

Policy Guideline

Standardized Thai QR Code for Payment Transactions

17 April 2019 (B.E. 2562)



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Unofficial Translation

This translation is for convenience of those unfamiliar with Thai language.

Please refer to the Thai text for the official version.

Policy Guideline

Standardized Thai QR Code for Payment Transactions

1. Rationale

Technology has significantly evolved and been widely used in various industries, especially the financial sector. Technology has been used to develop financial products and services to enhance efficiency of banks' services and operations. This helps decrease the operating costs of all involving parties, especially in respect of payment costs. That is, electronic payment services facilitate convenient accessibility to payment services for people and business entities.

In addition, the payment process is provided in an accurate and secure manner, which promotes competitiveness and ease of doing business. At present, quick response codes (QR code) or two-dimensional barcodes are widely used for electronic payment on mobile applications since they can meet the demand of people's daily lives in which smartphones are increasingly used. This technology will improve convenience, security, and financial access, while it will reduce the use of cash.

The Bank of Thailand (BOT) is aware of the benefits of using QR code technology for payment and funds transfer as it will enhance efficiency and reduce costs of the overall payment system of the country, especially in retail payments, for trading activities of small and medium-sized enterprises. At the same time, the international consortium of card network providers (EMVCo)¹ has introduced the QR code standard for payment transactions on mobile applications. With this standard, a customer uses a mobile application of a bank or of another service provider to scan the merchant's QR code, and then this payment data will be sent through the system.

¹ EMVCo is a company jointly set up by Europay, Mastercard and Visa with the objective of setting out the standard for secure card payment transactions. The company has later accepted a number of card schemes as members, including American Express, China Union Pay, JCB and Discover/Diners Club International.

After that, the system verifies the data, deduct funds from the customer's account and transfer the money to the merchant's account. This standard is also, globally, applicable to card payments using QR codes. In addition, each country can apply the standard for the module of domestic fields to its domestic payment service where appropriate. Based on the international standard, the BOT together with international card network providers and local payment service providers has developed the Thai QR Code Payment Standard, which supports payment transactions through various channels, such as bank accounts, credit cards, debit cards and e-wallets, both domestically and internationally. This Thai standard will ensure the interoperability and help avoid unnecessary applying the different standards, as doing so causes fragmentation in the financial system.

The BOT issues this **Policy Guideline on Standardized Thai QR Code for Payment Transactions**, which consists of 3 main parts, namely **desirable practices for payment service providers, the Thai QR Code Payment Standard for payment and funds transfer, and the QR Code Standard for Bill Payment**. The key objectives of this Policy Guideline are as follows:

(1) Lay down the Thai QR code standard for payment transactions that is in line with the international standard (EMV QRCPS).² – It helps reduce the costs for developing the systems and promote financial service environments according to the principles of open infrastructure and interoperability so that all service providers can connect their services to each other without any limitations.

(2) Increase convenient payment channels and reduce the costs of electronic payment transactions. – People are offered faster payment services. Moreover, small and medium-sized enterprises have better access to electronic payment services, reducing the costs of cash management and business operating.

(3) Enhance convenience and security of payment transactions. – The payment data stored in QR codes is accurate, the possibility of fraud is reduced, and money is transferred directly to the merchants' accounts. These will allow the

² EMVCo has introduced the guideline on QR Code Specification for Payment Systems (EMV QRCPS), which consists of EMV QR Code Specification for Payment Systems: Merchant-Presented Mode and EMV QR Code Specification for Payment Systems: Consumer Presented Mode - <https://www.emvco.com/emv-technologies/qrcodes>

merchants to better manage their cash and record or reconcile the transactions more easily, comparing with cash-based transactions.

(4) Support future financial innovations and payment services. –

E-payment data are considered as a key foundation for financial records which can be utilized for further usage. Examples are being used as reference data for applying for loans instead of using fixed assets as collaterals, or so-called information-based lending, and being used for studying and analyzing customers' behaviors and needs in order to develop financial products that are appropriate and better respond to those needs.

However, as technology and business models have rapidly evolved, service providers and business entities that use QR codes should consider adopting appropriate technology, taking into account the benefits and security of all involving parties.

In addition, for more clarity and to avoid a duplication of guidelines, the Policy Guideline on Quick Response Code (QR Code) Standard for Payment and Funds Transfer dated 31 March 2017 (B.E. 2560), which specifies guidelines on the printing of QR codes on bills for business entities in Thailand as well as for bill payment service of electronic payment service providers, has been repealed and **integrated into this Policy Guideline – in the section regarding QR Code Standard for Bill Payment.**

2. Scope of Application

This Policy Guideline shall apply to electronic payment service providers under the supervision of the Bank of Thailand that adopt QR code technology for providing payment and funds transfer services, including the payment for goods and services, person-to-person funds transfer or bill payment service.

3. Repealed Policy Guideline

The Policy Guideline on Quick Response Code (QR Code) Standard for Payment and Funds Transfer dated 31 March 2017 (B.E. 2560) shall be repealed and replaced by this Policy Guideline.

4. Content

4.1 Definition – In this Policy Guideline:

“QR code for payment transaction” means a two-dimensional barcode as shown on a document or screen of an electronic device, used for making a payment or funds transfer through various electronic channels. The QR code may be used for making a payment for goods and services, person-to-person funds transfer or making a bill payment via mobile applications. There are two types of use cases of QR code:

(1) “QR code for payment and funds transfer” means a two-dimensional barcode as shown on a document or screen of an electronic device used for making a payment for goods and services or person-to-person funds transfer. The QR code must have the format and meet the requirements as specified in this Policy Guideline.

(2) “QR code for bill payment” means a two-dimensional barcode as shown on a document or screen of an electronic device, used for making a payment for goods and services according to the bill (bill payment). The QR code must have the format and meet the requirements as specified in this Policy Guideline.

“Person” means a person or a juristic person.

“Electronic payment” means a transfer of ownership of money or of the right to withdraw money or deduct money from a service user’s account opened with a service provider by electronic means, wholly or partially.

“Service user” means a payment service user that deploys QR code technology for making a payment, transferring funds, receiving a payment or receiving the transferred funds, e.g., a person, a merchant, a business, or a government entity.

“Payment document” means a document or evidence that contains QR code for making a payment for goods and services according to the bill (bill payment), as well as other information required for the payment. This document may be in a form of a paper or in an electronic device, such as a mobile phone.

4.2 Desirable practices for payment service providers

This Policy Guideline consists of 4 key principles of desirable practices for using QR code for payment transactions which payment service providers; namely, making a payment for goods and services, person-to-person funds transfer and bill payment, must adopt in providing services as well as setting out business rules to

ensure that the objectives of this Policy Guideline are attained. The details are as follows:

Principle 1: Open infrastructure and interoperability

Intended outcome: Payment service providers can use the Thai QR code standard for developing payment services and can connect their services to other service providers without any restrictions. This will reduce costs and duplication of investment for the development of systems and connections, as well as create a wide range of business arrangements under a competitive environment without any barriers. In addition, service users, that are merchants or business entities can use the one-standard Thai QR code for receiving money from people through various channels. This will enhance convenience and allow more options for the people, merchants and business entities as they can use the QR code service for various purposes and needs, as well as increase efficiency and reduce costs incurred to both service users and providers.

