TECHNICAL SPECIFICATIONS
ON NAPAS SYSTEM CONNECTIVITY
<Apply for Member Institution>

PART II: MESSAGE FORMAT

NATIONAL PAYMENT CORPORATION OF VIETNAM

Ha Noi, May, 2017

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REVISION HISTORY

Version	Release Date	Editor	Reviewer	Description for change
0.9	From 01/2016 - 11/2016	Ha Nam Ninh Nguyen Hung Cuong Bui Thi Kim Dung Pham Minh Ngoc Le Anh Tuan Dao Thanh Son Huynh Cong Linh Nguyen Thanh Quynh	Nguyen Hung Nguyen	- Builded draft Technical Specification Document - Spitted the document to 05 parts include: • Part I – Transaction Processing • Part II – Message Format • Part III – Reconciliation File Format • Part IV – Security and Communication • Part V – Annex - Added international transaction processing on following part: • Part VI – Annex: International Transaction Processing
1.0	12/2016	Ha Nam Ninh Nguyen Hung Cuong Nguyen Thanh Quynh Dao Thanh Son Huynh Cong Linh	Nguyen Hung Nguyen	- Added some data elements on CHIP transaction at: • Part II – Message Format: Section 6 – Data elements, Section 7 –

				Message format • Part V – Annex: Section 4 – Respone code - Update the online switching, Tokenization process flow synchronized with regulations for member organizations participating in the NAPAS system at: • Part I – Transaction processing, Section 4.2, 4.3, 4.5 • Part II – Message Format, Section 6.2 - Added service and interchange fees between NAPAS and Member Banks; added two fields : DE 22, DE 25 at : • Part III – Message structure : section 4.3
1.0	05/2017	Ha Nam Ninh	Nguyen Hung Nguyen	- Modified contents based on “adjusted documents” such as IFTF, field 48, PIN change and so on.
1.0	07/2017	Ha Nam Ninh Pham Minh Ngoc Le Anh Tuan	Nguyen Hung Nguyen	- Added and Modified information about fields with relationship to cardholder Billing

		Nguyen Van Quang		such as field 6, 10, 51 - Added and modified information about reversal message for more clearly and Really.

1 Audience

"Technical Specifications on NAPAS System Connectivity" document is intended for the Member Organizations (MO) of NAPAS include but not limited to Member Banks of NAPAS and Payment Intermediaries that directly connected to card switching services.

2 Scope

The card switching service allows customers to use Member Banks card in NAPAS network to perform transactions on the device / card accepted channels of NAPAS Member Institution as well as International Card Organizations or Switching Organizations of other countries and vice versa.

This document describes the transaction processing of the switching services that NAPAS deploys to Member Institutions.

Switching services including but not limited to:

2.1 Domestic card switching service:

a. Domestic card switching services at ATM: allow customers to use Member Banks card to perform transactions on the ATM equipment of the Member Banks in the Switching Organizations of other countries, and vice versa. Domestic card switching services on the ATM include but not limited to the following transactions:

- Balance Inquiry
- Cash Withdrawal
- InTra-bank Fund Transfer (ITFT)
- Mini Statement
- PIN Change

b. Domestic card switching service at POS: allow customers to use Member Banks card to perform transactions at POS of Member Bank of NAPAS network or Member Bank of Switching Organizations of other countries, and vice versa. Card switching services at POS include but not limited to the following transactions:

- Purchase
- Void
- Balance Inquiry
- PIN Change

c. Online switching service (Ecom): allow customers to make purchase through the online payment website that is connected to NAPAS. A successful payment transaction consists of 03 messages after sending to Member Bank:

- Verify Cardholder information (Verify Card)
- Verify OTP
- Ecom Purchase

Beside normally online payment service, NAPAS also debits on customer account by processing only one message:

- Ecom Fast Purchase

d. Inter-Bank Fund Transfer 24/7 service (IBFT): allows the customers to transfer money on many different payment channels (ATM, Internet banking, Mobile banking, Bank counters ...). In addition, this is also a service that Payment Intermediaries can use to allow a fund transfer from e-wallet account of Payment Intermediaries to account of Member Bank of NAPAS. This services include following messages:

- Beneficiary cardholder / account information inquiry (IBFT Inquiry)
- Beneficiary cardholder / account fund transfer (IBFT Deposit)

***Note**: IBFT Inquiry message and IBFT Deposit message are 02 independent messages and NAPAS system does not check the relationship between these messages*.

e. Payment code service: allows customer to use Member Bank payment channels which transfers and receives using Payment code (PC). Customer who transfers money is provided a Payment code when perform transfer transaction, beneficiary customer use this Payment code on channel of Bank to receive money. On-us transfer or off-us transfer bank and receive bank may be on the same bank or two different banks. The beneficiary customer object of service mainly direct to customers who have not got bank account.

- Payment code create request (PC Create)
- Payment code authentication (PC Verify)
- Payment code withdrawal (PC Cash Withdrawal)
- Payment code inquiry (PC Inquiry)

f. Tokenization service: the service that encrypt customer information to Token ID range – a range codes to identify alternative using of customer information when conducting payment.

- Card information verify (Token Verify Card)
- OTP verify (Token Verify OTP)
- Token Purchase

- Token Fast Purchase

2.2 Cross-border card switching services:

a. Cross-border card switching services at ATM/POS: allows customer to use the card of NAPAS Member Bank to perform transactions on the Member Banks ATM/POS equipment of the Switching Organization of other countries, and vice versa. Cross-border card switching services at ATM/POS include but not limited to the following transactions:

   - Balance Inquiry at ATM
   - Cash Withdrawal at ATM
   - Balance Inquiry at POS
   - Purchase at POS

b. Cross-Border Fund Transfer – CBFT: allows customers to use their bank cards in Switching Organizations of other countries can transfer money of account number/client card number of Member bank in NAPAS. CBFT service deploy to Member Bank based on the platform of the IBFT service, include two transactions:

   - Beneficiary cardholder / account information inquiry (CBFT Inquiry)
   - Beneficiary cardholder / account fund transfer (CBFT Deposit)

3 Terms and Acronyms

The following table describes the terminology and acronyms used on this document:

No.	Terms/Acronyms	Description
1	SW	Switching system (Switch) of NAPAS
2	ACQ	Acquier (Settlement Bank)
3	ISS	Issuer
4	BNB	Beneficiary Bank
5	PMI	Payment Intermediary
6	MO	Member organization (Include Member Bank and Payments Intermediate)
7	Bank MO	Bank Member Organization
8	ICA	International Card Association (include Visa, MasterCard, Amex, JCB, etc.)
9	ATM	Automated Teller Machine
10	POS	Point Of Sale/Service
11	ITFT	InTra-bank Fund Transfer (Transfer to internal bank)
12	IBFT	Inter-Bank Fund Transfer 24/7
13	CBFT	Cross-Border Fund Transfer
14	OTP	One Time Password
15	APN	Asian Payment Network
16	MEPS	Malaysia Electronic Payment System
17	KTFC	Korea Financial Telecommunications & Clearings Institute
18	NETS	Network For Electronic Transfer
19	ITMX	Interbank Transaction Management and Exchange
20	CUP	China Union Pay
21	NCC|UC	Union Card

4 Message format

Messages are processed in Switch system should comply with ISO 8583 – 1987 message structure.

NAPAS supports ASCII code for Host - to – Host interface.

4.1 Message structure

Each message consists of data fields which are arranged in the following sequence: header, message type identifier (MTI), 1 or 2 or 3 Bitmaps and a sequence of fields in the data elements table which are specified in the Bitmaps. The order of these data fields is shown in the diagram below.

Header	MTI	Bitmaps	Data Elements

4.1.1 Header information

Include 04 bytes of ASCII characters which is used to indicate the length of message, this length does not include the header.

Example:

If a message is 128 bytes in length, the segment “0128” will be attached to the header of message. So, the actual length of the sent data is 132 bytes.

4.1.2 Message Type Identifier - MTI

First field of each message consists of 04 numeric characters which uses to identify the message version number, message class, message function and finally the transaction originator. All messages start with MTI field.

- First position: Message Version Number

  0 – ISO 8583-1987

  1 – ISO 8583-1993

  2-7 – Reserved for ISO use.

  8 – Reserved for international organization use.

  9 – Reserved for bank’s private use.

- Second position: Message Class

1 – Authorization

2 – Financial

3 – File action

4 – Reversal / chargeback

5 – Reconciliation

6 – Administrative

7 – Fee collection

8 – Network management

9 – Reserved for ISO use

- Third Position: Message Function

0 – Request

1 – Request response

2 – Advice

3 – Advice response

4 – Notification

5÷9 – Reserved for ISO use

- Fourth Position: Transaction Originator

0 – Acquirer

1 – Acquirer repeat

2 – Card issuer

3 – Card issuer repeat

4 – Other

5 – Other repeat

6÷9 – Reserved for ISO use

Note: The corresponding values of 04 MTI positions in bold above are the values used to deploying the NAPAS card switching services.

4.1.2.1 Financial message – 02xx

This message class 02xx is used for financial transactions. NAPAS switching system uses following messages:

- 0200 Financial transaction request;

- 0210 Financial transaction request response;

The typical financial transactions such as cash withdrawal at ATM, balance inquiry at ATM/POS, purchase at POS, fund transfer, etc. ….

4.1.2.2 Reversal message – 04xx

The reversal message use to cancel a part or whole validation of a previous financial transaction (02xx). The reversal message class will be initialized by the card acceptor party or NAPAS.

NAPAS switching system uses following messages:

- 0420 Reversal request
- 0430 Reversal request response

A reversal message can also be generated by an Acquirer to inform NAPAS and Issuer about error status of a previous financial transaction. These error status of a financial transaction as following:

- An authorized transaction is cancelled at ATM/POS.
- Acquirer does not receive any response for a financial request.
- Acquirer cannot send an approval response to ATM/POS.

4.1.2.3 Network management message – 08xx

Network management messages are used to exchange keys related to security and safety control the connection status between the Member Organization and NAPAS. Network Management messages will be created when a change comes from Member Organization or NAPAS.

Network messages include as following:

- 0800 Network request.
- 0810 Network request response

Network management messages are used when Member Organization connects to the NAPAS system include:

- Sign-on
- Sign-off
- Echo-test

- Key exchange

Network management messages can be either generated by NAPAS's members or by NAPAS. NAPAS's members must be able to generate network management messages and respond to originated messages from NAPAS.

4.1.2.4 Message types supported by NAPAS system

Message Class: Financial Transaction	
Message Type	**Transaction Type**
0200	Financial Transaction Request.
0210	Financial Transaction Request Response.

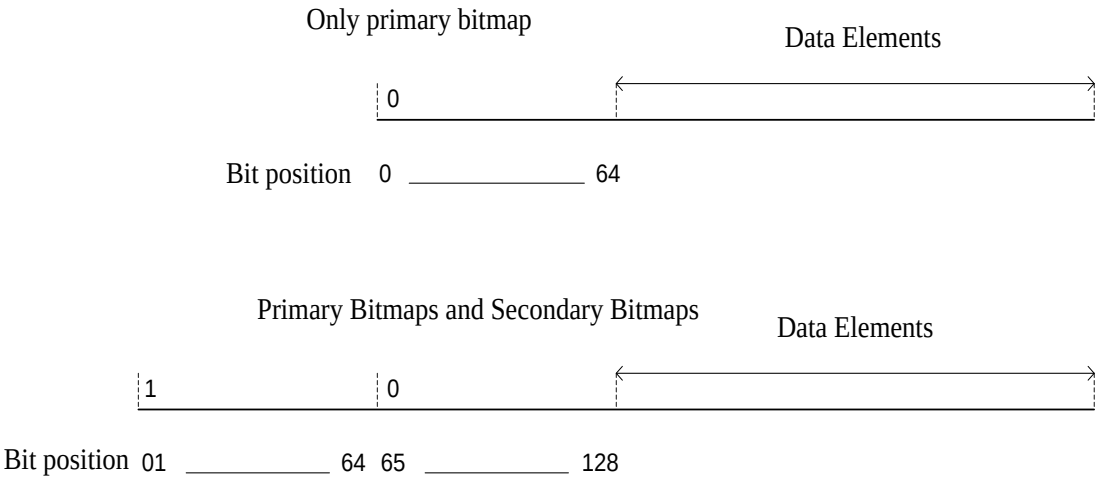
Message Class: Reversal	
Message Type	**Transaction Type**
0420	Reversal Request.
0430	Reversal Request Response.

