Myanmar QR Code Specification
For Retail Payments in Myanmar
Merchant-Presented Mode

May 2023

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1. Introduction

Discussion for Myanmar (MM) QR standardization was initiated by Central bank of Myanmar (CBM), together with some Local Banks, MNOs, MPU and international card schemes on 19th April 2018. The Technical Working Group (the "TWG") for MMQR standardization was established by CBM on 19th April 2018. The objective of the TWG is to set the common technical specifications of QR for Myanmar retail payments, which will encourage improving financial inclusions, reducing cash-based transactions in retail payments and transforming the cashless transactions by using a common standard single QR code via different payment service providers as a payment method.

The purpose for standardization of single QR is to enable the interoperability in the payment industry which to create ecosystem with seamless & speedy for payment process. This standardization of single QR would facilitate payments among different payment schemes both international and domestic, banks and wallet providers-MNOs.

All the members of TWG agreed the EMVCo as a reference to develop the MMQR specifications for both merchant and consumer present model but implementation will be phase by phase. This document includes the format of the Merchant Presented mode with the Static and dynamic QR Code. The Consumer Presented Model will not be included in this document and all the members of TWG agreed to discuss and submit in next phase.

1.1 Notational Conventions

1.1.1 Abbreviations

The abbreviation listed in Table 1.1 is used in this specification.

Table: 1.1 Abbreviations

Abbreviation	Description
ans	Alphanumeric special
C	Conditional : shall be present under certain condition
CRC	Cyclic Redundancy Check
ID	Identifier of the Data Object
ISO	International Standards Organization
M	Mandatory
N	Numeric
O	Optional
QR Code	Quick Response Code
RFU	Reserved for Future Use
S	String
var.	Variable

1.1.2 Terminology and Conventions

The following words are used often in this specification and have a specific meaning:

Shall: Defines a product or system capability which is mandatory

May: Defines a product or system capability which is optimal or a statement which is informative only and is out of scope for this specification.

Should: Defines a product or system capability which is recommended.

1.1.3 Presence of Data Objects

For the presence of data objects, the following notation is used:

- M: Mandatory – shall always be present
- C: Conditional – shall be present under certain condition
- O: Optional – may be present

1.1.4 Reference

The MMQR Code Standard is referenced to the following publications:

Table 1.2: Reference Manual

Reference	Publication Name
EMV QRCPS	EMV® QR Code Specification for Payment Systems (EMV QRCPS) Merchant-Presented Mode Version 1.0 and V 1.1
[ISO 18245]	Retail financial services – Merchant Category Code
[ISO 3166 – 1 alpha 2]	Codes for the representation of names of Countries and their subdivisions – Part 1: Country Codes, using two-letter country codes
[ISO 4217]	Codes for the representation of Currencies and funds
[ISO 639]	Codes for the representation of names of language – Part 1: Alpha 2 Code
[EMV Book 4]	EMV Integrated Circuit Card Specifications for payment Systems – Book 4 Cardholder, Attendant, and Acquirer Interface Requirements
	Telecommunication Directory issued by Myanmar Post & Telecommunication Ministry.

1.2 Data Objects

1.2.1 Format Conventions

The value of a data object encoded in the EMV Merchant-Presented QR code has one of the formats listed in Table 1.3

Table 1.3: Data Object Value – Format Conventions

Data Element	Format Conventions
Numeric (N)	Values represented by all digits. So "0" to "9" The Numeric alphabet includes ten (10) characters in total
Alphanumeric Special (ans)	Values represented by the Common Character Set defined in {EMV Book 4] The Alphanumeric Special alphabet includes ninety-six (96) characters in total (including the numeric alphabet and punctuation)
String (S)	Values represented by any character(s) defined in [Unicode}

1.2.2 Value Representation

For value representation of data objects, the following notation is used.

Characters include in the EVM Merchant-Presented QR Code are enclosed in double quotation marks, for instance "Test@123".

A character can be represented by its hexadecimal value. Single quotes are used to indicate the hexadecimal value, for instance '42' to represent the character "B".

2. Overview of EMV® QR Code Payment for MMQR Code

Merchant-Presented QR Code payment transaction enables consumer to make payment for the purchase of goods and services using a merchant display QR Code which is generated based on the merchant's details. Consumers will have to download a mobile application that

offered by the issuer banks or MNOs to initiate the payment transaction. This mobile application has the capability to scan an EMV Merchant-Presented QR code. The payment service operator will process the transaction and informs to the merchant and the consumer. Then it can be used to transfer of funds to a designated merchant account by debiting from consumer account managed by issuer banks or MNOs.

