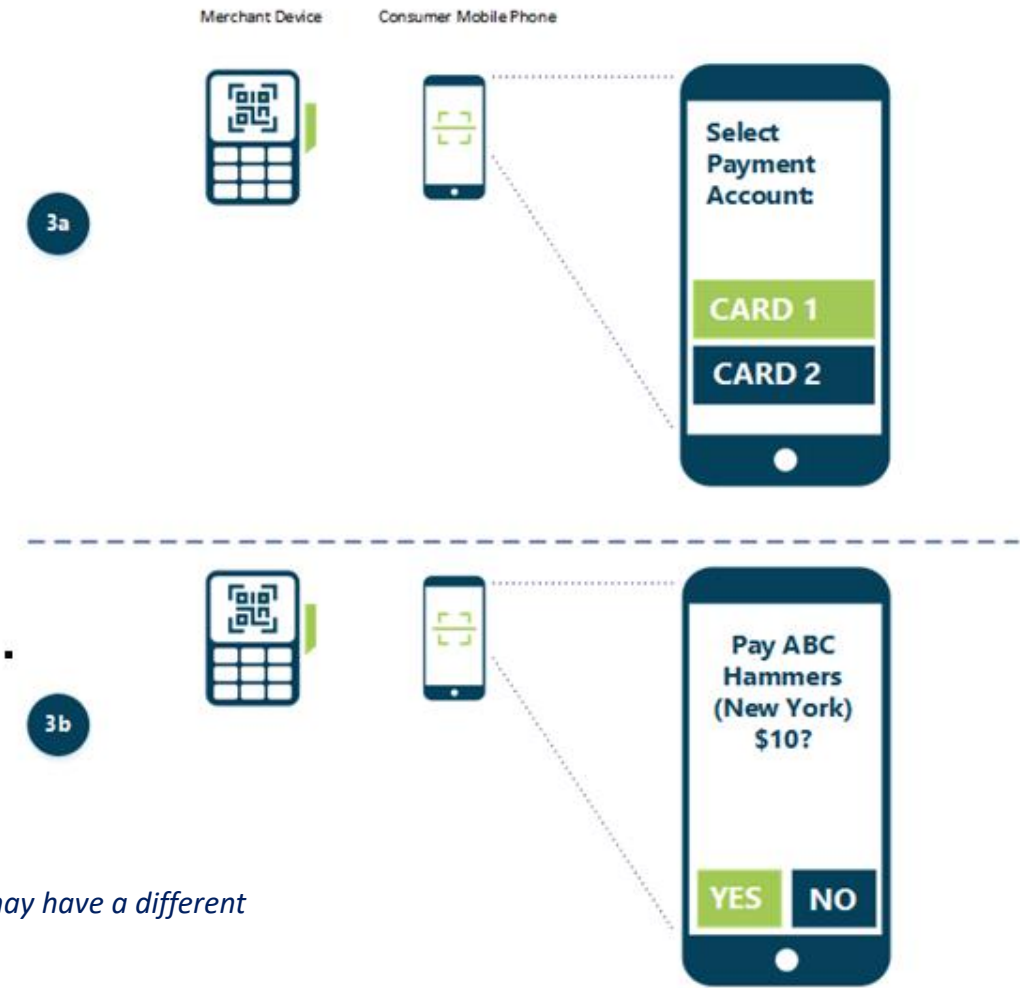
Scenario description:

- The merchant supports multiple payment systems.

Data		ID	Value
Data objects in Base Example			
Merchant Account Information		"02"	"4000123456789012"
Merchant Account Information		"26"	"10"
	Globally Unique ID	"00"	"D15600000000"
	Merchant ID	"01"	"A93FO3230QDJ8F93845K"



## Transaction Experience



**Notes:** The value of the Globally Unique ID identifies the payment network. The same payment network may have a different Merchant Account Information data object ID for different merchants.

# Merchant Presented QR Example #4: Tip or Convenience Fees



Scenario description:

- In some environments, such as restaurants, tips are expected by the merchant. The tip amount is commonly decided by the consumer.

Data Payload

1, Tip

Data	Value
Tip or Convenience Indicator	"01"
Value of Convenience Fee Fixed	NOT PRESENT



Transaction Experience

Bill Amt = \$50

Tip Amt?

YES

NO

2, Fixed Convenience

Data	Value
Tip or Convenience Indicator	"02"
Value of Convenience Fee Fixed	"10.75"



Pay XYZ Restaurant (Miami)

\$60.75?

[\$50 + \$10.75 Fee]

YES

NO

3, Convenience Fee Percentage

Data	Value
Tip or Convenience Indicator	"03"
Value of Convenience Fee Percentage	"3.00"



Pay National Tax Service (eCommerce)

\$3,090?

[\$3,000 + \$90 Fee]

YES

NO

# Merchant Presented QR Example #5: Alternate Language



- Scenario description:
- Useful for cross border transactions, where the merchant name or city can be displayed in an alternate language.

### Data Payload

Data		Value
Data objects in Base Example		
Merchant Information—Language Template		Encapsulates the ID, Length, and Value of the two data objects that follow
	Language Preference	"es"
	Merchant Name—Alternate Language	"ABC Martillos"



### Transaction Experience



# Merchant Presented QR Example #6: Bill Payment



Scenario description:

- A QR Code is included on a bill and may be scanned by the consumer to initiate a bill payment.

### Data Payload

Data	Value
Data objects in Base Example	
Bill Number	"038472376ADJ"





# Merchant Presented QR Example: Additional Data Fields



The Additional Data Field contains data objects that are typically defined and used by the merchant.

Data	Example Scenarios
Bill Number	In a retail store, the number can be used to identify the specific store and counter.
Mobile Number	Mobile top-up, the merchant QR Code includes the Mobile Number with the value "****", causing the consumer QR application to prompt John to input the mobile number to be credited.
Store Label	Including the location of a chain store, e.g. "ABC Hammers XYZ city".
Loyalty Number	Used in loyalty program, the merchant QR Code includes the Loyalty Number with the value "****", prompting the consumer to input his loyalty number.
Reference Label	Can be used in an e-commerce transaction to include the order number, so that the merchant can do transaction tracking.
Customer Label	A value identifying a specific customer.
Terminal Label	Can be used on a vending machine to identify the terminal.
Purpose of Transaction	May have the value "International Data Package" for display on the mobile application.
Additional Consumer Data Request	The merchant may request the address of the consumer for goods delivery, and/or may request the mobile number of the consumer to coordinate goods delivery, and/or may request the email address of the consumer to deliver a digital ticket.

- Enables consumer to make purchases by scanning a merchant-presented QR code.
- A single merchant-presented QR code that can be used to support multiple domestic and international QR payment programs.
  - The scope of the EMV® QR Code Specification is limited to the QR Code itself. The specific network messaging and processing are left to the payment provider.
- Flexible enough to support the different data requirements of different QR payment programs.
- Supports the addition of merchant proprietary data.

# Thank you!

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- Official specification and supporting material portal
- General and technical FAQs
- Virtual and in-person meeting details
- EMVCo approved products and accredited labs
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