Message Class: Network Management	
Message Type	**Transaction Type**
0800	Network Request.
0810	Network Request Response.

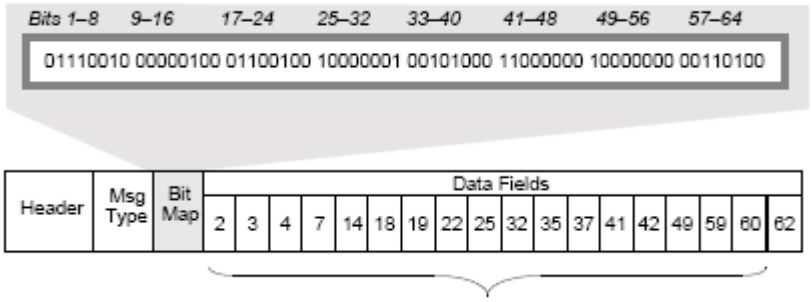
4.1.3 Bitmaps

The second element of a message is Bitmap. Bitmap is a series of 64 bits, denoted by [0,1]. In the series, "1" indicates the presence of respective data field and "0" indicates the absence of respective data field (data element). A message must contain the primary Bitmap (secondary or additional bitmaps can be extended). In order to reduce the message size for transmission, the 64 character series (binary) is usually converted to hexadecimal series of 16 characters. At the processing point, the system will convert 16 character messages to 64 characters [0,1] in order to read the next data elements of the message. After converting the hexadecimal series to Binary series, if the first Binary digit

has value “0”, it means Secondary Bitmap is absent while value “1” implies that it is present.



Example: The primary Bitmap



4.1.4 Data elements

The third component of message and its data content is made up of series of data elements.

Messages are constructed using Bitmaps to index the data elements (as mentioned above, if the bit corresponding with a data element is 1, this data element is present in the data elements of that message).

Almost all data elements have fixed length. The actual length of any given variable length data elements is provided in its fixed length prefix.

(Refer more detail at Section 6 - Data elements)

4.2 Message table

- Message Financial:

Service	Transaction Type	MTI	Processing Code (DE #3)	MCC (DE #18)	Service Code (DE #62)
Card switching service on ATM	Balance Inquiry	0200/0210	30xx00	6011	
	Cash Withdrawal	0200/0210	01xx00	6011	
	Mini-statement	0200/0210	35xxxx	6011	
	ITFT Inquiry	0200/0210	390010	6011	
	ITFT Deposit	0200/0210	40xxyy	6011	
	PIN Change	0200/0210	940000	6011	
Card switching service on POS	Balance Inquiry	0200/0210	30xx00	Other 6011 (follow MCC code table specified by NAPAS)	
	Purchase	0200/0210	00xx00	Other 6011 (follow MCC code table specified by NAPAS)	
	Void	0420/0430	00xx00	Other 6011 (follow MCC code table specified by NAPAS)	
	PIN Change	0200/0210	94xx00	Other 6011 (follow MCC code table specified by NAPAS)	
Inter-Bank Fund Transfer 24/7 (IBFT)	IBFT Inquiry	0200/0210	- 430000 - 430020 - 432000 - 432020	6011: transaction is initiated from ATM, cross-border fund transfer	- IF_INQ - TF_INQ
	CBFT Inquiry				- CF_INQ
	IBFT Deposit	0200/0210	- 910000 - 910020 - 912000 - 912020	6011: transaction is initiated from ATM, cross-	- IF_DEP - TF_DEP
	CBFT Deposit				- CF_DEP

				border fund transfer	
Online Switching Service (Ecom)	Verify Card	0200/0210	05xx00	7399	EC_CARDVER
	Verify OTP	0200/0210	05xx00	7399	EC_OTPVER
	Ecom Purchase	0200/0210	00xx00	7399	EC_PUR
	Ecom Fast Purchase	0200/0210	00xx00	7399	EC_FASTPUR
Payment code service	Payment Code Create	0200/0210	910000	Other 6011 (follow MCC code table specified by NAPAS)	PC_CRE
	Payment Code Verify	0200/0210	050000	6011	PC_VER
	Payment Code Cash Withdrawal	0200/0210	010000	6011	PC_CW
	Payment Code Inquiry	0200/0210	910000	Other 6011 (follow MCC code table specified by NAPAS)	PC_INQ
Tokenization service	Token Verify Card	0200/0210	05xx00	7399	TK_CARDVER
	Token Verify OTP	0200/0210	05xx00	7399	TK_OTPVER
	Token Purchase	0200/0210	00xx00	7399	TK_PUR
	Token Fast Purchase	0200/0210	00xx00	7399	TK_FASTPUR

- **Reversal message**: Like with the original financial messages respectively.

- **Network management message**:

Transaction type	MTI	Network Code (DE #70)
Sign on	0800/0810	001
Sign off	0800/0810	002

Key Exchange	0800/0810	161
Echo test	0800/0810	301

Inside, valid value of xx, yy:

- 00: Default Account - Default account.
- 10: Saving Account – Saving account.
- 20: Current Account - Checking Account.

5 Message matching

5.1 Request message and response message

The components of data using the define request message and response messages of the same transaction.

Transaction type	**DE #7: Transmission Date and Time**	**DE #11: System Trace Audit Number**	**DE #32: Acquiring Institution Identification Code**	**DE #37: Retrieval Reference Number**	**DE #41: Card Acceptor Terminal Identification**	**DE #63: Transaction Reference Number**
Request (0200)	System date and time when ACQ creates transactions	New trace values are assigned to the transaction	Identification code of ACQ	Reference number of ACQ creates for each transactions	Identification code of card acceptor terminal	Reference Number of NAPAS creates for each transactions
Response (0210)	Value from 0200	Value from 0200	Value from 0200	Value from 0200	Value from 0200	Value from 0200

Transaction type	**DE #7: Transmission Date and Time**	**DE #11: System Trace Audit Number**	**DE #32: Acquiring Institution Identification Code**	**DE #37: Retrieval Reference Number**	**DE #41: Card Acceptor Terminal Identification**	**DE #63: Transaction Reference Number**
Request (0420)	System date and time when ACQ	New trace values are assigned	Identification code of ACQ	Reference Number of ACQ creates for	Identification code of card	Reference number of NAPAS creates for

	creates transaction s	to the transaction		each transactions	acceptor terminal	each transaction s. If the ACQ do not have this information , NAPAs will add more information to this field (in 0430 message return to ACQ or in 0420 message send to ISS)
Respons e (0430)	Value from 0420	Value from 0420	Value from 0420	Value from 0420	Value from 0420	Value from 0420

***Note**: In case of not receiving DE #63 from a response message, the ISS can use the remaining 05 fields such as DE #07, DE #11, DE #32, DE #37, DE #41 to identify a unique pair of request message and its response message*.

5.2 Reversal message and original financial message

While processing 0420 reversal message, NAPAS uses following data elements to identify original financial message (0200/0210 message)

Transaction type	**DE #32: Acquiring Institution Identification Code**	**DE #37: Retrieval Reference Number**	**DE #41: Card Acceptor Terminal Identification**	**DE #63: Transaction Reference Number**	**DE #90: Original Data Elements**
Reversal transaction (0420)	Identification code of ACQ (Value from 0200)	Reference number ACQ creates for each previous 0200 financial transaction	Identification code of card acceptor terminal	Reference number that NAPAS creates in the 0200 message received. If the ACQ has no this field information, ACQ will not be sent this value in 0420 message (TRN will be removed from the original	The components (sub-fields) in this field are separated and must be accurate as 0200 message)

				transaction matching criteria).	
Original transaction (0200/0210)	Value from original transaction (0200/0210)	Value from original transaction (0200/0210)	Value from original transaction (0200/0210)	Value from original transaction (0200/0210)	

5.3 Network message (0800/0810)

When system processes network messages, searching the mapping request message from the response message include the following information:

Transaction type	DE #7: Transmission Date and Time	DE #11: System Trace Audit Number
Request (0800)	System date and time when ACQ creates network messages	New trace number are assigned to the transaction
Response (0810)	Value from 0800	Value from 0800

Note: applies to all network management transactions such as Echo-test, key exchange (PIN and MAC), sign-on and sign-off.

6 Data elements

Almost all data elements have fixed length. With data elements have variable length, these data element actual length is taken on its fixed prefix length.

6.1 List of data elements

The symbols used in the attributes of data elements are explained as follow table:

a : Alphabetic characters.
n : Numeric characters.
an : Alpha or numeric characters.
as : Alpha or special characters.
ns : Numeric or special characters.
ans : Special characters, alpha or numeric characters

MM : Month.
DD : Day.
YY : Year.
hh : Hour.
mm : Minute.
ss : Seconds.
LL,LLL : The allowed variable length of field. In case of LL, the length may be 0 to 99. In case of LLL, the length may be 0 to 999. Refer to Bitmap 2 (DE #2) for example of LL.
VAR : Variable length data field, to indicate the variable length field, in each message, there will be 2 or 3 leading characters added to each field (the 2 or 3 characters are LLVAR or LLLVAR) to define the number of characters.
..n: Length of this field is variable with n is the maximum.
z : Code at Tracks 2 & 3 as defined in ISO 7811 and ISO 7813.
b : Binary field.
cn: Compressed numeric code, namely BCD code

List of data elements are used in the messages of switching services:

No.	Data elements	Attribute	Length
1	Bit map, Primary	b-16	16
2	Bitmap, Secondary	b-16	16
3	DE #2: Primary Account Number (PAN)	an...19; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
4	DE #3: Processing Code	n-6	6

5	DE #4: Transaction Amount	n-12	12
6	DE #5: Settlement Amount	n-12	12
7	DE #6: Cardholder Billing Amount	n-12	12
8	DE #7: Transmission Date and Time	n-10; MMDDhhmmss	10 Data element value must contain valid date time : MM (Month) : value from 1 to 12 DD (Date) : value from 1 to 31 hh (Hour) : value from 0 to 23 mm (Minute) : value from 0 to 59 ss (Second) : value from 0 to 59
9	DE #9: Settlement Conversion Rate	n-8	8
10	DE #10: Cardholder Billing Conversion Rate	n-8	8
11	DE #11: System Trace Audit Number	n-6	6
12	DE #12: Local Transaction Time	n-6; hhmmss	6 Data element value must contain valid local time : hh (Hour) : value from 0 to 23 mm (Minute) : value from 0 to 59 ss (Second) : value from 0 to 59
13	DE #13 Local Transaction Date	n-4; MMDD	4 Data element value must contain valid month and day : MM (Month) : value from 1 to 12

			DD (Date) : value from 1 to 31
14	DE #14: Expiration Date	n-4; YYMM	4 Data element value must contain valid year and month : YY (Year) : value from 00 to 99 MM (Month) : value from 1 to 12
15	DE #15: Settlement Date	n-4; MMDD	4 Data element value must contain valid month and day : MM (Month) : value from 1 to 12 DD (Date) : value from 1 to 31
16	DE #18: Merchant Category Code	n-4	4
17	DE #19: Acquiring Institution Country Code	n-3	3
18	DE #22: Point-of-Service Entry Mode	n-3	3
19	DE #23: Card Sequence Number	n-3	3
20	DE #25: Point-of-Service Condition Code	n-2	2
21	DE #26: Point-of-Service PIN Capture Code	n-2	2
22	DE #32: Acquiring Institution Identification Code	n…11; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
23	DE #35: Track-2 Data	z...37; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.

24	DE #36: Track-3 Data	z...104; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
25	DE #37: Retrieval reference number	an-12	12
26	DE #38: Authorization identification response	ans-6	6
27	DE #39: Respone Code	an-2	2
28	DE #41 Card Acceptor Terminal Identification	ans-8	8
29	DE #42 Card Acceptor Identification Code	ans-15	15
30	DE #43 Card Acceptor Name/Location	ans-40	40
31	DE #45 Track-1 Data	ans…79; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
32	DE #48: Additional private data	ans...999; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
33	DE #49 Transaction Currency Code	n-3	3
34	DE #50: Settlement Currency Code	n-3	3
35	DE #51: Cardholder Billing Currency Code	n-3	3
36	DE #52 Personal Identification Number (PIN) Data	an-16	16
37	DE #54: Additional amount	an...120; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.