2.1 MMQR Data Object

Table 2.1 lists the name of the data object, the ID of the data object, the format of the value field of the data object, the length of the value field of the data object, and whether the presence of the data object at the root level of the QR Code is Mandatory (M), Conditional (C), or Optional (O).

The length of the payload should not exceed 512 alphanumeric characters, and the number of characters should be reduced proportionally when multi-byte [Unicode] characters are used.

Table 2.1 Data Objects under the Root of a QR Code

ID	Name	Format	Length	Presence	Comment
"00"	Payload Format Indicator	N	"02"	M	Valid Value "01"
"01"	Point of Initiation Method	N	"02"	O	Valid Values "11"= Static QRC (Same QR Code is shown for more than one transaction) "12" = Dynamic QRC (New QR code is shown for each transaction)
"02"-"51"	Merchant Account Information	ans	Each var up to "99"	M	At least one Merchant Account information data object shall be present. Please see table 2.2 and 2.3
"52"	Merchant Category Code	N	"04"	M	As defined by [ISO 18245] and assigned by the Acquirer
"53"	Transaction Currency	N	"03"	M	Indicated the currency code of the transactions. A 3-digit numeric value, as defined by [ISO 4217]. For example, MMK is represented by "104". The mobile application should display the transaction currency in a readable way to the consumer, such as "MMK"

“54”	Transaction Amount	ans	var. up to “13”	C	The transaction amount (excluding tips and convenience fees) with **2 decimal digit**, if known. For instance, "99.34" If present, this value is displayed to the consumer by the mobile application when processing the transaction. If this data object is not present, the consumer is prompted to input the transaction amount to be paid to the merchant.
“55”	Tip of Convenience Indicator	N	“02”	O	If present, the Tip of Convenience Indicator shall contain a value of "01", "02" or "03". All other values are RFU. - A value of "01" shall be used if the mobile application should prompt the consumer to enter a tip to be paid to the merchant. - A value of "02" shall be used to indicate inclusion of the data object value of Convenience Fee Fixed (ID "56"). - A value of “03” shall be used to indicate inclusion of the data object value of Convenience Fee Percentage (ID “57”). o *Note that even if the Transaction Amount is not present in the QR Code,*

					this data object may still be present.
"56"	Value of Convenience Fee Fixed	ans	var. up to "13"	C	If the Convenience Indicator (ID "55") is present with a value of "02", the value of convenience Fee Fixed shall be presented. Otherwise this data object shall be absent.
"57"	Value of Convenience Fee Percentage	ans	var. up to "05"	C	If the Convenience Indicator (ID "55") is present with a value of "03", the value of convenience Fee Percentage shall be presented. Otherwise this data object shall be absent. The value of Convenience Fees Percentage shall not contain any other characters. For example, the "%" character must not be included
"58"	Country Code	ans	"02"	M	Indicates the country in which the merchant transaction. A 2-character alpha value, as defined by [ISO 3166-1 alpha 2] and assigned by the Acquirer. The country may be displayed to the consumer by the mobile application when processing the transaction. *For example: Myanmar is "MM"*
"59"	Merchant Name	ans	var. up to "25"	M	The merchant name in **English Language** shall be presented and should indicate the "doing business as" name for the merchant. This name may be displayed to the consumer by the mobile application when processing the transaction

“60”	Merchant City	ans	var. up to”15”	M	The merchant city should indicate the city of the merchant’s physical location. This merchant city may be displayed to the consumer by the mobile application when processing the transaction Merchant city should follow the Telecommunication Directory issued by Myanmar Post & Telecommunication Ministry.
“61”	Postal Code	ans	var. up to “10”	O	It present, the Postal code should indicate the postal code of the merchant’s physical location. If present, this value may be displayed to the consumer by the mobile application when processing the transaction. Postal Code should follow the Postal Code of Telecommunication Directory issued by Myanmar Post & Telecommunication Ministry**.**
“62”	Additional Data Field Template	ans	var. up to “99”	O	The Additional Data Field Template includes information that may be provided by the Merchant or may be populated by the mobile application to enable or facilitate certain use cases. For the list of data objects that can be included in this template, please refer to Table 2.4, 2.5, 2.6 and 2.7
”64”	Merchant Information Language Template	S	var. up to “99”	C	The Merchant Information—Language Template includes merchant information in a **Myanmar Unicode** and may use a character set different