Desirable practices:

(1) Service providers must apply the Thai QR code standard for payment transactions and cooperate with other service providers in setting out business rules, practices, testing practices and procedures for providing services on the same basis which are also interoperable. In this regard, service providers must comply with the business rules mutually agreed with other service providers.

For providers of card payment service through international card schemes, they shall also comply with the standard as specified by the card network providers, such as Visa and Mastercard.

(2) Service providers must not hinder merchants' choices to receive payments or transfer funds through various channels and must allow all formats of the use of QR codes. Examples are customers scanning the QR code presented by the merchants to make payments (Merchant-Presented Mode or Customer-Scan-Business basis), or vice versa (Customer-Presented Mode or Business-Scan-Customer basis), etc. Furthermore, service providers must not create barriers to other service providers. That is, they must be able to receive payments from various sources of funds, such as credit cards, debit cards, deposit accounts or e-wallets, etc., to promote the development of new types of services that can better respond to service users' needs.

(3) The prevailing service providers must allow new service providers to jointly provide the QR code service for payment transactions and must not set out business rules or provide services that create a barrier to other service providers, both financial institutions and non-bank service providers. Moreover, they must give opportunities to service users; namely the people, merchants, and business entities, to freely use services from a particular or several service providers. All service providers must be able to use a logo of the Thai QR code standard for payment transactions so that service users realize that the services are under the same standard.

Principle 2: Service providers' risk management

Intended outcome: Service providers have a sound risk management process, which covers risks from providing payment and funds transfer services using QR code technology. This process shall also be commensurate with the risk levels and in line with relevant risk management standards to prevent and reduce the possibility of damage and wide-scale impact on the services.

Desirable practices:

(1) Service providers must have a sound risk management process that covers key risks as follows:

- Operational risk: They must have sufficient and appropriate measures to oversee and manage risks from providing payment and funds transfer services under the Thai QR code standard. In case where service providers enter into outsourcing or IT outsourcing agreements, they must require the third-party service providers to strictly comply with the process and requirements as specified by the service providers. Moreover, the service providers will remain responsible to service users as same as they provide the services by themselves.
- IT risk: They must have the appropriate oversight of risks associated with IT security, such as security risk, trustworthiness and availability of systems, processing equipment, communication networks, technical operating infrastructure and technology solutions related to service providing, as well as cyber risk.
- Legal risk: They must comply with applicable laws, notifications, regulations, and guidelines, e.g., laws on anti-money laundering, combating financing of terrorism and combating proliferation financing which require service providers to

perform know-your-customer (KYC) and customer due diligence (CDD) processes. In case of adopting the Thai QR code standard for providing cross-border services, they must strictly comply with laws and regulations relating to cross-border transactions.

- Data privacy: They must assess, prevent, and manage risks that may arise from providing payment and funds transfer services using QR code technology. They must also strictly comply with laws on data privacy.

(2) Service providers should have a mechanism for managing risks from providing payment and funds transfer services using QR code technology according to their risk management policy, as well as risk management guidelines according to related business rules to foster the secure use of the services of both the merchants and the people, e.g. credit limit per transaction or per all transactions per day, a mechanism to prevent unauthorized transactions or repeated transactions. In doing so, they must also take into consideration the necessity and consistency with risk management standards for other related services, such as PromptPay service.

(3) In case where there are sound risk management standards of international card schemes or local card schemes, credit card or debit card payment service providers must also comply with those standards.

(4) Payment service providers, who offer a service of receiving payment using the Thai QR code standard to merchants, must be granted a license to undertake a service of receiving payment on behalf, which is subject to the supervision of the Bank of Thailand. In addition, they must comply with the Bank of Thailand Notification Re: Regulations on General Supervision of Undertaking Designated Payment Service Business.

Principle 3: service users protection and education

Intended outcome: Service providers have consumer protection measures and educates their service users regarding risks from using payment and funds transfer services to ensure the security of financial transactions using QR code technology. Examples of topics include communicating information on the secure use of service, management of problems from using the services, and protecting service users' important information.

Desirable practices:

(1) Service providers must take into account the protection of service users according to their fundamental rights and other matters as required by laws.

(2) They must regularly provide knowledge to the people, merchants and business entities on the secure use of services and prevention of threats, e.g., methods for making a payment or funds transfer using various types of QR codes, methods for preventing threats from counterfeit QR codes, methods for identifying the standard QR code for payment transactions. This enables service users to clearly differentiate QR codes for payment transactions from QR codes for other purposes, such as the formats or signs indicating payment or funds transfer under the Thai QR Code Payment Standard.

(3) They must provide a method for service users to check the current status of their payment or funds transfer and display a list of transactions, such as the real-time notification of the service users' current status. details of transactions using various methods, e.g. push notification, SMS or other methods that can confirm that the transactions have successfully been processed.

(4) They must establish a guideline for preventing risks from using QR code technology, such as counterfeit QR codes, QR codes that redirect to scam websites or wrong sources of information. They must provide a method for real-time checking any changes and accuracy of data stored in QR codes; for instance, verifying and displaying the recipient's or merchant's names from the system. In addition, they must monitor threats relating to payment and funds transfer services to enhance security measures and close any loopholes that may occur in the future.

(5) They must have in place convenient channels for service users to be able to inquire further information or notify service issues. Also, there must have processes that can appropriately and promptly resolve the problems within a specified time. For instance, in the events that the service system is interrupted, the system deducts money from the sender's account but has not been credited to the recipient's account, or service users transfer money to the wrong account, service users shall be able to contact the sending banks or service providers for dealing with the issues, and service providers must accordingly take care of the service users in accordance with an agreement between the involving service providers.

(6) They must disclose necessary information to service users, e.g., rights and service conditions, service processes, related fees. When there are significant changes to that information, they must promptly notify service users.

(7) They must have measures to protect confidentiality and security of service users' important information. For instance, consumers' sensitive data must not be stored in a QR code. However, should it deem needed to do so, the data must be encrypted with encryption technology that is reliable and accepted for its security according to the international standard.

(8) They must develop products or services by taking into account good experiences and satisfaction of service users to achieve the continuous and widespread use. For example, the application must be equipped with a user-friendly menu, function descriptions as well as related information, knowledge, and suggestions. This will help reduce errors of service users in making transactions.

Principle 4: Developing future financial innovations with data from payment and funds transfer via QR code

Intended outcome: Service providers shall have strategies and policy guidelines in applying new technology to develop new and further services, e.g., using data from payment and funds transfer via QR code to promote the development of financial innovations that are more easily accessible and better respond to service users' needs, especially the people, start-up businesses, and small and medium-sized enterprises (SMEs), in accordance with risk management framework, service users protection, and related laws.