38	DE #55: Chip Data	b…255; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
39	DE #60: Self – defined Field	ans...060; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
40	DE #62 Service Code (NAPAS Service Code)	ans…10; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
41	DE #63 Transaction Reference Number	ans…016; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
42	DE #70: Network Management Information Code	n-3	3
43	DE #90: Original Data Elements	n-42	42
44	DE #100: Receiving Institution Identification Code	n...11; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
45	DE #102: From Account Identification	an...28; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
46	DE #103: To Account Identification	an...28; LLVAR	Variable length, two more leading characters are added in front of this field to define the length of the element.
47	DE #104 : Content Transfer	ans…210 ; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.

48	DE #105 : New PIN Block	ans...999; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
49	DE #120 : Beneficial Cardholder Or Account Holder Information	ans…70 ; LLLVAR	Variable length, three more leading characters are added in front of this field to define the length of the element.
50	DE #128 : Message Authentication Code	an-16	16

6.2 Data elements description

6.2.1 Primary Bitmap

Attribute: b-16

Length: 16 bytes

The primary bitmap is mandatory in all messages in order to identify the presence or absence of data fields. The bits are interpreted from the left to the right, bit of value “1” indicates the presence of the data element corresponding to that bit position; bit of value “0” indicates the absence of the corresponding data element.

The first position bit of this field indicates the presence or absence of the secondary bitmap. “0” indicates the absence and “1” indicates the presence of the secondary bitmap.

6.2.2 Secondary Bitmap

Attribute: b-16

Length: 16 bytes

This field demonstrates the data elements in the positions from 65 to 128. The description of this field is similar to the Primary Bitmap.

6.2.3 DE #2: Primary Account Number (PAN)

With card switching service at ATM/POS:

Attribute: an…19, LLVAR

Length: 2 bytes length value plus data.

This field demonstrates the PAN of cardholder. This field is used for all account numbers/card numbers up to 19 digits in length. The switching system require this field in the incoming 02xx, 04xx messages. PAN is also used for routing the transaction messages by the switching system.

For example, to demonstrate a PAN with the value of "***2727279000147221",*** the value of this field will be "***1627272790000147221***". The position "16" is to define that there are 16 digits following up

Payment code services include 02 following messages:

- Payment Code Verify
- Payment Code Cash Withdrawal

This field demonstrates Payment code. The length of Payment code is 9 number characters, include numbers from 0 to 9.

For example, to demonstrate a Payment code with the value of "***123456789",*** the field value will be "***09123456789***"

6.2.4 DE #3: Processing Code

Attribute: n-6

Length: 6 bytes

This field is required in all 02xx, 04xx messages. The processing code is used by switching service to define the requested transaction type. This field consists of three sub-elements as following:

- 2 digits of transaction type is processing code
- 2 digits is "from account"
- 2 digits is "to account"

Positions 1 & 2 (Transaction type):

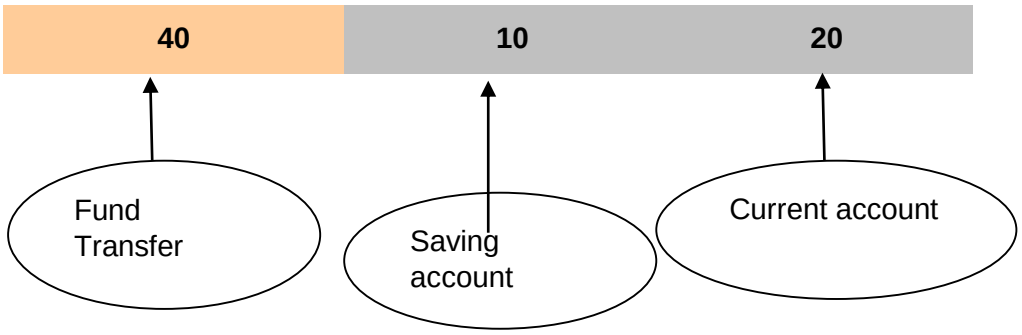
Value	Definition
Card switching service at ATM	
01	Cash Withdrawal
30	Balance Inquiry
35	Mini-statement
39	ITFT Inquiry (InTra-bank Fund Transfer)
40	ITFT Deposit (InTra-bank Fund Transfer)
94	PIN Change
Card switching service at POS	
30	Balance Inquiry
00	Purchase
00	Void
94	PIN Change
Online switching transaction (Ecom)	
05	Verify card/ Verify OTP
00	Ecom Purchase
	Ecom Fast Purchase
Inter-Bank Fund Transfer 24/7 (IBFT)	
43	IBFT Inquiry
91	IBFT Deposit
Payment code (PC)	
01	Payment Code Cash Withdrawal
05	Payment Code Verify
91	PC Create
	PC Inquiry
Tokenization (TOKEN)	
00	Token Purchase

Value	Definition
	Token Fast Purchase
05	Token Verify Card
	Token Verify OTP

Positions 3 & 4 (From Account Type) and positions 5 & 6 (To Account Type):

Value	Definition
00	Default Account
10	Savings Account
20	Current Account

Example: to indicate a funds transfer from a saving account to a current account, the value of this field is:



a. With Inter bank Funds Transfer 24/7 (IBFT):

Processing code (DE #03) includes three sub-elements:

- 2 digits of transaction type processing code
- 2 digits of 'From account' type. IBFT support to transfer from card number or account number. ISS must provide 'From account' type in this transaction.
- 2 digits of 'To account' type. IBFT support to transfer to card number or account number. ISS must provide 'To account' type in this transaction

Position 1-2: Transaction type	Position 3-4: 'From account' type	Position 5-6: 'To account' type

Value	Definition	Value	Definition	Value	Definition
43	IBFT Inquiry	00	Inquiry from card number	00	Inquiry to card number
		20	Inquiry from account number	20	Inquiry to account number
91	IBFT Deposit	00	Deposit from card number	00	Deposit to card number
		20	Deposit from account number	20	Deposit to account number

6.2.5 DE #4: Transaction Amount

Attribute: n-12

Length: 12 bytes

This field represents the transaction amount requested by the cardholder in the currency of the acquirer at the point of service. The transaction amount field always indicates the original transaction amount (the first initiated amount of the transaction).

The currency must be specified in DE #49 (Transaction Currency Code) and the switching system will refer to this currency as the currency of the acquirer or currency of the transaction at the point of service.

The amount in this field is filled up with “0” and right indented; the defined space for decimal number is applicable for this transaction amount field (NAPAS specifies two digits for decimal number).

For example, when we want to demonstrate an amount of “200,000 VND”, the value of transaction amount field will be 000020000**00** (it should be noted that there is space of two digits for decimal number). The value of currency code field is 704 to define that the currency is VND

6.2.6 DE #5: Settlement Amount

Attribute: n-12

Length: 12 bytes

Settlement amount shall be calculated by transaction amount (DE #4) * Settlement conversion rate (DE #9), exclusive service fee in this field.

The last two digits are for the decimal, right indented and filled up with “0” if necessary for the length of the field.

The related fields which shall be present in this message are DE #9 and DE50.

For example, to demonstrate an amount of 423.92 US$, the value of this field is “**000000042392**”.

This field is filled up by NAPAS in financial messages at its discretion.

With local transactions, this field value equal to DE #04 value

6.2.7 DE #6: Cardholder Billing Amount

Attribute: n-12

Length: 12 bytes

If a transaction is initiated at the card acceptor using a currency different from the currency of the cardholder, this field demonstrates the amount billed to the cardholder in the country currency of the cardholder account.

The Cardholder Billing Amount shall be specified by settlement amount (DE #5) * conversion rate (DE #10)

The Cardholder Billing Amount field is filled with “**0**” and right indented. It is noted that the two digits on the right is for decimal number as per default.

The related fields which shall be present in this message are DE #10 and DE51.

For example, to demonstrate an amount of US$ 423.92, the value of this field is “**000000042392**”

6.2.8 DE #7: Transmission Date and Time

Attribute: n-10, MMDDhhmmss

Length: 10 bytes

This field is required in all messages to present date and time of transmission under the GMT +0 format right after the transaction is sent in the electronic funds transfer network. Once this field is set up, it shall be remained unchanged until the transaction is completed.

For example, to demonstrate May 6 at 2 hour 30 minute and 37 second PM, this field will be “**0506143037**”

6.2.9 DE #9: Settlement Conversion Rate

Attribute: n-8

Length: 8 bytes

This field is used for conversion from transaction amount to settlement amount. The value of this field is right indented with no decimal position. The decimal position is from the left, the digit from 2 to 8 position defines the conversion rate. For example, the value of this field of 71212345 will demonstrate the conversion rate of 0.1212345.

This field will be filled up by NAPAS.

The related field which shall be present in the message are DE #04, DE #05 and DE #50.

6.2.10 DE #10: Cardholder Billing Conversion Rate

Attribute: n-8

Length: 8 bytes

In the location where the transaction is initiated, the currency at the acquirer card acceptor is different from the currency of cardholder, this field demonstrates the conversion rate use to convert the settlement amount to the currency of the cardholder account. The result of the conversion is presented in DE #06 **(Cardholder Billing Amount).**

The format of this field is "**xnnnnnn**", where x is digit from "0" to "7" to define the number of positions that the decimal separator is moved from the right.

For example, to demonstrate the conversion rate of 7.123890, the value of this field is "67123890".

6.2.11 DE #11: System Trace Audit Number

Attribute: n-6

Length: 6 bytes

This field is required in all messages. This is the unique number within a day for a set of acquirer/terminal, originate from the acquirer. It should be highlighted that this number is not enough to define the uniqueness of a transaction. This is because the Switch can

accept messages from multiple networks, therefore, some transactions can have the same system trace audit number. This field remains unchanged throughout the life cycle of the transaction (until the transaction is completed).

This field is right indented and filled with “0”.

6.2.12 DE #12: Local Transaction Time

Attribute: n-6, hhmmss

Length: 6 bytes

This field denotes the local time at card acceptor location when the transaction takes place. This field is required in all financial transaction messages (02xx).

For example, to denote 5:14:53 PM, the value of the local transaction time field is “**171453**”.

6.2.13 DE #13: Local Transaction Date

Attribute: n-4, MMDD

Length: 4 bytes

This field specifies the local transaction date at the card acceptor location when the transaction takes place. This field is required in all financial transaction messages (02xx).

For example, the value of the local transaction date field is “**0318**”to demonstrate March 18.

6.2.14 DE #14: Expiration Date

Attribute: n-4, YYMM

Length: 4 bytes

This field is used to define the expiration date of the card. This field is required if the card acceptor cannot capture the data on Track 1 or Track 2 as well as in case of voice authorization. If card acceptor can capture data on Track 1 or Track 2, this field is optional.

This field specifies the date after which the card will expire.

For example, if the card expires in July 2004, the field is “**0407**”.

6.2.15 DE #15: Settlement Date

Attribute: n-4, MMDD

Length: 4 bytes

NAPAS switching system processes transaction at all days (24x7) includes vactions and holidays.

NAPAS system determines the value of settlement date and fill in settlement date (DE #15) when process all of transactions which received and sent. Any value of settlement date filled by member institutions will be replace by the settlement date which NAPAS defined.

For example, if the settlement date is April 12, the value of the settlement date field is "**0412**".

6.2.16 DE #18: Merchant Category Code (MCC)

Attribute: n-4

Length: 4 bytes

This field indicates a card acceptor type that is initiated a request message. NAPAS uses this value to define the validity of the required transaction. Merchant Category Code (MCC) provides the value to each applied transaction acceptance device.

Value	Definition
6011	Transaction at ATM
Others (refer to section 5 – regulation of MCC for POS transactions in document Part VI Annex)	Transaction at POS

Refer to section 5 – "Techspec NAPAS-Part V-Annex" document

6.2.17 DE #19: Acquiring Institution Country Code

Attribute: n-3

Length: 3 bytes

This field contains an ACQ country code. This is a financial institution in charge of managing merchants or ATMs.