					from the Common Character Set. It provides an alternative to the merchant information under the root. For the list of data objects that can be included in this template. This is only mandatory for merchants in Myanmar and for the mobile applications to display this to the local consumers. If the merchant is Overseas, it is Optional for the mobile applications to display this. please refer to Table 2.8
"65" -"79"	RFU for EMVCo	S	Each var up to "99"	O	Data Object reserved for EMVCO
"80-"99"	Unreserved Template	S	Each var up to "99"	O	Unreserved Templates
"63"	Cyclic Redundancy Check (CRC)	ans	"04"	M	The checksum shall be calculated according to [ISO/IEC 13239] using the polynomial '1021' (hex) and initial value 'FFFF' (hex). The data over which the checksum is calculated shall cover all data objects, including their ID, Length and Value, to be included in the QR Code, in their respective order, as well as the ID and Length of the CRC itself (but excluding its Value) Following the calculation of the checksum, the resulting 2-byte hexadecimal value shall

					be encoded as a 4-character Alphanumeric Special value by converting each nibble to the corresponding Alphanumeric Special character. A nibble with hex value ‘0’ is converted to “0” (= hex value ‘30’), a nibble with hex value ‘1’ is converted to “1” (= hex value ‘31’) and so on. Hex values ‘A’ to ‘F’ must be converted to uppercase characters “A” to “F” (= hex values ‘41’ to ‘46’). *Example: a CRC with a two-byte hexadecimal value of '007B' is converted to “007B” and included in the QR Code as "6304007B".*

2.1.1 Merchant Account Information (IDs “02” – “51”)

At least one Merchant Account Information data object in the range”02” to “51” shall be present.

Table 2.2 Allocation of Merchant Account Information (IDs"02" to "51")

ID	Meaning
“02-“03”	Reserved for Visa
“04”-“05”	Reserved for Mastercard
“06”-“08”	Reserved by EMVCo
“09”-“10”	Reserved by Discover
“11”-“12”	Reserved by Amex
“13”-“14”	Reserved for JCB
“15”-“16”	Reserved for Union Pay
“17”-“25”	Reserved by EMVCo
“26”	Merchant Information for Digital Payment System.
“27”-“51”	Reserved and has to get approval by Central Bank of Myanmar

2.1.2 Primitive Payment System Merchant Account Information (IDs "02" to "25")

A primitive payment system Merchant Account Information ID shall be used when the payment system that assigned the Merchant Account Information is implicitly identified by the ID. Allocation of these IDs is described in Table 2.2

2.1.3 Merchant Account Information Template (IDs "26")

A Merchant Account Information template shall be used when the payment system corresponding to the Merchant Account Information is explicitly identified in the template.

If present, a Merchant Account Information template shall contain a primitive Globally Unique Identifier data object with a data object ID "00", as defined in Table 2.3

The value of this data object shall contain one of the following:

- An Application Identifier (AID) consisting of a RID registered with ISO and, optionally, a PIX, as defined by [ISO 7816-4]. *For example, "D840000000".*
- A [UUID] without the hyphen (-) separators. *For example, "581b314e257f41bfbbdc6384daa31d16".*
- A reverse domain name. *For example, "com.merchant.name".*

The value of the Globally Unique Identifier sets the context for the remainder of the template and the meaning of the other data objects in the template are context specific and outside of the scope of EMVCo.

Table 2.3: Data Object ID Allocation in Merchant Account Information for Digital Payment System (IDs "26")

ID	Name	Format	Length	Presence	Comment
"00"	Globally Unique Identifier	ans	var. up to "32	M	An identifier that sets the context of the data that follows. The value is one of the following: • an Application Identifier (AID); • a [UUID] without the hyphen (-) separators. • a reverse domain name The payment scheme reverse domain name will be used as the identifier. For example, "MM.COM.MMQR"
"01"	Merchant ID	N	15	M	• The first 6 digits are assigned by the digital payment scheme to the merchant acquirer. • Only the first 15 digits of the 16-digit merchant ID will be populated in the QR code • The 16-digit merchant ID is unique to each merchant location
"02"	Terminal ID	N	Var. up to "25"	M	A distinctive value associated to a terminal in the store. If the merchant does not have any terminal ID, a default value of "000000" needs to be populated.

					Mobile Application in needs to be able to scan and read it.

2.1.4 Transaction Amount (ID "54")

. If present, the Transaction Amount shall be different from zero, shall only include (numeric) digits “0” to “9” and may contain a single “.” character as the decimal mark. When the amount includes decimals, the “.” character shall be used to separate the decimals from the integer value and the “.” character may be present even if there are no decimals

The number of digits after the decimal mark should align with the currency exponent associated to the currency code defined in [ISO 4217].

The above describes the only acceptable format for the Transaction Amount. It cannot contain any other characters (for instance, no space character can be used to separate thousands).