Desirable practices:

(1) Service providers should have strategies and policy guidelines in applying new technology, such as big data, data analytics and machine learning, to analyze the data from payment and funds transfer via QR code. This will ensure that the data is fully utilized, especially for the development of service for the people, start-up businesses, and small and medium-sized enterprises (SMEs), e.g., alternative credit scoring or information-based lending.

(2) They should have an approach for selecting appropriate technology that will be used for analyzing data from payment and funds transfer via QR code.

There must also be the testing of the accuracy of the technology used, management of related risks, data governance, data protection and data privacy, in accordance with applicable laws, standards and regulations.

(3) In case where service providers develop or improve any services, apart from payment/funds transfer services through PromptPay system; such as developing an application programming interface (API) for payment and funds transfer using the Thai QR code standard (Industry standard API for Thai QR code payment) to support other transactions between service providers, the service providers must comply with related business rules and coordinate with all involving parties so that other service providers are to be informed and be able to develop and improve services.

4.3 Thai QR Code Payment Standard

This Thai QR Code Payment Standard is developed from an international standard; namely the QR Code specification for Payment Systems (EMV QRCPS) of EMVCo. This standard can be adopted by PromptPay payment service providers (both financial institutions and non-bank service providers) for various use cases, including merchant-presented mode or customer-scan-business basis, and customer-presented mode or business-scan-customer basis. QR codes under this standard can also be used overseas, in an e-donation projects, and for card payment service through international card schemes and local card schemes. The system used for payment and funds transfer is developed based on the present payment infrastructure, e.g., PromptPay system. Payment and funds transfer through the Thai QR code will be used by service providers' mobile application to read the QR code, where technical specifications and guidelines are as specified in Attachment 1. In case where service providers adopt the Thai QR Code Payment Standard, the interoperability testing must be conducted and the results shall be submitted to the Payment System Office of the Thai Bankers' Association, Association of International Banks, The Government Financial Institutions Association, or Thailand e-Payment Trade Association, as the case may be, before launching the service. The results must also be submitted to the Bank of Thailand for acknowledgement.

Nevertheless, the standard and related guidelines are able to be amended in accordance with the future development of the services, e.g., supporting other

special services or new forms of payment in the future. Service providers should therefore coordinate with the Payment Systems Policy Department of the BOT, the Payment System Office of the Thai Bankers' Association, Association of International Banks, The Government Financial Institutions Association, or Thailand e-Payment Trade Association, in order to inform reasons, needs, impacts and benefits of the amendments for the purpose of joint improving the Thai QR Code Payment Standard, related technical specifications and business rules. Any amendment to the standard is also subject to prior approval of the Bank of Thailand.

4.4 QR Code Standard for Bill Payment

The QR Code Standard for Bill Payment is developed for facilitating the business sector in preparing bills that can contain more information and respond to business requirements. In addition, the information is standardized and can be used for developing services in the future.

This standard is developed based on guidelines for generating QR codes (Automatic identification and data capture techniques) according to international standards – ISO/IEC 18004 as well as from the BOT's barcode standard. This will facilitate the effective and smooth transition of the business sector and service providers to the new QR code standard.

The data structures of the QR code for bill payment contain key information, e.g., bill payment information (which also supports the use of a traditional barcode so that service users can use the old standard together with the new QR code standard), information for inter-bank payment (PromptPay or online retail funds transfer), information for preparing receipts and tax receipts, and other payment information according to each business entity's needs. The technical specifications and guidelines are as specified in Attachment 2.

5. Effective Date

This Policy Guideline shall come into effect from 17 April 2019 (B.E. 2562) onwards.

Thai QR Code Payment Standard

1. Adoption of the Thai QR Code Payment Standard

The Thai QR Code Payment Standard can support payment and funds transfer services of service providers, both financial institutions and non-bank service providers. The standard also supports payment and funds transfer by various groups of customers, e.g., the people, merchants, convenient stores and online merchants. However, in making a payment for goods or services as well as funds transfer using QR code, mobile devices, such as smartphones, must be used for reading the QR codes. Therefore, service providers must inform merchants or service users that customers of those merchants must have the appropriate devices for using the services.

Nevertheless, the standard and related guidelines are able to be amended in accordance with the future development of the services, e.g., supporting other special services or new forms of payment in the future. Service providers should therefore coordinate with the Payment Systems Policy Department of the BOT, the Payment System Office of the Thai Bankers' Association, Association of International Banks, The Government Financial Institutions Association, or Thailand e-Payment Trade Association, in order to inform reasons, needs, impacts and benefits of the amendments for the purpose of joint improving the Thai QR Code Payment Standard, related technical specifications and business rules. Any amendment to the standard is also subject to prior approval of the BOT.

2. Details of the standard

2.1 Data structures of the Thai QR Code Payment Standard contain 64 fields that can support the following transactions:

- Card transactions through international card schemes – card payment transactions through international card schemes according to the standard specified by the card network providers, e.g., VISA, Mastercard, etc.

- Domestic payment / funds transfer transactions – domestic payment/ funds transfer transactions through PromptPay system, payment innovation, and card payment transactions through local card schemes.
- Cross-border payment transactions – cross-border payment transactions through PromptPay system or other payment systems.

Details of the allocation of Tag IDs are as follows:

- Tag IDs 00–25: International card schemes
- Tag IDs 26–28: Local card schemes
- Tag IDs 29–31: Payment / funds transfer through PromptPay and other payment innovation
- Tag IDs 32–51: Reserved for additional payment networks and other cases (if any)
- Tag IDs 52–64: Additional information for payment / funds transfer transactions mutually used between international / local card schemes and PromptPay, e.g., amount, type of merchant, reference ID

2.2 Payment and funds transfer transactions using Thai QR codes through PromptPay system are specified in Tag IDs 29–31 with the key principles as follows:

- Tag ID 29 for funds transfer through PromptPay service – to support the registration with mobile numbers, ID numbers, juristic person registration numbers, taxpayer ID numbers, e-wallet numbers, and bank account numbers.
- Tag ID 30 for entrepreneurs registered with biller ID or merchant ID This Tag ID uses a bill payment module of PromptPay service. The registration with biller ID is developed from the use of juristic person registration numbers or taxpayer ID numbers of merchants or the numbers that bill aggregators¹ have assigned to the merchants. In this regard, service providers who receive payment using Thai QR codes for merchants must obtain licenses to be service providers of receiving payment on

¹ Bill aggregator means a service provider that registers to the system by using biller ID in order to generate Thai QR codes for retail merchants or other companies. The service provider must have a process for screening the merchants according to the standards for the use of Thai QR Code Tag ID 30.

behalf under the supervision of the Bank of Thailand and operate their businesses compliance with the Bank of Thailand Notification Re: Regulations on General Supervision of Undertaking Designated Payment Business. Prior to providing service, service providers must register biller ID / merchant ID for the merchants and have a verification process to ensure that the registered merchants are the entrepreneurs that use Thai QR code for receiving payment for goods and services in accordance with applicable laws and regulations.