The value of this field must comply with the ISO 3166 on country code.

6.2.18 DE #22: Point-Of-Service Entry Mode

Attribute: n-3

Length: 3 bytes

This field indicates the method used to capture the PAN into the terminal device and the PIN entry capability of that device. It is divided into 02 sub-fields for the following purposes:

Positions 1 & 2

Value	Description
00	PAN Entry mode unknown
01	PAN was manually entered
02	PAN was entered using stripe reader
03	PAN was entered using bar code reader
04	PAN was entered using optical character reader (OCR)
05	PAN was entered using integrated circuit card (IC)
07	PAN was entered using the contactless chip
08	Chip card at chip-capable terminal was unable to process transaction using data on the chip; therefore, the terminal fallback to the magnetic stripe-read PAN
81	PAN was entered using electronic commerce, including chip
91	PAN was entered using contactless magnetic stripe

Position 3:

Value	Description
0	PIN capability unknown
1	Terminal has PIN capability

2	Terminal does not have PIN capability
3	Terminal has contactless chip capability
4	Terminal has Contactless Magnetic Stripe capability
8	Terminal has PIN capability but PIN pad inoperative
9	PIN has already been verified by terminal

The 3nd position indicates the capability of the terminal to allow the cardholder to enter the PIN or not. This field will have value of "**021**" for all ATM transactions.

For example, the value of this field will be:

- "012" for voice authorization.
- "051" for online PIN verification transaction of CHIP card.
- "052" for PIN BY PASS transaction of CHIP card.
- "071" for online PIN verification transaction of contactless M/Chip card.
- "072" for PIN BY PASS transaction of contactless M/Chip card

6.2.19 DE #23: Card Sequence Number

Attribute: n-3

Length: 3 bytes

This field contains card sequence number of Chip card (000 – 999) used to identify each other card with same PAN. This field appears in the domestic CHIP card and UPI Chip card messages.

With magstripe card transaction, this field does not appear.

With CHIP card transaction, this field must contains CHIP card sequence number (DE #55, tag 5F34) was personalized on CHIP card, if appears.

DE #55, tag 5F34 describes CHIP card sequence number data with 02 numeric length. So that to convert 02 numeric length to 03 numeric length by adding "0" and right intended.

For example: if a card sequence number field data on DE #55, tag 5F34 on chip card equal to "01", this field value is "001".

If a card sequence number is not present on CHIP card (personalizing with no value), this field value is "000".

6.2.20 DE #25: Point-of-Service Condition Code

Attribute: n-2

Length: 2 bytes

This field is used to define the condition under which the transaction takes place. The switching system uses this field to confirm the validity of the required transaction. The field values are defined as following:

Value	Definition	Description
00	Normal transaction	Normal transaction means that there is the presence of both cardholder and card. This value is usually used at ATM.
01	Customer not present	Cardholder is not present at the point of sale/point of service
03	Merchant suspicious of transaction	Merchant suspects a fraud transaction
05	Customer present but card not present	Customer presents at the point of sale/point of service but not having card
08	Mail/telephone order	Transaction is requested from mail/telephone.
10	Customer identify verified	Customer identify is verified
51	Verification request	A request transaction is validated

On all ATM transactions, this field must contain a value “00”.

6.2.21 DE #32: Acquiring Institution Identification Code

Attribute: n..11, LLVAR

Length: 2 bytes length plus data.

This field is required in all messages, which indicates the Acquirer’s ID number and it is used by the switching system to determine the transaction routing. This field value are specified as follows:

Switch has a list which is combined in BIN table to fill in this field for routing;

Acquirer’s switch provides itself the value of this field. In this case, acquirer’s switch get information from terminal profile to generate the value.

This field contains 2 bytes in length with “0” filled and right indented. The length of this field is variable and may contain up to 11 digits.

To demonstrate an ID number of 9704xx, the value of this field will be “**069704xx**”.

6.2.22 DE #35: Track-2 Data

Attribute: z,..37, LLVAR

Length: 2 bytes length plus data

For magstripe transaction, this field contains Track 2 data, which is captured by the terminal. Start sentinel, end sentinel and check sentinel are omitted from Track 2 data. Track 2 must comply with ISO 7813.

For chip transaction, this field contains Track-2 data equivalent to DE #55, tag 57 read from chip, include field separators (‘D’) and not include padding character (‘F’) in case of appearing on chip.

This field must contains the digits “0” through “9” and character “D”

The first number of Service code must have value “2” or “6” to identify as chip.

CVV (Card Verification Value) value on chip maybe different from magstripe. This describe the using a fraud chip transaction on fraud magstripe transactions.

For fallback transaction, this field contains actual Track-2 value from magstripe.

6.2.23 DE #36: Track-3 Data

Attribute: z,..104, LLLVAR

Length: 3 bytes length plus data.

This field contains Track-3 data, which is captured by the terminal. Start sentinel, end sentinel and check sentinel are omitted from Track-3 data. Track-3 must comply with ISO 4909-1986.

6.2.24 DE #37: Retrieval reference number

Attribute: n-12

Length: 12 bytes.

The Retrieval Reference Number (DE 37) is a reference number supplied by the acquirer. This field value is generated by the DE #07 field value and DE #11 field value with the format “YDDDHHNNNNNN”, in which:

- Position 1-4 (YDDD): Y is the last number of the year (base on real time processed transaction), the value of month and day are retrieved from DE #07 in which the “MMDD” format of DE #07 transformed to the “DDD” format.
- Position 5-6 (HH): corresponds to the value of hour in field DE #07.
- Position 7-12 (NNNNNN): corresponds to the value of field DE #11.

This data element is reserved for use by the acquiring institution (or an affiliated merchant organization) for the purpose of recording a document retrieval reference number. This field will be constant maintained throughout the transaction cycle. This field takes the value of the original transaction to fill into reverse transactions.

Acquirers will offer a new value for each transaction such as withdrawals, deposits and purchase completion. The card issuer should keep this value in each message and will return the same value in the response message and the canceled or related to the reversal transaction. The retrieval reference number should be printed on a customer’s ATM or POS receipt.

This data element is left-justified and blank-filled.

6.2.25 DE #38: Authorization Identification Response

Attribute: ans-6

Length: 6 bytes.

The Authorization Identification Response (DE 38) is assigned by the authorizing institution (issuer).

If an authorization identification response of issuer is less than 06 characters, this data element should be left-justified and blank-filled. It shouldn’t have any space characters on this field.

For reversal, cancellation transactions: if the original transaction contains DE #38, this value should be filled in DE #38 of reversal / cancellation transactions.

6.2.26 DE #39: Response Code

Attribute: an-2

Length: 2 bytes.

This field is present in all response messages to define whether the transaction is approved or rejected. There is a collection of response code values corresponding to each specific circumstance in transaction processing.

Refer to Section 4 – "Techspec NAPAS-Part V-Annex" Document.

6.2.27 DE #41: Card Acceptor Terminal Identification

Attribute: ans-8

Length: 8 bytes.

This field is used to identify a card acceptor of the acquirer, for whom this terminal must be unique.

This field contains 08 characters:

- 04 first characters to identify the code of the branch
- 04 last characters to identify the code of the card acceptor.

6.2.28 DE #42: Card Acceptor Identification Code

Attribute: ans-15

Length: 15 bytes.

This field is used as a "merchant ID" to identify a unique merchant in POS transactions.

For Ecom service, this field contains a "merchant ID".

For IBFT service, this field contains an identification code of Payment Intermediaries.

6.2.29 DE #43: Card Acceptor Name/Location

Attribute: ans-40

Length: 40 bytes

Card Acceptor Name/Location field contains information about the bank name, the card accepted terminal location. All of the required messages in financial transactions must contain this data.

The structure of this field is as following:

Position	Length	Description
1-22	22 bytes	Bank name
23	1 byte	Space
24-36	13 bytes	Identify the terminal location
37	1 byte	Space
38-40	3 bytes	Country Code, support 02 types : 03 characters: For example: Country code of Vietnam is VNM 03 digits: For example: country code of Vietnam is 704 Noted: For transactions involving foreign organization, Country code of card acceptor location according to ISO 3166

6.2.30 DE #45: Track-1 Data

Attribute: ans…79, LLVAR

Length: 2 bytes length plus data.

This field contains Track-1 data, which is captured by the terminal. Start sentinel, end sentinel and check sentinel are omitted from Track-1 data. Track-1 should comply with ISO 7813.

Acquirer should send the Track-1 data information to prevent card fraudulent risks.

6.2.31 DE #48: Additional Private Data

Attribute: ans...999, LLLVAR

Length: 3 bytes length plus data.

Field DE #48 is used in following cases:

1. **For Intra-bank Fund Transfer transaction – ITFT**

DE#48 field structure contains sub-elements and these sub-elements are separated by Carriage Return – CR (13rd character on ASCII table code), as following:

No.	Sub-element	Value	Format
1	Fund Transfer method	ACC: Fund transfer to account number PAN: Fund transfer to card number	a3
2	Separator character	'|' character	Mandatory
3	Beneficiary bank code	Beneficiary bank code filled by Acquirer	n…11
4	Separator character	'|' character	Mandatory
5	Beneficiary bank name	Acquirer does not fill this value. Beneficiary bank/ Issuer fills bank name	an…50
6	Separator character	'|' character	Mandatory
7	Beneficiary name	Acquirer does not fill this value. Beneficiary bank/ Issuer fills beneficiary account name	an…30

For example:

- DE #48 value is sent by ACQ:

  ACC ch(13) 970468 ch(13) ch(13)

- DE #48 value is sent by Issuer/Beneficiary Bank:

  ACC **ch(13)** 970468 **ch(13)** NGAN HANG ABC **ch(13)** NGUYEN VAN A

2. For Key Exchange transaction

Key exchange has 02 cases:

a) Single length key (Key Value: 16H)

Pos 1-6, key type:

ZPK16H – Zone PIN Key

MAK16H – Message Authentication Key

Pos 7-22, Key Value

b) Double length key (Key Value: 32H)

Pos 1-6, key type:

ZPK32H – Zone PIN Key

MAK32H – Message Authentication Key

Pos 7-38, Key Value

3. For Mini Statement transaction

For mini statement, this field must support up to 11 blocks (includes the last block) to store statement information of 10 most recent transactions.

- Each block structure of the first 10 blocks as following:

Position	Length	Description	Format
1-6	6 bytes	Date	YYMMDD
7	1 byte	Space	
8-10	3 bytes	Description	3 characters : describe about type of transaction, Bank or third party can fill with the meaning characters, such as CWD with cash withdrawal, BAL with balance inquiry and so on.
11	1 byte	Sign mark with Debit or Credit	[C or D] : equal C if Credit, D if Debit
12	1 byte	Space	

13-24	12 bytes	Amount	Transaction amount, 02 decimal numbers Right-justified and zero-filled
25	1 byte	Space	
26-37	12 bytes	Balance	Contains remain account balance after each transaction, 2 decimal numbers : - If Balance amount length is less than 12 characters, this field has 2 decimal numbers, right-justified, zero-filled - If Balance amount length is greater than 12 characters (Balance value > 9.999.999.999,99) will be replaced by E00000000000 to inform cardholder regarding overflow number (balance amount is greater than or equals to 10 billions)
38	1 byte	Carriage Return	Fill with “chr(13)” character.

- Last block structure as following:

Position	Length	Description	Format
1-20	20 bytes	Space	
21-36	16 bytes	Amount	Available balance with 02 decimal numbers, right-justified and zero-filled.
37	1 byte	Carriage Return	Fill by “;” character.