*The following are examples of valid Transaction Amounts: "98.73", "98" and "98.". The following are **NOT** valid Transaction Amounts: "98,73" and "3 705".*

The Transaction Amount shall not be included if the mobile application should prompt the consumer to enter the amount to be paid to the Merchant

2.1.5 Additional Data Field Template (IDs “62”)

Table 2.4 lists the name of the data object, the ID of the data object, the format of the value field of the data object, the length of the value field of the data object, and whether the presence of the data object within the Additional Data Field Template (ID "62") of the QR Code is Mandatory (M), Conditional (C), or Optional (O)

If present, the Additional Data Field Template shall contain at least 1 data object.

Table 2.4 : Data Objects for Additional Data Field Template (ID "62")

IDs	Name	Format	Length	Presence	Comment
“01”	Bill Number (Invoice Number or Bill No)	ans	Var up to “25”	O	The invoice number or bill number. This number could be provided by the merchant or could be an indication for the mobile application to prompt the consumer to input a Bill Number. *For example, the Bill Number may be present when the QR Code is used for bill payment*.
“02”	Mobile Number	ans	var. up to “25”	O	The mobile number could be provided by the merchant or could be an indication for the mobile application to prompt the consumer to input a Mobile Number.

					For example, the Mobile Number to be used for multiple use cases, such as mobile top-up and bill payment
"03"	Store Label	ans	Var. up to "25"	O	A distinctive value associated to a store. This value could be provided by the merchant or could be an indication for the mobile application to prompt the consumer to input a Store Label. *For example, the Store Label may be displayed to the consumer on the mobile application identifying a specific store*
"04"	Loyalty Number	ans	Var. up to "25"	O	Typically, a loyalty card number. This number could be provided by the merchant, if known, or could be an indication for the mobile application to prompt the consumer to input their Loyalty Number
"05"	Reference Label	ans	Var. up to "25"	O	Any value as defined by the merchant or acquirer in order to identify the transaction. This value could be provided by the merchant or could be an indication for the mobile app to prompt the consumer to input a transaction Reference Label. *For example, the Reference Label may be used by the consumer mobile application for transaction logging or receipt display.*
"06"	Customer Label	ans	var. up to "25"	O	Any value identifying a specific consumer. This value could be provided by the merchant (if known), or could be an indication for the

					mobile application to prompt the consumer to input their Customer Label. *For example, the Customer Label may be a subscriber ID for subscription services, a student enrolment number, etc.*
"07"	Terminal Label	ans	Var. up to "25"	**O**	A distinctive value associated to a terminal in the store. This value could be provided by the merchant or could be an indication for the mobile application to prompt the consumer to input a Terminal Label *For example, the Terminal Label may be displayed to the consumer on the mobile application identifying by the acquirer*.
"08"	Purpose of Transaction	ans	Var. up to "25"	O	Any value defining the purpose of the transaction. This value could be provided by the merchant or could be an indication for the mobile application to prompt the consumer to input a value describing the purpose of the transaction. *For example, the Purpose of Transaction may have the value "International Data Package" for display on the mobile application*
"09"	Additional Consumer Data request	ans	var. up to "03"	O	Contains indications that the mobile application is to provide the requested information in order to complete the transaction. The information requested should be provided by the mobile application in the authorization without

					unnecessarily prompting the consumer. *For example, the Additional Consumer Data Request may indicate that the consumer mobile number is required to complete the transaction, in which case the mobile application should be able to provide this number (that the mobile application has previously stored) without unnecessarily prompting the consumer.*
“10”	Merchant Tax ID	ans	var. up to "20"	O	The tax identification number of the merchant, assigned by the governmental body of the country in which the EMV merchant-presented QR code is being used/displayed. *For example, the Merchant Tax ID may be used by the consumer mobile application for receipt display*
“11”	Merchant Channel	ans	03	O	A merchant channel establishes the environment in which a QR Code is presented to the consumer. Covering use cases such as retail outlet, Ecommerce, bill payment with the purpose of improving transaction reporting
“12-“49”	RFU for EMVCo	S	var.	O	
“50”-“99”	Payment System Specific template	S	var.	O	

Each of the data objects with IDs "01" to "08" in Table 2.4 can be used in two ways: either the merchant can provide both the ID and its meaningful value or the merchant can include the ID with a special value to have the mobile application prompt the consumer to input this information.

To prompt the consumer for one or more of these values, the merchant includes the respective IDs in this template each with a length of "03" and with a value equal to "***".

When the consumer is prompted by the mobile application to enter a value for any of these data objects, the length of the value to be entered should not exceed the length as indicated in Table 2.4.