- Tag ID 31 for payment innovation that provides special services other than normal payment/funds transfer through PromptPay service. In developing this Tag ID, service providers should also prepare data for Tag ID 29 or 30 in order to allow mobile applications of all service providers be able to read this type of the QR code and send basic payment / funds transfer transactions through PromptPay system using Tag ID 29 or 30.

- Tag ID 39 only for payment / funds transfer services of service providers that have not yet linked their systems to the centralized system (such as PromptPay system) – if later, however, they have already linked the systems to the centralized system, they must terminate all services using this Tag ID and, change their QR code in accordance with the specified data structure of Tag ID 29 or 30.

2.3 Data structures of the Thai QR Code Payment Standard

Type of data	Tag ID	Format	Length	Presence	Description					
Payload Format Indicator	"00"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
Point of Initiation method	"01"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
Merchant identifier	"02"- "25"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
	"26"- "28"	Refer to specifications of Local Card Scheme								
	"29"	ans	"99"	C	Reserved for PromptPay - Credit Transfer with PromptPayID					
					Name	ID	Format	Length	Presence	Description
					AID	"00"	ans	"16"	M	"A000000677010111" for merchant-presented QR "A000000677010114" for customer-presented QR
					Mobile number	"01"	N	"13"	One of them is mandatory	e.g. 0066XXXXXXXXXX
					National ID or Tax ID	"02"	N	"13"		
					E-Wallet ID	"03"	N	"15"		
					Bank account	"04"	N	var. up to "43"		Reserved for future use; Bank code (3 digit) + account no.
				OTA	"05"	N	"10"	C	mandatory if AID = "A000000677010114"	
	"30"	ans	"99"	C	Reserved for PromptPay - Bill Payment					
					Name	ID	Format	Length	Presence	Description

Type of data	Tag ID	Format	Length	Presence	Description						
					AID	"00"	ans	"16"	M	"A000000677010112" for domestic merchant "A000000677012006" for cross-border merchant	
					Billor ID	"01"	N	"15"	M	National ID/Tax ID + Suffix	
					Reference 1	"02"	ans	var. up to "20"	M		
					Reference 2	"03"	ans	var. up to "20"	O		
	"31"	ans	"99"	O	Reserved for Payment Innovation (API) - 2 use cases						
					1) Payment Innovation [Standard API]						
					Name	ID	Format	Length	Presence	Description	
					AID	"00"	ans	"16"	M	"A000000677012004" for Payment Innovation [Standard API]	
					API ID	"01"	N	"03"	M	"001" = Transaction verification API	
										Note: The following sub tags will vary based on this API ID	
					Service Provider ID	"01"	N	"03"	M		
					Transaction Reference	"03"	ans	"25"	M		
					2) Payment Innovation (Acquirer specific innovation)						
					Name	ID	Format	Length	Presence	Description	

Type of data	Tag ID	Format	Length	Presence	Description					
					AID	"00"	ans	"16"	M	"A000000677010113" for Payment Innovation
					Acquirer ID	"01"	N	"03"	M	
					Acquirer specific	"02" -"99"	ans	var.	O	Reserved for acquirer use
	"32"- "38"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
	"39"	Reserved for payment/funds transfer service of a service provider that has not yet connected the system to the centralized system (such as PromptPay) only. Payment/funds transfer service providers that have already connected the system to the centralized system are not allowed to use this Tag ID.								
	"40"- "51"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
Merchant Category Code	"52"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode Only for payment/funds transfer through PromptPay – optional								
Transaction Currency Code	"53"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode For payment in Baht – enter “764” for both domestic and cross-border transactions.								
Transaction Amount	"54"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode For cross-border transactions – specify the value in Baht								
Tip or convenience indicator	"55"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode Payment/funds transfer service providers through PromptPay are not allowed to use this Tag ID								
Value of convenience fee fixed	"56"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode Payment/funds transfer service providers through PromptPay are not allowed to use this Tag ID								
Value of convenience fee percentage	"57"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode Payment/funds transfer service providers through PromptPay are not allowed to use this Tag ID								

Type of data	Tag ID	Format	Length	Presence	Description					
Country Code	"58"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode			For domestic transactions – enter “TH”, for overseas transactions – enter “country code” of the respective country					
Merchant Name	"59"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode			For payment / funds transfer through PromptPay – the name of the merchant in this Tag must not be shown on a mobile application of the payment / funds transfer service provider. Instead, the data to be shown must be looked up from PromptPay system					
Merchant City	"60"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode			Only for payment/funds transfer through PromptPay – optional					
Postal Code	"61"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
Additional Data Field Template	"62"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode			If Merchant identifier Tag is “30”, Terminal ID (Sub-Tag) may be used. For overseas transactions, sub-Tag ID must be specified with “08” as follows: Currency Code (3 digits) + Local amount (13 digits) + Country code (2 digits), e.g. 3920000003000.00JP					
CRC	"63"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
Merchant Information - Language Template	"64"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
RFU for EMVCo	"65"-“79"	Refer to EMVCo QR Code Specification for Payment Systems: Merchant-Presented Mode								
VAT TQRC	"80"	ans, limited to numeric and the "."	var. up to "50"	O	For Seller's VAT					
					Name	ID	Format	Length	Presence	Description
					Seller Tax Branch ID	"00"	ans	"04"	M	Follow Design with ITMX's System

Type of data	Tag ID	Format	Length	Presence	Description					
		symbol			VAT Rate	"01"	ans, limited to numeric and the "." symbol	var. up to "05"	O	The convenience percentage should be specified here. This amount is expressed as how the value appears, amount "10.00" is defined as "10.00", or amount "9.85" is defined as "9.85", or Note: 0 and 100 is not a valid value.
					VAT Amount	"02"	ans, limited to numeric and the "." symbol	var. up to "13"	M	This amount is expressed as how the value appears, amount "100.00" is defined as "100.00", or amount "99.85" is defined as "99.85"
Unreserved Templated	"81"-"99"	Refer to QR Code Specification for Payment Systems: Merchant-Presented Mode								

Descriptions

Format (Type of data)	ans means alphabetic data, numeric data, and special characters ans, limited to numeric and the "." symbol means only numeric data and decimal point can be specified
Presence (Type of data specification)	M means mandatory data O means optional data C means conditional data
Length	var. up to "x" means the length of data must not exceed "x" characters

3. Guidelines for the Thai QR Code Payment Standard

Service providers should consider applying the following guiding principles for setting out requirements and business rules for the adoption of the Thai QR Code Payment Standard:

3.1 Adoption of the standard for payment and funds transfer transactions

(3.1.1) The Thai QR Code Payment Standard supports payment and funds transfer transactions through PromptPay service as well as new services in the future, including card payment services through international card schemes and local card schemes. Service providers must not hinder merchants' choices to receive payment or transfer funds through various channels, and must allow all use cases of QR codes. Examples are customers scanning the QR code presented by the merchant to make a payment (Merchant-Presented Mode or Customer-Scan-Business basis), or vice versa (Customer-Presented Mode or Business-Scan-Customer basis), QR codes in e-donation projects, and the services that apply the Thai QR code standard overseas. In using any type of QR codes, service providers must also comply with related business rules.