4. For Online switching and Tokenization transaction

a. For Verify Card/Token Verify Card transaction and Token Fast Purchase transaction:

Field DE #48 includes 3 sub-fields:

No.	Sub element	Value	Format
1	OTP Transfer method	Maximum 255 characters If NAPAS is on behalf of ISS creates and authenticates OTP, this sub-element has format: 0:<customer's phone number> If NAPAS uses Matrix Card, this sub-element has format: 1:<coordinate 1>,<coordinate 2>,…	ans…255
2	Separate field	'|' character	Mandatory
3	Cardholder information	Maximum 200 characters Sub-element includes the data elements and separator is a comma (,) In the case of authentication card information, this sub-element has the following format: <Cardholder name>,<issue/expired date of card>,<transaction id >,<Additional information> For example: LE BICH NGOC,1205,161000075,VIETNAMAIRLINES	ans…200

4	Separate field	'|' character	Mandatory
5	General transaction information	Maximum 300 characters Contains support information of transaction description	ans…300

b. For Verify OTP/Token Verify OTP transaction:

Field DE #48 includes 2 sub-fields:

No.	Sub-element	Value	Format
1	OTP authentication supporting information	Maximum 200 characters Sub-element includes the data elements and separator is a comma (,) In the case of OTP, PIN, CVV2 authentication (co-branded cards), this sub-element has the following format: <OTP/PIN/CVV2>,<Cardholder name><card issue/expired date>,<transaction id>,<Additional information> For example: 1453563,LE BICH NGOC,1205,161000075,VIETNAMAIRLINES	ans…200
2	Separator character	'|' character	Mandatory
3	General transaction demonstration information	Maximum 300 characters Contains support information of transaction description	ans…300

c. For Purchase Ecom/Token Purchase transactions

Field DE #48 contains support information of transaction description. The DE #48 length is maximum to 300 characters.

5. For IBFT transaction

a) For IBFT Inquiry transaction (cardholder /account information):

DE #48 contains 02 sub-elements and data elements are separated by Carriage Return – CR (13th character on ASCII code table), as following:

No.	Sub-elements	Value	Format
1	Sender name	Contains information about sender name	ans…100
2	Separator character	'|' character	Mandatory
3	Sender address	Contains information about sender address	ans…200

a) For IBFT Deposit transaction:

DE #48 contains 02 sub-elements and data elements are separated by Carriage Return – CR (13th character on ASCII code table), as following:

No.	Sub-elements	Value	Format
1	Sender name	Contains information about sender name	ans…100
2	Separator character	'|' character	Mandatory
3	Sender address	Contains information about sender address	ans…200

6. For Payment code transaction

On Payment code create transaction (PC Create) and Payment code inquiry transaction (PC Inquiry), DE #48 contains Payment code information. The Payment code length is 9 numbers (from 0 to 9).

For example, Payment code has format: **123456789**

On Payment code cash withdraw transaction (PC Cash Withdrawal), DE #48 contains OTP information. The OTP length is 6 numbers (from 0 to 9)

For example, OTP has format: **123456**

6.2.32 DE #49: Transaction Currency Code

Attribute: n-3

Length: 3 bytes

This field contains 3 digits, presenting in financial transactions, used to identify the currency code for DE #04 (transaction amount).

For example: Currency code of Vietnam is 704.

Refer to ISO 4217 for more information about currency code of each country.

6.2.33 DE #50: Settlement Currency code

Attribute: n-3

Length: 3 bytes

This field contain fixed length with 03 numeric digits, use to identify the currency in field DE #05 (Settlement Amount).

Refer to ISO 4217 for more information about currency code of each country.

6.2.34 DE #51: Cardholder Billing Currency code

Attribute: n-3

Length: 3 bytes

This field contains fixed length with 03 numeric digits, uses to represent the currency in a cardholder billing. Refer to ISO 4217 for more information about currency code of each country.

This field used to specify the currency code in field DE# 06 (Cardholder Billing).

If field DE #06 presents, the field must also present in the message.

6.2.35 DE #52: Personal Identification Number (PIN) Data

Attribute: an-16

Length: 16 bytes

Personal Identification Number is entered by the cardholder at the terminal. PIN is left indented, padded with "F" digit to generate the PIN block and encrypted by Communication Encryption Key.

(Refer to section 4.2 "PIN encryption and key management" in Part IV – "Security & Communication" for more details)

6.2.36 DE #54: Additional Amount

Attribute: ans...120, LLLVAR

Length: 3 bytes length plus data

The system supports 02 balances in maximum. Each balance is presented in a 20 bytes length field. The format of this field is as follows:

Sub-element	Position	Format	Value
1	1-2	n-2	Account Type 0 – Savings; 20 – Current; 00 – Default;
2	3-4	n-2	Amount Type 01 – Ledger Balance 02 – Available Balance
3	5-7	n-3	Currency Code
4	8	X	C – Credit D – Debit
5	9-20	n-12	Amount (with 2 decimal positions). If the Balance sub-field length is less than 12 characters, leading zero(s)

Sub-element	Position	Format	Value
			will be added to fill up the required number of digits. ***If the Amount length is more than 12 digits (balance amount is more than 9,999,999,999.99), the sub-field value shall be replaced by E00000000000 to inform the cardholder of the digit overflow (the balance amount is equal or more than 10 billion VND).***

Note: Napas system support 02 types of balance, the first block (20 bytes) of DE #54 contains the available balance and the second block contains the ledger balance of the account. If member banks provide only one balance field, the remaining field will be the same amount of that such field.

If the transaction is unsuccessful, "0" will be filled in F54 (40 times of "0"):

"00000000000000000000000000000000000000000".

6.2.37 DE #55: Chip Data (Relate to ICC)

Attribute: b…255, LLLVAR

Length: 3 bytes length plus data

This field does not present in the magstripe transaction.

This field presents in CHIP transaction.

1. **For domestic CHIP transaction**

The following table describes mandatory fields that presents in a request message:

Tag	Length (HEX)	Value	Source	Description
9F02	06	Amount, Authorized	Terminal	Authorised amount of the transaction

9F03	06	Amount, Other	Terminal	Amount associated with the transaction representing a cashback amount
9F1A	02	Terminal Country Code	Terminal	Indicates the country of the terminal
95	05	Terminal Verification Results	Terminal	Status of the different functions performed by the terminal
5F2A	02	Transaction Currency Code	Terminal	Indicates the currency code of the transaction
9A	03	Transaction Date	Terminal	Local date that the transaction was authorised
9C	01	Transaction Type	Terminal	Indicates the type of financial transaction
9F37	04	Unpredictable Number	Terminal	Value to provide variability and uniqueness to the generation of an Application Cryptogram
9F34	03	CVM Result	Terminal	Indicates the results of the last CVM performed

9F27	01	Cryptogram Information Data	Card	Indicates the type of cryptogram and the actions to be performed by the terminal
9F36	02	Application Transaction Counter	Card	Counter maintained by the application in the ICC and incremented by one for every transaction
9F26	08	Application Cryptogram	Card	Cryptogram returned by the ICC in response of the GENERATE AC command
9F10	20	Issuer Application Data	Card	Contains proprietary application data for transmission to the issuer in an online transaction
82	02	Application Interchange Profile	Card	Indicates the capabilities of the card to support specific functions in the application
84	07	Application Identifier	Card	Identifies the application in the ICC

Sample data in a request message:

1249F02060000000042349F03060000000000009F1A020704950580000480005F2A020704 9A031501129C01009F37040F010E039F34030203009F27018009F360200049F260813005F151F946DAA9F10200FA501A000F80000000000000000000000F0001020304050607080 90A0B0C0D0F8202180084 07F0000007040001

The following table describes mandatory fields that presents in a response message

Tag	Length (DEC)	Value	Source	Presence	Description
91	16	Issuer Authentication Data	Issuer Host	Optional	Data sent to the ICC for online issuer authentication
72	.. 128	Issuer Script Template 2	Issuer Host	Optional	Contains a command for transmission to the ICC

Sample data in a response message

01891109EE413B1038200000000000000000000

2. For UPI CHIP transaction

a) For Balance Inquiry, Purchase, Cash Withdrawal transaction

DE #55 field structure as following table:

Tag name	Position	Attribute	ACQ	SW	ISS	SW	Note
app_crypto	9F26	b64	M	→			
crypto_info_data	9F27	b8	M	→			
issr_app_data	9F10	b…256 (VAR)	M	→			
unpredic_num	9F37	b32	M	→			
app_trans_count	9F36	b16	M	→	O	→	
termnl_veri_resl	95	b40	M	→			
trans_date	9A	cn3	M	→			

trans_type	9C	cn1	M	→			
trans_amt	9F02	cn6	M	→			
trans currcy code	5F2A	cn2	M	→			
app_interch_profl	82	b16	M	→			
termnl_cntry_code	9F1A	cn2	M	→			
amt_other	9F03	cn6	M	→			
termnl_capbs	9F33	b24	M	→			
card_ver_resl	9F34	b24	O	→			
termnl_type	9F35	cn1	O	→			
ifd_serial_num	9F1E	an8	C	→			This field only appears when 9F1E tag (Interface equipment sequence number) cannot be automatically identified by the terminal.
DF_name	84	b…128 (VAR)	O	→			
trem_app_ver_num	9F09	b16	O	→			
trans_seq_count	9F41	cn…4 (VAR)	O	→			
iss_auth_data	91	b…128 (VAR)			O	→	
issr_scrpt1	71	b…1024 (VAR)			O	→	
issr_scrpt2	72	b…1024 (VAR)			O	→	
card_pro_id	9F63	b128	C	→			This field appears when the device read the 9F63 tag (ID Card Production) from the chip card.

b) For Reversal transaction (0420/0430):

DE #55 field structure as following table:

Tag name	Location	Attribute	ACQ	SW	Notes
Termnl_veri_resl	95	b40	C		This field appears if transaction initiated from terminal, transactions is authorized by Issuer but rejected by card.
Ifd_serial_num	9F1E	an8	C		This field appears when 9F1E tag (Interface equipment sequence number) cannot automatically identified by the terminal.
Issr_app_data	9F10	b..256(VAR)	C		This field appears if transactions initiated by terminal, transactions is authorized by Issuer but rejected by card
App_trans_count	9F36	b16	C16	O	This field appear in reversal transaction which is sent by terminal when original transaction is authorized by Issuer but reject by card.

Issr_scrpt_resl	DF31	b..168(VAR)	C17		This field appears when response of original transaction contain Issuer script.

6.2.38 DE #60: Self-Defined Field

Attribute: ans…060 (LLLVAR)

Length: 3 bytes length plus data

DE #60 field is used in following cases:

1. **For UPI Chip transaction**

This field is Self-defined field which reserved for UPI CHIP card transaction. The structure of DE #60 consist of two components as following:

	Component 1	**Component 2**
Component name	Terminal information	Information of sending transaction institution.
Length	12 bytes	15 bytes

Describe the data element of DE #60:

❖ **Component 1:** Terminal information

- **Byte 1**: Capability to read chip card of the terminal
  - 0: N/A
  - 2: able to read magnetic stripe card only
  - 5: able to read both chip and magnetic stripe cards
  - 6: able to read contactless, chip and magnetic stripe cards
- **Byte 2:** Chip card transaction status
  - 0: N/A
  - 1: the latest transaction on the terminal is successful.

- 2: the latest transaction is unsuccessful chip card transaction.

- **Byte 3 - 4:** Transaction channel
  - 00: N/A
  - 03: POS
  - 01: ATM
  - 08: Mobiphone
- **Next 8 bytes:** the rest is filled with “0” for later purpose

❖ **Component 2: Information of transaction sending institution**

- **Byte 1,2,3:** transaction amount decimal information
  - a00: 0 minor Units
  - 000: Default. Currently, the banks will use this value, mean transaction amount has 2 decimal number.
- **Byte 4**: Transaction initiation method
  - 0: N/A
  - 1: Card present
  - 3: MOTO transaction
- **Next 11 bytes:** reserved for future use. Full filled with “0”.

2. **For Inter-Bank Fund Transfer 24/7 (IBFT), Online Switching (Ecom), Payment Code and Tokenization transaction**

DE #60 is data field defined transaction channel for Inter-Bank Fund Transfer 24/7 (IBFT), Ecom, Payment Code and Tokenization transaction

DE #60 has length 02 byte of data, contain one these following values:

- 00: N/A
- 01: ATM
- 02: Counter
- 03: POS
- 04: Internet Banking
- 05: Mobile Application
- 06: SMS Banking
- 07: other channel

6.2.39 DE #62: Service Code (of NAPAS)

Attribute: ans...10, LLVAR

This field contains NAPAS Service Code, provides for Issuer to define required transaction types. This field has 10 characters maximum.