The data object with the ID "09" contains one or more values that indicate to the mobile application the data to provide as part of the transaction initiation request. This data should already be known by the mobile application, and the consumer should not be unnecessarily prompted for the data.

One or more of the following characters may appear in the Additional Consumer Data Request (ID "09"), to indicate that the corresponding data should be provided in the transaction initiation to complete the transaction:

- "A" = Address of the consumer
- "M" = Mobile number of the consumer
- "E" = Email address of the consumer

If more than one character is included, it means that each data object corresponding to the character is required to complete the transaction. Note that each unique character should appear only once.

If present, each of the three positions in the Merchant Channel (ID "11") identifies a characteristic of the channel used for a particular transaction. The values defined and meaning of the values are listed below. All other values not explicitly listed in the tables shall be RFU.

Table 2.5: Merchant Channel: First Character – Media

Value	**Meaning**
"0"	Print - Merchant sticker
"1"	Print - Bill/Invoice
"2"	Print - Magazine/Poster
"3"	Print - Other
"4"	Screen/Electronic - Merchant POS/POI
"5"	Screen/Electronic - Website
"6"	Screen/Electronic - App
"7"	Screen/Electronic - Other

Table 2.6 : Merchant Channel: Second Character – Transaction Location

Value	**Meaning**

“0”	At Merchant premises/registered address
“1”	Not at Merchant premises/registered address
“2”	Remote Commerce
“3”	Other

Table 2.7 : Merchant Channel: Third Character – Merchant Presence

Value	**Meaning**
“0”	Attended POI
“1”	Unattended
“2”	Semi-attended (self-checkout
“3”	Other

2.1.6 Merchant Information – Language Template (ID “64”)

Table 2.8 lists the name of the data object, the ID of the data object, the format of the value field of the data object, the length of the value field of the data object, and the presence of the data object within the Merchant Information—Language Template (ID "64") of the QR Code is Mandatory (M) for merchants in Myanmar and optional (O) for merchants in oversea.

These data objects should be used by a mobile application to present the merchant information in Myanmar Unicode.

If this template is present, it shall contain the Language Preference (ID "00") and Merchant Name—Myanmar Unicode (ID "01").

The data objects with IDs "01" and "02" are used as an addition to the merchant information under the root. While the equivalent data objects under the root are defined with a format of Alphanumeric Special, and as such can only contain the Common Character Set, these data objects, if present, are defined with a format of String, so therefore may contain a different character set.

Language Preference (ID “00”) and Merchant Name (ID “01”) must be present.

Table 2.8: Data Objects for Merchant Information – Language Template (IDs “64”)

ID	Name	Format	Length	Presence	Comment
“00”	Language Preference	ans	“02”	M	Language Preference should indicate the local language, and must contain a value defined by [ISO 639] and Unicode will be used.
“01”	Merchant Name – Alternative Language	S	var. up to “25”	M	The Merchant Name (ID “01” under template “64”) should indicate “doing business as”

					merchant name in Myanmar Unicode
"02"	Merchant City – Alternative Language	S	var. up to "15"	O	The Merchant City (ID "02" under template "64") should indicate the city in which the merchant transacts in the Myanmar Unicode *If present, the Merchant City—Alternate Language should indicate the city in which the merchant transacts in the merchant's local language.*
"03-"99"	RFU for EMVCo	S	var.	O	Data Object reserved for EMVCo

3 Minimum Tag to be printed at MMQR Code

ID	Name
===	=====
"00"	Payload Format
"26"	Merchant Account Information for Digital Payment system
"52"	Merchant Category Code
"53"	Transaction Currency
"58"	Country Code
"59"	Merchant Name in English Language
"60"	Merchant City in English Language.
"64"	Merchant Information – in Myanmar Unicode
"63"	Cyclic Redundancy Check (CRC)

Note: Please check the detail specification of each ID at table 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 2.7 and 2.8

4 Branding Guidelines

QR signage are to enable a consumer to pay and for a merchant to receive payment Effective signage must be (1) Uniform and Recognizable and (2) Clear and Direct.

4.1 Point of Interaction Area

The attribute of uniformity and direct presentation must be present in the "Point of interaction" area or POI area. The POI Area typically includes the following.

- Clear display of merchant name
- Clear display of merchant QR
- Call to action to the customer e.g: "Scan to Pay" or "Scan here"

- EMVCo icon for QR payments (future)
- Clear display of Version no.

4.2 Branding Area and Template

- Merchant Acquirer Logo
- Central Bank / Country Brand
- MMQR Logo and version no

4.3 QR Printing Layout

The QR Printing layout will be documented after confirmation by the CBM.