In case of card payment service providers through international card schemes, they shall comply with the standard as specified by the card network providers, such as Visa, Mastercard, which is also in accordance with the same standards – EMVCo QR Code Specification for Payment Systems (EMV QRCPS).

(3.1.2) The Thai QR Code Payment Standard shall apply to service providers that provide payment and funds transfer services to the public in general. Also, service providers that provide the service only to themselves or a particular group of customers are encouraged to adopt the standard. In case where there is the interconnection of service between service providers, such as through PromptPay system, service providers must conduct the interoperability testing and submit the results to the Payment System Office of the Thai Bankers' Association, Association of International Banks, The Government Financial Institutions Association, or Thailand e-Payment Trade Association, as the case may be, before launching the service. The results must also be submitted to the Bank of Thailand for acknowledgement. Service providers must also be cooperated in conducting other interoperability testing in the future; e.g., the addition or extension of service scope, amendment to technical

specifications, or participation of new service providers of the Thai QR Code Payment Standard in the system. This will ensure that QR codes for payment and funds transfer is widely interoperable, and the application of a particular service provider can read QR codes of any other service providers, resulting in customers' convenience and good experiences.

(3.1.3) The Thai QR Code Payment Standard may be applied in the form of static QR code and dynamic QR code. For a static QR code, the image of QR code will be unchanged, it can therefore be printed on a piece of paper or sticker, while the dynamic QR code will regenerate a new QR code every time a payment or funds transfer transaction is made.

3.2 Development of mobile application

(3.2.1) Payment or funds transfer service providers using QR codes should develop a mobile application to support all types of PromptPay payment and funds transfer services they provide to customers, and must also comply with related business rules.

(3.2.2) In case where payment or funds transfer service providers using QR codes also develop other services (for instance, they may use QR Code Tag ID 31), they must inform other service providers and all involving parties (they are not required to inform confidential business information) so that those service providers may jointly use the Tag ID of the service provider. Regarding the detail, it shall be in accordance with a business agreement between the service providers.

(3.2.3) In the future, should there be the development of application programming interface (API) for payment and funds transfer under the Thai QR Code Standard (Industry standard API for Thai QR code payment) in order to support any other transactions between service providers, such as electronic receipt verification, void transactions and refund transactions, payment or funds transfer service providers using QR codes must comply with business rules relating to the aforementioned standard API. The service providers must conduct the service testing and then appropriately use the API. They must notify the BOT and the Payment System Office of the Thai Bankers' Association, Association of International Banks, The Government Financial Institutions Association, or Thailand e-Payment Trade Association, as the case

may be. In addition, in case where there is any improvement or revision of the industry standard API, it must be operated in accordance with related business rules and be notified to all involving parties so that other service providers are aware of this and can use to develop for further usage.

3.3 Standard template for printing or displaying QR codes for merchants

(3.3.1) Service providers must prepare the template and print or display QR codes for merchants in accordance with the related business rules and Thai QR logo standard with a logo of the Thai QR Code Payment Standard and a logo of PromptPay service and/or a logo of the credit card network providers, depending on the payment channels the merchants choose. In printing or displaying a QR code, there must be sufficient information for service users to consider channels for making payment or funds transfer as well as verify the recipient's account, such as the recipient's account name, name of the merchant, etc.

(3.3.2) Service providers must print or display the key instructions for the use of QR codes according to the standard set forth together on the back of QR codes so that the merchants are aware of this and securely use, e.g., the prevention of counterfeit QR codes, advices giving to customers when making payment or funds transfer using QR codes, contacting the bank in case where problems arising from using the service.

(3.3.3) Service providers may agree with other service providers to put its logo on QR codes in the specified area using the same practice, so service users will know and be able to contact the service provider in case of having problems or inquiring further information.

3.4 Risk management

Service providers must sufficiently and appropriately oversee and manage risks that may arise from the use of services of business entities, merchants and the people. The key risks are as follows:

(3.4.1) Operational risk

- Service providers must have sufficient and appropriate measures to oversee and manage risks from providing payment and funds transfer services using Thai QR codes, such as process risk, personnel risk.

- In case where service providers use outsourcing or IT outsourcing, such as developing the systems, installing the devices at merchants, organizing marketing campaigns at exhibitions, they must oversee the third-party service providers to strictly comply with the process and requirements as specified by the service providers. Furthermore, the service providers will remain responsible for service users as if they provide the services by themselves.

- Service providers must perform know-your-customer (KYC) and customer due diligence (CDD) processes according to applicable regulations.

- In the event that service providers would like other service providers or a third-party business partner to generate Thai QR codes of the service providers for receiving payment for goods and services from their consumers, the service providers will remain responsible as if they provide the services by themselves, in respect of risk management, service user protection, compliance with related business rules, and supervision for appropriate use of the Thai QR code logo.

- In case where service providers provide bill payment service (bill aggregator) or provide services to payment agents where there is the interconnection of systems in order to serve other sub-merchants or business entities, they should set out business rules for functioning as bill aggregators, as mentioned above. The business rules should cover risk management, operating standards, minimum qualifications and service user protection.

- Service providers must provide details of the merchants that receive payment or make funds transfer through PromptPay system to the service users so that they can verify their transactions. The details to be indicated must be directly acquired from the central system of PromptPay so service users can clearly and accurately verify the recipient's account.

(3.4.2) Information technology risk (IT risk)

- Service providers must sufficiently and appropriately oversee risks associated with the security of IT systems used for providing services, namely security risk, trustworthiness and availability of systems, processing equipment, communication networks, technical operating infrastructure and technology solutions, as well as cyber risk.

- Service providers should forecast their transactions on a regular basis, and notify this in advance to the provider of the centralized system and involving parties so that they can make appropriate preparations and conduct the capacity planning to ensure the uninterrupted service, including the case where service providers connect the systems or services with their business partners or where there is a significant increase in the volume of transactions, which may lead to wide-scale impacts on the services. Therefore, the service providers must forecast the volume of those transactions and then notify this to the provider of the centralized system and involving service providers in advance, prior to the launch of the services (they are not required to inform confidential business information).

(3.4.3) Data privacy

- Service providers must protect service users' sensitive data and ensure that it must not be stored in the QR codes to prevent risks of damage to service users.