Service	Transaction type	Service code	Note
Online switching services (Ecom)	Verify Card	EC_CARDVER	
	Verify OTP	EC_OTPVER	
	Ecom Purchase	EC_PUR	
	Ecom Fast Purchase	EC_FASTPUR	
Inter-Bank Fund Transfer Service 24/7 (IBFT)	Query beneficiary card holder information / beneficiary account	IF_INQ	Domestic fund transfer
	Transfer to beneficiary card holder / beneficiary account	IF_DEP	
	Query beneficiary card holder information / beneficiary account	TF_INQ	Fund transfer from Payment Intermediaries to Bank
	Transfer to beneficiary card holder / beneficiary account	TF_DEP	
	Query beneficiary card holder information/ beneficiary account	CF_INQ	Cross-border fund transfer
	Transfer to beneficiary card holder / beneficiary account	CF_DEP	
Payment code service	PC Create	PC_CRE	
	PC Verify	PC_VER	
	PC Cash Withdrawal	PC_CW	
	Query Payment code	PC_INQ	
Tokenization service	Token Verify Card	TK_CARDVER	
	Token Verify OTP	TK_OTPVER	

	Token Purchase	TK_PUR	
	Token Fast Purchase	TK_FASTPUR	

6.2.40 DE #63: Transaction reference number

Attribute: ans…016, LLLVAR

Length: 16 bytes

DE #63 has 16 characters length, contains Transaction reference number (TRN) which is generated by NAPAS for transactions being processed through system

Napas System ensures Transaction reference number which is unique and not change over the transaction life cycle. When Acquirer generates reversal transaction, TRN must be filled by TRN which received in response message of original transaction.

6.2.41 DE #70: Network Management Information Code

Attribute: n-3

Length: 3 bytes

This field is required in network management messages (08xx). This field indicates a type of the network management request message which is being processed. The table of values and attributes is as following:

The value of the data field:

Network Code	Description
001	Sign-on message
002	Sign-off message
301	Echo-test message
161	Key exchange message

6.2.42 DE #90: Original Data Elements

Attribute: n-42

Length: 42 bytes.

DE #90 is data element of the original message included in reversal or adjustment messages, uses to refer to the original transaction affected by the new transaction.

The mentioned below messages consist of DE #90:

- Acquirer reversal advices/0420
- Switch reversal advices/0420
- Inquiry Payment code/0200

The data element is created by 05 fixed length subfields. Each subfield contains numeric digits, right indented and filled up with leading zeroes.

The attribute of this field is described below:

Sub-element	Position	Format	Value
1	1-4	n-4	Original message type identification (MTI)
2	5-10	n-6	Original trace number (DE #11)
3	11-20	n-10	Original transmission date and time (DE #07) Format MMDDHHMMSS
4	21-31	n-11	Original acquiring institution identification code (DE #32)
5	32-42	n-11	Original forwarding institution code (DE #33) Full filled by '0'

6.2.43 DE #100: Receiving Institution Identification Code

Attribute: n...11, LLVAR

Length: 2 bytes length plus data.

This field contains Receiving Institution Identification Code. With messages containing this field, Receiving Institution is identified by DE# 100

NAPAS uses this field for identifying Beneficiary Bank in Inter-bank Fund Transfer transaction.

6.2.44 DE #102: From Account Identification

Attribute: an...28, LLVAR

Length: 2 bytes length plus data.

This field is a series of digits uses to identify the cardholder account or the relationship with that account. It is used to nominate the “From Account” in a transaction.

The issuer can use DE #102 in financial response (0210) or in the response for a financial transaction (0210) to identify the account type of “From Account” of a specific cardholder in a transaction. The acquirer can use DE #102 as information to print out on the cardholder receipt.

“From Account” is the account defined by the positions 3 and 4 of the Processing code (DE #3).

6.2.45 DE #103: To Account Identification

Attribute: an…28, LLVAR

Length: 2 bytes length plus data.

DE #103 is a series of digits (may be contain numeric, alpha character) used to identify the beneficiary account information in Inter-bank Fund Transfer transaction.

6.2.46 DE #104: Content Transfer

Attribute: ans … 210, LLLVAR

Length: 03 bytes length plus data.

DE #103 contains fund transfer transaction content.

6.2.47 DE #105: New PIN Block

Attribute: ans…999, LLLVAR

Length: 3 bytes length plus data.

This field is used in PIN change transaction and contains new PIN Block. New PIN Block is encrypted with ZPK and similar with original PIN Block on Bitmap 52.

6.2.48 DE #120: Beneficial Card holder or Account holder Information

Attribute: ans…70, LLLVAR

Length: 03 bytes length plus data.

DE #120 contains beneficial card holder or account holder information.

6.2.49 DE #128 : Message Authentication Code

Attribute: an-16

Length: 16 bytes.

This field is used to check the data integrity and the origin of the message between the sender and the receiver.

(Refer to section 4.3 “Calculate MAC value for message” in Part IV - Security & Communication)

7 MESSAGE FORMAT

7.1 Abbreviation

Below symbol table describes conventions of data fields used in the message format table:

Symbol	Meaning
M	Require field value in the message.
C	Field value require to be filled in some conditions.
+	Field value content can be modified.
O	Optional field value in the message
→	Field value to be forwarded and not changed
-	Not appear in the message
ME	Require field value in the message and the sent field value is same with the original message.
CE	Field value require to be filled in some conditions and the sent field value is same with the original message.
OE	Optional field value in the message and the sent field value is same with the original message.

7.2 Card switching services on ATM/POS

7.2.1 Card switching services at ATM

Card switching services at ATM includes transactions:

- Cash withdrawal
- Balance inquiry
- Mini statement
- Intrabank fund transfer
- PIN change
- Reversal transaction (of Cash withdrawal, Balance inquiry, Mini-statement)

The message format of these transactions describes as following table:

7.2.1.1 Balance Inquiry

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	→	
1	Secondary Bit Map	an-16	M	M	M	→	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Zero-filled
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Hour in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
19	Acquiring Institution Country code	n-3	C	→	CE	→	Present in CBFT transaction
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transaction

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	ID of ISS/ International Card Switching Institution
35	Track 2 data	z...37 (LLVAR)	M	→	-	-	Separator field (SP) is '=' for magstripe transaction or 'D' for CHIP transaction.
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful.
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
52	Pin Data	an-16	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful.
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transaction
60	Self-defined field	ans…060 (LLLVAR)	C	C+	CE	C+	Present in UPI CHIP transaction
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Contains cardholder account. Zero-filled if transaction is not successful.
128	Message Authentication Code	an-16	O	O	O	O	

7.2.1.2 Cash withdrawal

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	→	
1	Secondary Bit Map	an-16	M	M	M	→	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Transaction amount (transaction currency of acquirer's card acceptor)
5	Amount, Settlement	n-12	-	M	ME	→	Settlement amount
6	Cardholder billing Amount	n-12	-	-	O	→	Cardholder Billing amount, can present in cross border transactions
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
10	Cardholder conversion rate	n-8	-	-	O	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT+7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT+7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
19	Acquiring Institution Country code	n-3	C	→	CE	→	Present in CBFT transaction
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transaction
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	ID of Member bank/ International Card Switching Institution
35	Track 2 data	z...37 (LLVAR)	M	→	-	-	Separator field (SP) is '=' for magstripe transaction or 'D' for CHIP transaction
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
51	Currency code, cardholder billing	n-3	-	-	O	→	
52	Pin Data	an-16	M	→	-	-	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful.
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions.
60	Self - defined field	ans…060 (LLLVAR)	C	C+	CE	C+	Present in UPI CHIP transaction.
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Contains cardholder account. Zero-filled if transaction is not successful.
128	Message Authentication Code	an-16	O	O	O	O	

7.2.1.3 Mini statement

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	→	
1	Secondary Bit Map	an-16	M	M	M	→	
2	Primary Account Number (PAN)	an…19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Zero-filled
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT+7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT+7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transactions.
25	Point of Service Condition Code	n-2	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	
35	Track 2 data	z...37 (LLVAR)	M	→	-	-	Separator field (SP) is '=' for magstripe transaction or 'D' for CHIP transaction.
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
48	Additional Data Private	ans…999 (LLLVAR)	-	-	M	→	Contains balance statement information
49	Transaction Currency Code	n-3	M	→	ME	→	
52	Pin Data	an-16	M	→	-	-	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	O	→	Contains balance amount. Zero-

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
							filled if transaction is not successful.
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions.
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Contains cardholder account. Zero-filled if transaction is not successful.
128	Message Authentication Code	an-16	O	O	O	O	

7.2.1.4 Intrabank Fund Transfer (ITFT)

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Fund transfer amount

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
5	Amount, Settlement	n-12	-	M	ME	→	Settlement amount
7	Transmission Date and Time	n-10	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Date, Expiration	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transactions
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	
35	Track 2 data	z...37 (LLVAR)	M	→	-	-	Separator field (SP) is '=' for magstripe transaction or 'D' for CHIP transaction
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
52	Pin Data	an-16	M	→	-	-	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful.
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	M	→	Contains balance amount. Zero-filled if

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
							transaction is not successful.
103	To Account Identification	an…28 (LLVAR)	M	→	ME	→	Contains beneficiary card / account
128	Message Authentication Code	an-16	O	O	O	O	

7.2.1.5 PIN Change

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Zero-filled
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Date, Expiration	n-4	O	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
		(YYMM)					
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transactions
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	
35	Track 2 data	z...37 (LLVAR)	M	→	-	-	Separator field (SP) is '=' for magstripe transaction or 'D' for CHIP transaction
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
52	Pin Data	an-16	M	→	-	-	Contains old PIN Block
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
105	New PIN Block	ans…999 (LLLVAR)	C	→			Contains new PIN Block
128	Message Authentication Code	an-16	O	O	O	O	

7.2.1.6 Reversal transaction

Field No.	Field name	Attribute	ACQ	SW	SW	ISS	Remark
---	Message Type	n-4	420	430	420	430	
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	ME	ME	ME	ME	Value from 0200
3	Processing Code	n-6	ME	ME	ME	ME	Value from 0200
4	Transaction Amount	n-12	ME	ME	ME	ME	Value from 0200
5	Amount, Settlement	n-12	O	O	ME	ME	Value from 0210

Field No.	Field name	Attribute	ACQ	SW	SW	ISS	Remark
6	Cardholder billing Amount	n-12	O	O	O	O	Value from 0210
7	Transmission Date and Time	n-10	M	ME	ME	ME	New value
9	Settlement Conversion Rate	n-8	O	O	ME	ME	Value from 0210
10	Cardholder conversion rate	n-8	O	O	O	O	Value from 0210
11	System Trace Audit Number	n-6	M	ME	ME	ME	New value
12	Time, Local Transaction	n-6 (hhmmss)	ME	ME	ME	ME	Value from 0200
13	Date, Local Transaction	n-4 (MMDD)	ME	ME	ME	ME	Value from 0200
15	Date, Settlement	n-4 (MMDD)	-	ME	ME	ME	Value from 0200
18	Merchant Type	n-4	ME	ME	ME	ME	Value from 0200
19	Accepting Institution Country code	n-3	CE	CE	CE	CE	Value from 0200
23	Card Sequence Number	n-3	CE	CE	CE	CE	Value from 0200
32	Acquiring Institution Identification Code	n...11(LLVAR)	ME	ME	ME	ME	Value from 0200
37	Retrieval Reference Number	an-12	ME	ME	ME	ME	Value from 0200
38	Authorization Identification Response	ans-6	O	O	O	O	Value from 0210
39	Response Code	an-2	-	M	-	M	
41	Card Acceptor Terminal Identification	ans-8	ME	ME	ME	ME	Value from 0200
42	Card Acceptor Identification Code	ans-15	ME	-	ME	-	Value from 0200

Field No.	Field name	Attribute	ACQ	SW	SW	ISS	Remark
43	Card Acceptor Name and Location	ans-40	ME	-	ME	-	Value from 0200
49	Transaction Currency Code	n-3	ME	ME	ME	ME	Value from 0200
50	Settlement Currency Code	n-3	O	O	ME	ME	Value from 0210
51	Currency code, cardholder billing	n-3	O	O	O	O	Value from 0210
55	Chip Data	b…255 (LLLVAR)	C	→	C	→	
60	User defined field	ans…060 (LLLVAR)	C	C+	C+	→	
63	Transaction Reference Number	ans…016 (LLLVAR)	O	O	ME	ME	Value from 0210
90	Original Data Element	n-42	M	-	ME	-	
128	Message Authentication Code	an-16	M	M	M	M	

7.2.2 Card switching services at POS

Card switching services at POS includes transactions:

- Balance inquiry
- Purchase
- Purchase Reversal
- PIN change

The message format of these transactions describes as following table:

7.2.2.1 Balance inquiry

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	→	
1	Secondary Bit Map	an-16	M	M	M	→	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Zero-filled
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
19	Acquiring Institution Country code	n-3	C	→	CE	→	Present in CBFT transaction
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transactions

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	ID of ISS/ International Card Switching Institution
35	Track 2 data	z...37 (LLVAR)	C	→	-	-	Separator field (FS) is '=' for magstripe transaction or 'D' for CHIP transaction
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
52	Pin Data	an-16	C	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions
60	User defined field	ans…060 (LLLVAR)	C	C+	CE	C+	Present in UPI CHIP transaction
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	M	→	Contains cardholder account. Zero-filled if transaction is not successful
128	Message Authentication Code	an-16	O	O	O	O	

7.2.2.2 Purchase

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	→	
1	Secondary Bit Map	an-16	M	M	M	→	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Transaction amount (transaction currency of acquirer's card acceptor)
5	Amount, Settlement	n-12	-	M	ME	→	Settlement amount
6	Cardholder billing Amount	n-12	-	-	O	→	Cardholder billing amount, can present in cross border transaction
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
10	Cardholder conversion rate	n-8	-	-	O	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
19	Acquiring Institution Country code	n-3	C	→	CE	→	Present in CBFT transaction
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transactions
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	ID of ISS/ International Card Switching Institution
35	Track 2 data	z...37 (LLVAR)	C	→	-	-	Separator field (FS) is '=' for magstripe transaction or 'D' for CHIP transaction
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
51	Currency code, cardholder billing	n-3	-	-	O	→	
52	Pin Data	an-16	C	→	-	-	
54	Additional Amounts	an…040 (LLLVAR)	-	-	O	→	Contains balance amount. Zero-filled if transaction is not successful
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions
60	User defined field	ans…060 (LLLVAR)	C	C+	CE	C+	Present in UPI CHIP transaction
63	Transaction Reference Number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	M	→	Contains cardholder account. Zero-filled if transaction is not successful
128	Message Authentication Code	an-16	O	O	O	O	

7.2.2.3 Void/Reversal

Field No.	Field Name	Attribute	ACQ	SW	SW	ISS	Remark
---	Message Type	n-4	420	430	420	430	
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an…19 (LLVAR)	ME	ME	ME	ME	Value from 0200
3	Processing Code	n-6	ME	ME	ME	ME	Value from 0200
4	Transaction Amount	n-12	ME	ME	ME	ME	Value from 0200
5	Amount, Settlement	n-12	O	O	ME	ME	Value from 0210
6	Cardholder billing Amount	n-12	O	O	O	O	Value from 0210
7	Transmission Date and Time	n-10	M	ME	ME	ME	New value
9	Settlement Conversion Rate	n-8	O	O	ME	ME	Value from 0210
10	Cardholder conversion rate	n-8	O	O	O	O	Value from 0210
11	System Trace Audit Number	n-6	M	ME	ME	ME	New value
12	Time, Local Transaction	n-6 (hhmmss)	ME	ME	ME	ME	Value from 0200
13	Date, Local Transaction	n-4 (MMDD)	ME	ME	ME	ME	Value from 0200
15	Date, Settlement	n-4 (MMDD)	-	ME	ME	ME	Value from 0200
18	Merchant Type	n-4	ME	ME	ME	ME	Value from 0200
19	Acquiring Institution Country code	n-3	CE	CE	CE	CE	Value from 0200

Field No.	Field Name	Attribute	ACQ	SW	SW	ISS	Remark
23	Card Sequence Number	n-3	CE	CE	CE	CE	Value from 0200
32	Acquiring Institution Identification Code	n...11 (LLVAR)	ME	ME	ME	ME	Value from 0200
37	Retrieval Reference Number	an-12	ME	ME	ME	ME	Value from 0200
38	Authorization Identification Response	ans-6	O	O	O	O	Value from 0200
39	Response Code	an-2	-	M	-	M	
41	Card Acceptor Terminal Identification	ans-8	ME	ME	ME	ME	Value from 0200
42	Card Acceptor Identification Code	ans-15	ME	-	ME	-	Value from 0200
43	Card Acceptor Name and Location	ans-40	ME	-	ME	-	Value from 0200
49	Transaction Currency Code	n-3	ME	ME	ME	ME	Value from 0200
50	Settlement Currency Code	n-3	O	O	ME	ME	Value from 0210
51	Currency code, cardholder billing	n-3	O	O	O	O	Value from 0210
55	Chip Data	b…255 (LLLVAR)	C	→	C	→	
60	User defined field	ans…060 (LLLVAR)	C	C+	C+	→	
63	Transaction Reference Number	ans…016 (LLLVAR)	O	O	ME	ME	Value from 0210
90	Original Data Element	n-42	M	-	ME	-	
128	Message Authentication Code	an-16	M	M	M	M	

7.2.2.4 PIN Change

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	
4	Transaction Amount	n-12	M	→	ME	→	Zero-filled
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Date, Expiration	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
23	Card Sequence Number	n-3	C	→	CE	→	Mandatory in CHIP transactions
25	Point of Service Condition Code	n-2	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	
35	Track 2 data	z...37 (LLVAR)	M	→	-	-	Separator field (FS) is '=' for magstripe transaction or 'D' for CHIP transaction
36	Track 3 data	z...104 (LLLVAR)	O	→	-	-	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
45	Track 1 data	ans...79 (LLVAR)	O	→	-	-	
49	Transaction Currency Code	n-3	M	→	ME	→	
52	Pin Data	an-16	M	→	-	-	Contains old PIN Block
55	Chip Data	b…255 (LLLVAR)	C	→	O	→	Mandatory in CHIP transactions
63	Transaction Reference Number	ans…016	-	M	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
		(LLLVAR)					
105	New PIN Block	ans…999 (LLLVAR)	C	→			Contains new PIN Block
128	Message Authentication Code	an-16	O	O	O	O	

7.3 Online switching service

Online switching service includes following message:

- Verify Card
- Verify OTP
- Ecom Purchase
- Ecom Fast Purchase

Message format of above transactions describes as following:

-

7.3.1 Verify Card

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	05xx00
4	Transaction Amount	n-12	M	→	ME	→	Ecom transaction amount
7	Transmission Date and Time	n-10	M	→	ME	→	Date and time in GMT

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
		(MMDDhhmmss)					
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	Fill with '7399'
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n…11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
48	Additional Data Private	ans…999 (LLLVAR)					Contains 03 sub-fields which detail as following
48.1	Sub-field 1	ans…255	O	→	OE	→	Send OTP value method
48.2	Sub-field 2	ans…200	M	→	ME	→	Information of support verify card
48.3	Sub-field 3	ans…300	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
60	User Defined Field	ans…060 (LLLVAR)	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	EC_CARDVER
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.3.2 Verify OTP

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	05xx00
4	Transaction Amount	n-12	M	→	ME	→	Ecom transaction amount
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	Fill with '7399'
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
							message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 (LLLVAR)					Contains 02 sub-fields which details as following
48.1	Sub-field 1	ans…200	M	→	ME	→	Information of support verify OTP
48.2	Sub-field 2	ans…300	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
60	User Defined Field	ans…060 (LLLVAR)	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	EC_OTPVER
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.3.3 Ecom Purchase

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	00xx00
4	Transaction Amount	n-12	M	→	ME	→	Ecom transaction amount
5	Settlement Amount	n-12	-	M	ME	→	Settlement amount
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	Fill with ‘7399’
22	Point of Service Entry Mode Code	n-3	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n…11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Private Data	ans…999 (LLLVAR)	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
54	Additional Amounts	an…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful
60	User Defined Field	ans…060 (LLLVAR)	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	EC_PUR

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.3.4 Ecom Fast Purchase

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	00xx00
4	Transaction Amount	n-12	M	→	ME	→	Ecom transaction amount
5	Settlement Amount	n-12	-	M	ME	→	Settlement amount
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	Fill with '7399'
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n…11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 (LLLVAR)					Contains 02 sub-field which details as following
48.1	Sub-field 1	ans…200	M	→	ME	→	Information of support verify cardholder

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
48.2	Sub-field 2	ans…300	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
54	Additional Amounts	an…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful
60	User Defined Field	ans…060 (LLLVAR)	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	EC_FASTPUR
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.3.5 Ecom Reversal

Field No.	Field Name	Attribute	SW	ISS	Remark
---	Message Type	n-4	420	430	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	ME	ME	Value from 0200

Field No.	Field Name	Attribute	SW	ISS	Remark
3	Processing Code	n-6	ME	ME	Value from 0200
4	Transaction Amount	n-12	ME	ME	Value from 0200
5	Amount, Settlement	n-12	ME	ME	Value from 0200
7	Transmission Date and Time	n-10	ME	ME	New value
9	Settlement Conversion Rate	n-8	ME	ME	Value from 0200
11	System Trace Audit Number	n-6	ME	ME	New value
12	Time, Local Transaction	n-6 (hhmmss)	ME	ME	Value from 0200
13	Date, Local Transaction	n-4 (MMDD)	ME	ME	Value from 0200
15	Date, Settlement	n-4 (MMDD)	ME	ME	Value from 0200
18	Merchant Type	n-4	ME	ME	Value from 0200
32	Acquiring Institution Identification Code	n...11(LLVAR)	ME	ME	Value from 0200
37	Retrieval Reference Number	an-12	ME	ME	Value from 0200
38	Authorization Identification Response	ans-6	CE	CE	Value from 0210
39	Response Code	an-2	-	M	
41	Card Acceptor Terminal Identification	ans-8	ME	ME	Value from 0200
42	Card Acceptor Identification Code	ans-15	ME	-	Value from 0200
43	Card Acceptor Name and Location	ans-40	ME	-	Value from 0200
49	Transaction Currency Code	n-3	ME	ME	Value from 0200
50	Settlement Currency Code	n-3	ME	ME	Value from 0210

Field No.	Field Name	Attribute	SW	ISS	Remark
60	User defined field	ans…060 (LLLVAR)	C+	→	
62	Service Code	ans…10, LLVAR	ME	ME	Value from 0210
63	Transaction Reference Number	ans…016 (LLLVAR)	ME	ME	Value from 0200
90	Original Data Element	n-42	ME	-	
128	Message Authentication Code	an-16	M	M	

7.4 Inter-Bank Fund Transfer 24/7 service (IBFT)

Inter-Bank Fund Tranfer 24/7 (IBFT) is implemented on following channel:

- ATM
- Internet Banking
- Mobile Banking
- SMS Banking
- Counter
- Other channel

IBFT consist of messages as following:

- Query the information of beneficiary cardholder/account (IBFT Inquiry)
- Transfer to beneficiary cardholder/ beneficiary account (IBFT Deposit)

***Notes**: Cross-Border Fund Transfer (CBFT) was implemented based on infrastructure of Inter-Bank Fund Transfer (IBFT) service, so the message structure of this service will be same as IBFT message structure*.