3.5 Consumer protection

(3.5.1) Service providers must sufficiently and appropriately inform service users, both the people and merchants, regarding service instructions, recommendations, service providers' contact channels and other useful information, e.g., the receipt of money and checking of inflow transactions to the accounts, checking of payment and funds transfer transactions using QR codes, service fees/charges, secure usage of the service, changes of the PromptPay registered numbers for receiving a QR code, as well as code of conducts for the use of mobile banking and other information that customers should be aware of.

(3.5.2) Service providers must have a mechanism to notify service users and merchants the results or status of their payment and funds transfer transactions,

such as sending SMS or a notification message to inform that a payment or funds transfer transaction is successful, or an electronic slip (e-slip) for service users to present from the application. Those messages or e-slips must contain sufficient information so that service users can use them to confirm and verify the transactions afterwards, e.g., account number, amount, transaction date and time, or reference number.

(3.5.3) Service providers must be responsible for the accuracy of information contained in its QR codes and must provide merchants with information and suggestions on the maintenance and secure use of QR codes to reduce the risk from counterfeit QR codes. They should also have sufficient measures to help service users reduce the risk from transaction errors or reading counterfeit QR codes, e.g., recommendations for checking the merchants' information before confirming the payment or transferring money, limiting the transaction amount or sending warning messages.

(3.5.4) Service providers must have guidelines and processes for resolving issues from transaction errors or system failure, and there must be channels for service users to report the issues or file complaints from using QR code services. This will ensure the uninterrupted and timely service to the people and merchants. For instance, service providers deposit money to the merchants' accounts in accordance with guidelines on sound risk management, so that the merchants can deliver goods or services to the customers, leading to the seamless purchases/sales of goods and services. Another example is that if there is a report of fraud, such as counterfeit QR codes, service providers that are responsible for the recipient's accounts must have appropriate practices; which may be on the same basis as for the call center scam, and immediately suspend the withdrawal of money from the recipient's accounts.

QR Code Standard for Bill Payment

1. Adoption of the QR Code Standard for Bill Payment

The QR Code Standard for Bill Payment will apply to the preparation of bills of business entities and the use of QR code for bill payment service of electronic payment service providers, both financial institutions and non-bank service providers.

2. Details of the standard

2.1 Data structure

The data structure of QR codes for bill payment consists of 5 main components, which are:

- (1) Payment data according to the traditional barcode standard – 62 numerical digits
- (2) Data for inter-institution payment (PromptPay / ORFT¹)
- (3) Data for issuance of receipts and tax receipts²
- (4) Additional data for other payments according to needs of each business
- (5) Data for collection of withholding tax by electronic methods (e-withholding tax)

The users may appropriately choose to use the above components according to their needs, and there are no required fields (Table 1). The examples for the use of QR codes for bill payment are as follows:

¹ ORFT: Online Retail Funds Transfer or inter-bank retail funds transfer means the transfer of each item of retail funds to the other bank through an electronic channel, such as ATM, Internet banking, mobile banking or bank counter.

² The users may refer to the Instructions for generating QR codes containing buyer information in preparing receipts and tax receipts, where the QR code that contains buyer information may be prepared separately and printed/displayed together with the QR code for bill payment (The example of data structure for generating QR codes containing buyer information is in Annex A)

1) Use the traditional barcode standard, which consists of 62 numerical digits

2) Use the QR Code Standard for Bill Payment to support the use of other information and inter-institution payment

Table 1: Data Structure – QR Codes for Bill Payment

No.	Field name	Number of characters	Type of data	Descriptions
1	Prefix	1	Alpha	- Enter the pipe () character to indicate that this QR code is for payments and funds transfer
	Seller / Receiver Tax ID	13	Alphanumeric	- Seller's taxpayer ID
	Suffix	2	Alphanumeric	- Reference code for the accounts of the issuer of payment document - In case of 1 account – enter “00” after the seller's taxpayer ID (13 digits) - In case of 2 accounts and more – enter “00” for the first account, and enter “01”, “02” respectively for further accounts after the seller's taxpayer ID (13 digits)

No.	Field name	Number of characters	Type of data	Descriptions
				<ul style="list-style-type: none"> - Insert CR (Carriage return) to indicate the end of the field
2	Reference No.1 / Customer No.	20	Alphanumeric	<ul style="list-style-type: none"> - Reference No. 1 – enter the actual reference number, limited to 20 characters - Insert CR (Carriage return) to indicate the end of the field
3	Reference No.2	20	Alphanumeric	<ul style="list-style-type: none"> - Reference No. 2 – enter the actual reference number, limited to 20 characters - Insert CR (Carriage return) to indicate the end of the field
4	Total amount	10	Numeric (8,2)	<ul style="list-style-type: none"> - Total amount to be paid by the buyer (Value of products/services including VAT and withholding tax (if any)) - Enter the amount, limited to 10 digits including decimal digits. Decimal point will not be entered

No.	Field name	Number of characters	Type of data	Descriptions
				<ul style="list-style-type: none"> - Insert CR (Carriage return) to indicate the end of the field
5	Transaction type	1	Alpha	<ul style="list-style-type: none"> - Transaction type code – enter “2” for payment transactions - Insert CR (Carriage return) to indicate the end of the field
6	Due date	8	Alphanumeric	<ul style="list-style-type: none"> - Due date for payment in form of “DDMMYYYY”, by using A.D. for YYYY - Insert CR (Carriage return) to indicate the end of the field
7	Quantity	10	Numeric	<ul style="list-style-type: none"> - Quantity of products/services - Enter no more than 10 digits of quantity including decimal digits (if any) e.g., 4.12345678 or 40.1234 or 400.12 or 4000.1 - Insert CR (Carriage return) to indicate the end of the field

No.	Field name	Number of characters	Type of data	Descriptions
8	Sales amount	10	Numeric (8,2)	<ul style="list-style-type: none"> - Value of products/services (excluding VAT) - Enter no more than 10 digits of value including decimal digits. Decimal point will not be entered - Insert CR (Carriage return) to indicate the end of the field
9	VAT rate	4	Numeric (2,2)	<ul style="list-style-type: none"> - VAT rate - Enter no more than 4 digits of VAT rate including decimal digits. Decimal point will not be entered - Insert CR (Carriage return) to indicate the end of the field
10	VAT amount	10	Numeric (8,2)	<ul style="list-style-type: none"> - VAT amount - Enter no more than 10 digits of VAT amount including decimal digits. Decimal point will not be entered - Insert CR (Carriage return) to indicate the end of the field

No.	Field name	Number of characters	Type of data	Descriptions
11	Seller/Receiver VAT branch ID	5	Alphanumeric	<ul style="list-style-type: none"> - Seller's branch ID - Insert CR (Carriage return) to indicate the end of the field
12	Buyer/Sender tax ID	13	Alphanumeric	<ul style="list-style-type: none"> - Buyer's taxpayer ID - Insert CR (Carriage return) to indicate the end of the field
13	Buyer/Sender VAT branch ID	5	Alphanumeric	<ul style="list-style-type: none"> - Buyer's branch ID - Insert CR (Carriage return) to indicate the end of the field
14	Buyer/Sender name	140	Alphanumeric	<ul style="list-style-type: none"> - Buyer's name and surname – enter the actual information, limited to 140 characters - Insert space to separate between name and surname - Insert CR (Carriage return) to indicate the end of the field
15	Reference No.3	20	Alphanumeric	<ul style="list-style-type: none"> - Reference No.3 – enter the actual information, limited to 20 characters

No.	Field name	Number of characters	Type of data	Descriptions
				<ul style="list-style-type: none"> - Insert CR (Carriage return) to indicate the end of the field
16	Proxy ID	30	Alphanumeric	<ul style="list-style-type: none"> - Account number (which may be the telephone number registered with PromptPay Service or deposit account number) - enter the actual information, limited to 30 characters - In case of using the deposit account number – enter the bank code in 3 digits before the account number e.g., <u>003</u>9999999999 (<u>003</u> is the bank code as specified by the BOT) - Insert CR (Carriage return) to indicate the end of the field
17	Proxy type	12	Alphanumeric	<ul style="list-style-type: none"> - Account number type code (please refer to Annex B) – enter the actual information, limited to 12 digits

No.	Field name	Number of characters	Type of data	Descriptions
				<ul style="list-style-type: none"> - Insert CR (Carriage return) to indicate the end of the field
18	Net amount	10	Numeric (8,2)	<ul style="list-style-type: none"> - Amount of money to be received by the seller less withholding tax (value of products/services including VAT less withholding tax (if any)) - Enter the amount, no more than 10 digits of net amount including decimal digits. Decimal point will not be entered - Insert CR (Carriage return) to indicate the end of the field
19	Type of income	3	Alphanumeric	<ul style="list-style-type: none"> - Code of type of taxable income (please refer to Annex C) - Insert CR (Carriage return) to indicate the end of the field
20	Withholding tax rate	4	Numeric (2,2)	<ul style="list-style-type: none"> - Withholding tax rate - Enter no more than 4 digits of withholding tax rate including decimal digits..

No.	Field name	Number of characters	Type of data	Descriptions
				<p>Decimal point will not be entered</p> <ul style="list-style-type: none"> - Insert CR (Carriage return) to indicate the end of the field
21	Withholding tax amount	10	Numeric (8,2)	<ul style="list-style-type: none"> - Withholding tax amount - Enter no more than 10 digits of withholding tax amount including decimal digits.. Decimal point will not be entered - Insert CR (Carriage return) to indicate the end of the field
22	Withholding tax conditions	1	Alpha	<ul style="list-style-type: none"> - Enter the code of withholding tax calculation method: <ul style="list-style-type: none"> “B” – where the payer withholds income tax “A” – where the payer is liable for income tax for all payments “C” – where the payer is liable for income tax for this particular payment

No.	Field name	Number of characters	Type of data	Descriptions
				- No CR (Carriage return) is required to indicate the end of the field
	Total	362		

Remarks:

1) For the 1st – 4th data fields, the users shall refer to the data structure according to the traditional barcode standard. In case of bill payments, the users can use QR codes instead of traditional barcodes while the 4th data field must not have carriage return (CR) to indicate the end of the field.

2) Each field must contain data in alpha, numeric or alphanumeric form, limited to 362 characters (excluding carriage returns).

3) The data in each particular field must have the number of characters according to the actual data, but not exceeding the maximum number of characters specified for that field. A carriage return, in the form of Hexadecimal “0x0D”, will indicate the end of the field, except the following fields – Prefix, Seller/Receiver, Tax ID, and Withholding tax conditions.

4) Entering data into “no data” fields

- In case of numeric data – entering “0” (zero) into the fields
- In case of alpha data or alphanumeric data – leave the fields blank

A carriage return (CR) shall be inserted to indicate the end of the field, according to the descriptions of data structure, in order to fix the data order.

5) In case where the issuers of payment documents allow the payers to make partial payments - enter “0” (zero) into field “Total amount”, “Sales amount”, “VAT amount”, “Net amount” or “Withholding tax amount”. Then, when receiving full

payments, the service providers will enter the actual amounts received from the payers.

6) The users can use field “Reference No.3”, according to the specific business needs, for the purpose of reconciliation or for providing additional information to customers, such as additional note, telephone number or merchant ID.

7) Information printed on a bill is the information prepared by the issuers of the payment documents to reduce the burden of the payers and the service providers in filling out the data. However, the service providers should have a flexible payment system for filling out the bill payment data as well as related data that may be different from the bill, according to the needs of the issuers of the payment documents or the payers, at the point of service.

2.2 Generating QR codes for bill payment

To generate QR codes in accordance with international standard – ISO/IEC 18004, and to enable those QR codes to be used with various types and versions of equipment/systems/software of the issuers of payment documents and payment service providers, the following matters should be considered:

1) The size of a QR code to be printed on paper or displayed on a screen of a mobile phone or tablet or modern electronic device should be appropriate to the amount of data stored in the QR code. To accommodate data with 362 characters long, a QR code should have the width of at least 3.4 centimeters, and the length of at least 3.4 centimeters including the quiet zone³, as illustrated in Figure 1. In case of data with 62 characters according to the traditional barcode standard, a QR code should have the width of at least 1.5 centimeters and the length of at least 1.5 centimeters including the quiet zone, as illustrated in Figure 2.

³ The quiet zone is a blank area on the edge of QR code, which should at least cover the area of 4 times of the module size to allow faster scanning. The modules are small square dots, which may be in black or white, marked on a QR code along the horizontal and vertical axes.

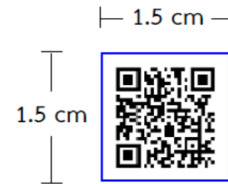
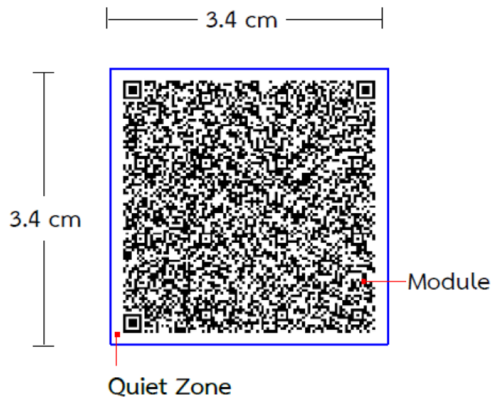


Figure 1: QR code with data of 362 characters

Figure 2: QR code with data of 62 characters

2) In setting the error correction level⁴, the users should consider the operating environment that may constitute any damage to QR codes, such as stain/fold on the paper, reflection on a screen of a mobile phone or tablet, as well as scanning speed. If the amount of data and the QR code size are those as illustrated in Figure 1 and Figure 2, the users should select the error correction level of “M” (15% of the damaged data can be recovered).

3) The users shall use the “UTF-8” character sets for character encoding.

4) The resolution (DPI)⁵ of the QR code image should be appropriate to the specific usage purpose. For instance, the resolution should not be less than 300 DPI for printing and 72 DPI for displaying on a screen of computer, mobile phone or tablet.

2.3 Printing of QR codes for bill payment on payment documents

The service providers must print QR codes for using in place of payment data. The following matters should be considered when printing a clear and complete QR code according to the specific usage purpose:

⁴ The error correction level is the level at which the damaged data can be recovered, which can be selected from the following 4 levels: L = 7%, M = 15%, Q = 25% and H = 30%. The higher error correction level required, the bigger size of QR code.

⁵ DPI (Dots per inch) is the number of dots within the span of 1 inch, which indicates the image resolution (quality) of a printer. The users may refer to further details as specified in Annex 1 (Section 2, Clause 3) of the Notification of the Electronic Transactions Commission Re: Guidelines and Procedures for Preparing or Converting Documents and Messages into Electronic Format B.E.2553 (2010).

1) Type of printer – the printer resolution and the resolution of the QR code image (DPI) should be selected appropriately to the type of printer, such as inkjet printer, thermal printer, or laser printer.

2) Printing paper - types of printing paper should be selected appropriately to the ability of QR code reading. For instance, fine printing paper or thermal paper may give different effectiveness of QR code reading.

Before putting any QR codes into service, printing test for those QR codes on the payment document should be conducted and then, test if they can be read properly.

3. Guidelines for the QR Code Standard for Bill Payment

Service providers or business entities may consider applying the QR Code Standard for Bill Payment where appropriate, as well as applying the following guiding principles for setting out related guidelines and practices:

3.1 Adoption of the QR Code Standard for Bill Payment

(3.1.1) The QR Code Standard for Bill Payment supports the printing of QR codes on payment documents and the use of QR codes for bill payment service of service providers, both financial institutions and non-bank service providers, through various channels, namely branches, agents and electronic channels (e.g. mobile phone)

(3.1.2) The BOT encourages payment service providers and business entities to use the QR Code Standard for Bill Payment in providing services to people in general, a particular group of customers, or only to themselves in order to enhance the effectiveness of the management of payment data as well as related data.

3.2 Printing of QR codes for bill payment on payment documents

Service providers must print QR codes for using in place of payment information. When printing a clear and complete QR codes according to the specific usage purpose, the resolution of the printers and proper types of paper for QR codes reading should be considered. In addition, before putting QR codes into service, service providers should print QR codes on payment documents and, then, test if they can be read properly.

3.3 Reading of QR codes (for bill payment)

Service providers should use appropriate equipment and operating systems so that QR codes will conveniently, promptly and accurately be read. The following factors may affect the readability of QR codes:

(3.3.1) The scanner resolution should be set appropriately to the specific usage purpose, where the scanner resolution must be greater or equal to the width of the module⁶. The scanning range that allows instant and convenient QR code reading should also be considered.

(3.3.2) QR code scanners should support the reading of QR codes both printed on paper and displayed on a screen of mobile phone, tablet or digital device.

(3.3.3) Operating systems or software must support the reading of QR codes that contain Thai alphabets.

⁶ For example, a scanner with scanning capability of 10 mil (0.25 millimeters) can read a QR code with the width of the module equal to 0.25 millimeters or more.

Annex A: Examples of Data Structure for Generating QR Codes Containing Buyer Information

No.	Field name	Number of characters	Type of data	Descriptions
1	Transaction type	1	Alpha	<ul style="list-style-type: none"> - Enter "B" to indicate that this QR code contains buyer information - Insert CR (Carriage return) to indicate the end of the field
2	Buyer tax ID	13	Alphanumeric	<ul style="list-style-type: none"> - Buyer's taxpayer ID - Insert CR (Carriage return) to indicate the end of the field
3	Buyer name	140	Alphanumeric	<ul style="list-style-type: none"> - Buyer's name and surname – enter the actual information, limited to 140 characters - Insert space to separate between name and surname - Insert CR (Carriage return) to indicate the end of the field
4	Buyer address	80	Alphanumeric	<ul style="list-style-type: none"> - Buyer's address – enter the actual information, limited to 80 characters - Insert CR (Carriage return) to indicate the end of the field
5	City sub-division name	30	Alphanumeric	<ul style="list-style-type: none"> - Tambon name (Buyer) – enter the actual information, limited to 30 characters

No.	Field name	Number of characters	Type of data	Descriptions
				- Insert CR (Carriage return) to indicate the end of the field
6	City name	30	Alphanumeric	<ul style="list-style-type: none"> - Amphoe name (Buyer) – enter the actual information, limited to 30 characters - Insert CR (Carriage return) to indicate the end of the field
7	Country sub-division name	30	Alphanumeric	<ul style="list-style-type: none"> - Province name (Buyer) – enter the actual information, limited to 30 characters - Insert CR (Carriage return) to indicate the end of the field
8	Post code	5	Alphanumeric	<ul style="list-style-type: none"> - Postcode (Buyer) - Insert CR (Carriage return) to indicate the end of the field
9	Country name	30	Alphanumeric	- Country name (Buyer) - enter the actual information, limited to 30 characters
	Total	359		

Annex B: Proxy Type (Account Number Type Codes for receiving money)

Account number type code	Account number type
NATID	National ID
TAXID	Tax ID
MSISDN	Mobile Number
EWALLETID	E-Wallet
EMAIL	E-Mail
BILLERID	Biller ID
BANKACC	Bank Account Number

Annex C: Type of Income (Type of Assessable Income Codes)⁷

Type of assessable income code	Type of assessable income	Current withholding tax rate
001	Payments for goods and services	1.00 ⁸
002	Salaries	It is not required to notify the rate to the Revenue Department
003	Brokerage fees	3.00
004	Copyrights	3.00
005	Interest	1.00
006	Dividends	10.00
007	Service fees / fees for hire of work / professional fees of locally incorporated companies or foreign companies having a branch in Thailand	3.00
008	Service fees / fees for hire of work of a foreign companies not having a branch in Thailand	5.00
009	Rental fees	5.00
010	Ship rental charges	1.00
011	Prizes won in contests, competitions, and lucky draws	5.00

⁷ Types of taxable income and withholding tax rates are as prescribed in the Notification of the Revenue Department, which may be subject to change.

⁸ Only in case where the payers are government entities

Type of assessable income code	Type of assessable income	Current withholding tax rate
012	Prizes, rebates, and benefits from sales promotion	3.00
013	Entertainer remuneration	5.00
014	Advertising fees	2.00
015	Non-life insurance premiums	1.00
016	Transportation fees	1.00
017	Payments for agricultural products	0.75