Format message of transactions describe as following:

7.4.1 Query the information of beneficiary cardholder/account (IBFT Inquiry)

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	BNB	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	430000 432000 430020 432020
4	Transaction Amount	n-12	M	→	ME	→	Transaction amount, Zero-filled
7	Transmission Date and Time	n-10	M	→	ME	→	Date and time in GMT
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (MMDD)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	C	→	CE	→	Only present on ATM, CBFT transaction
19	Acquiring Institution country code	n-3	C	→	CE	→	Only present on CBFT transaction
22	Point of Service Entry Mode Code	n-3	M	→	-	-	

25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	With transaction send from Payment Intermediaries, this field is filled by Payment Intermediaries
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Only present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	C	→	-	-	Only present in transaction which is not sent from Payment Intermediares
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 LLLVAR					Contains 03 sub-fields
48.1	Sub-field 1	ans…100	M	→	ME	→	Fill full name / organization name which transfer fund
48.2	Sub-field 2	ans…200	O	→	OE	→	Fill full name / organization name which receive fund
49	Transaction Currency Code	n-3	M	→	ME	→	

60	User Defined Field	ans…060 (LLLVAR)	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	IF_INQ TF_INQ CF_INQ
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
100	Receiving Institution Identification Code	n...11 (LLVAR)	C	→	CE	→	Beneficiary bank code Only present when transfer to beneficiary account
102	From Account Identification	an…28 (LLVAR)	M	→	ME	→	Transfer card / account
103	To Account Identification	an…28 (LLVAR)	M	→	ME	→	Beneficiary account / card
104	Content transfers	ans…210 (LLLVAR)	M	→	ME	→	Customer's fund transfer content
120	Information cardholder or account holder beneficiary	ans…70 (LLLVAR)	-	-	M	→	Contains beneficiary card/account
128	Message Authentication Code	an-16	M	M	M	M	MAC value

7.4.2 Transfer to beneficiary cardholder/ beneficiary account (IBFT Deposit)

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	BNB	SW	
---	Message Type	n-4	200		210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	BNB	SW	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	910000 910020 912000 912020
4	Transaction Amount	n-12	M	→	ME	→	Transaction amount
5	Settlement Amount	n-12	-	M	ME	→	Settlement amount
6	Cardholder billing Amount	n-12	-	-	O	→	Cardholder billing amount, can present in CBFT transaction
7	Transmission Date and Time	n-10	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
10	Cardholder conversion rate	n-8	-	-	O	→	Can present in CBFT transaction
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (MMDD)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	C	→	CE	→	Only present in ATM, CBFT transaction

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	BNB	SW	
19	Acquiring Institution Country code	n-3	C	→	CE	→	Only present in CBFT transaction
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	With transaction send from Payment Intermediaries, this field is filled by Payment Intermediaries
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Only present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	C	→	-	-	Only present in transaction which is not sent from Payment Intermediaries
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 LLLVAR					Contains 02 sub-fields
48.1	sub-field 1	ans…100	M	→	ME	→	Fill full name / organization name which transfer fund

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	BNB	SW	
48.2	sub-field 2	ans…200	O	→	O	→	Fill full name / organization name which receive fund
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
51	Currency code, cardholder billing	n-3	-	-	O	→	Can present in CBFT transaction
60	User Defined Field	ans…060 (LLLVAR)	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	IF_DEP TF_DEP CF_DEP
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
100	Receiving Institution Identification Code	n...11 (LLVAR)	C	→	CE	→	Only present on fund transfer to account transaction
102	From Account Identification	an…28 (LLVAR)	M	→	ME	→	Transfer card/account
103	To Account Identification	an…28 (LLVAR)	M	→	ME	→	Beneficiary card/account
104	Content transfers	ans…210 (LLLVAR)	M	→	ME	→	Customer' fund transfer content
128	Message Authentication Code	an-16	M	M	M	M	MAC value

7.5 Payment code service

Payment service code consists of 05 types the following message:

- Payment Code Create

- Payment Code Verify
- Payment Code Cash Withdrawal
- Payment Code Inquiry
- Payment Code Reversal

7.5.1 Payment code Create

Field No.	Field Name	Attribute	Request	Response	Remark
			ISS	SW	
---	Message Type	n-4	200	210	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an…19, LLVAR	M	ME	
3	Processing Code	n-6	M	ME	Default value is ‘910000’
4	Transaction Amount	n-12	M	ME	
5	Settlement Amount	n-12		M	
7	Transmission Date and Time	n-10, MMDDhhmmss	M	ME	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	
11	System Trace Audit Number	n-6	M	ME	
12	Time, Local Transaction	n-6, hhmmss	M	ME	Time in GMT + 7
13	Date, Local Transaction	n-4, MMDD	M	ME	Date in GMT + 7
14	Expiration Date	n-4, MMDD	O	-	
15	Date, Settlement	n-4, MMDD	-	M	Date in GMT + 7
18	Merchant Category Code	n-4	M	ME	
19	Acquiring Institution Country code	n-3	M	ME	
22	Point of Service Entry Mode Code	n-3	M	-	

Field No.	Field Name	Attribute	Request	Response	Remark
			ISS	SW	
25	Point of Service Condition Code	n-2	M	O	
32	Acquiring Institution Identification Code	n...11, LLVAR	M	ME	
37	Retrieval Reference Number	an12	M	ME	
38	Authorization Identification Response	ans6	-	C	
39	Response Code	an-2	-	M	
41	Card Acceptor Terminal Identification	ans-8	M	ME	
42	Card Acceptor Identification Code	ans-15	M	-	
43	Card Acceptor Name and Location	ans-40	M	-	
48	Additional Data Private	ans...999, LLLVAR	-	M	This field contains the Payment code information. Payment code length is 09 characters, consisting numbers from 0 to 9. Example: **123456789**
49	Transaction Currency Code	n-3	M	ME	
50	Settlement Currency Code	n-3	.	M	
60	Self - Defined Field	ans…060, LLLVAR	M	ME	
62	Service Code	ans…10, LLVAR	M	M	PC_CRE

Field No.	Field Name	Attribute	Request	Response	Remark
			ISS	SW	
63	Transaction Reference Number	ans…016, LLLVAR	-	M	
102	From Account Identification	an…28, LLVAR	M	ME	Sender phone number
103	To Account Identification	an…28, LLVAR	M	ME	Receive phone number
128	Message Authentication Code	an-16	M	M	MAC value

7.5.2 Payment code Verify

Field No.	Field Name	Attribute	Request	Response	Remark
			ACQ	SW	
---	Message Type	n-4	200	210	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an…19, LLVAR	M	M	Contain Payment code
3	Processing Code	n-6	M	M	Default value is ‘050000’
4	Transaction Amount	n-12	M	ME	Contain Payment code amount
5	Settlement Amount	n-12		M	
7	Transmission Date and Time	n-10, MMDDhhmmss	M	M	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	
11	System Trace Audit Number	n-6	M	M	
12	Time, Local Transaction	n-6, hhmmss	M	M	Time in GMT + 7
13	Date, Local Transaction	n-4, MMDD	M	M	Date in GMT + 7
15	Date, Settlement	n-4, MMDD	-	M	Date in GMT + 7
18	Merchant Type	n-4	M	M	

Field No.	Field Name	Attribute	Request	Response	Remark
			ACQ	SW	
19	Acquiring Institution Country code	n-3	O	O	
22	Point of Service Entry Mode Code	n-3	M	-	
25	Point of Service Condition Code	n-2	M	-	
32	Acquiring Institution Identification Code	n...11, LLVAR	M	M	
37	Retrieval Reference Number	an-12	O	O	
38	Authorization Identification Response	ans-6	-	C	
39	Response Code	an-2	-	M	
41	Card Acceptor Terminal Identification	ans-8	M	M	
42	Card Acceptor Identification Code	ans-15	M	-	
43	Card Acceptor Name and Location	ans-40	M	-	
49	Transaction Currency Code	n-3	M	M	
50	Settlement Currency Code	n3	.	M	
60	Self - Defined Field	ans…060, LLLVAR	M	ME	
62	Service Code	ans…10, LLVAR	M	M	PC_VER
63	Transaction Reference Number	ans…016, LLLVAR	-	M	
128	Message Authentication Code	an-16	M	M	

7.5.3 Payment code Cash withdrawal

Field No.	Field Name	Attribute	Request	Response	Remark
			ACQ	SW	
---	Message Type	n-4	200	210	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an…19, LLVAR	M	ME	Payment code information
3	Processing Code	n-6	M	ME	Default value is '010000'
4	Transaction Amount	n-12	M	ME	Contain Payment code transaction amount
5	Amount, Settlement	n-12	-	M	
7	Transmission Date and Time	n-10, MMDDhhmmss	M	ME	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	
11	System Trace Audit Number	n-6	M	ME	
12	Time, Local Transaction	n-6, hhmmss	M	ME	GMT+7
13	Date, Local Transaction	n-4, MMDD	M	ME	GMT+7
15	Date, Settlement	n-4, MMDD	-	M	
18	Merchant Type	n-4	M	ME	
19	Acquiring Institution Country code	n-3	C	CE	
22	Point of Service Entry Mode Code	n-3	M	.	
25	Point of Service Condition Code	n-2	M	.	
32	Acquiring Institution Identification Code	n...11, LLVAR	M	ME	
37	Retrieval Reference Number	an-12	M	ME	

Field No.	Field Name	Attribute	Request	Response	Remark
			ACQ	SW	
38	Authorization Identification Response	ans-6	.	C	
39	Response Code	an-2	.	M	
41	Card Acceptor Terminal Identification	ans- 8	M	ME	
42	Card Acceptor Identification Code	ans- 15	M	.	
43	Card Acceptor Name and Location	ans-40	M	.	
48	Additional Data Private	ans…999, LLLVAR	M	-	Contain OTP information
49	Transaction Currency Code	n-3	M	ME	
50	Settlement Currency Code	n3	.	M	
60	User Defined Field	ans…060, LLLVAR	M	ME	
62	Service Code	ans…10, LLLVAR	M	ME	PC_CW
63	Transaction Reference Number	ans…016, LLLVAR	-	M	
128	Message Authentication Code	an-16	M	M	

7.5.4 Payment code Inquiry

Field No.	Field Name	Attribute	Request	Response	Remark
			ISS	SW	
---	Message Type	n-4	200	210	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an...19, LLVAR	ME	ME	

Field No.	Field Name	Attribute	Request	Response	Remark
			ISS	SW	
3	Processing Code	n-6	ME	ME	Default value is '910000'
4	Transaction Amount	n-12	ME	ME	Contain Payment code transaction amount
5	Amount, Settlement	n-12	-	M	
7	Transmission Date and Time	n-10, MMDDhhmmss	M	ME	New value, GMT
11	System Trace Audit Number	n-6	M	ME	New value
12	Time, Local Transaction	n-6, hhmmss	ME	ME	Time in GMT + 7
13	Date, Local Transaction	n-4, MMDD	ME	ME	Date in GMT + 7
15	Date, Settlement	n-4, MMDD	-	M	
18	Merchant Type	n-4	M	ME	
32	Acquiring Institution Identification Code	n...11, LLVAR	ME	ME	
37	Retrieval Reference Number	an-12	ME	ME	
38	Authorization Identification Response	ans-6	.	C	
39	Response Code	an-2	-	M	Payment code create transaction status need to inquiry
41	Card Acceptor Terminal Identification	ans-8	ME	ME	
42	Card Acceptor Identification Code	ans-15	ME	-	
43	Card Acceptor Name and Location	ans-40	ME	-	
48	Additional Data Private	ans...999, LLLVAR		C	If Payment code create transaction is successful, NAPAS will use this field to resend Payment code to ISS

Field No.	Field Name	Attribute	Request	Response	Remark
			ISS	SW	
49	Transaction Currency Code	n-3	ME	ME	
50	Settlement Currency Code	n3	.	M	
60	Self - Defined Field	ans…060, LLLVAR	M	ME	
62	Service Code	ans…10, LLVAR	M	M	PC_INQ
63	Transaction Reference Number	ans…016, LLLVAR	-	M	
90	Original Data Element	n-42	M	-	
128	Message Authentication Code	an-16	M	M	MAC Value

7.5.5 Payment code Cash withdrawal Reversal

Field No.	Field Name	Attribute	Request	Response	Remark
			ACQ	SW	
---	Message Type	n-4	420	430	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an…19 (LLVAR)	ME	ME	Value from 0200
3	Processing Code	n-6	ME	ME	Value from 0200
4	Transaction Amount	n-12	ME	ME	Value from 0200
5	Amount, Settlement	n-12	O	O	Value from original transaction
7	Transmission Date and Time	n-10	M	ME	New value
11	System Trace Audit Number	n-6	M	ME	New value
12	Time, Local Transaction	n-6 (hhmmss)	ME	ME	Value from 0200
13	Date, Local Transaction	n-4 (MMDD)	ME	ME	Value from 0200

Field No.	Field Name	Attribute	Request	Response	Remark
			ACQ	SW	
15	Date, Settlement	n-4 (MMDD)		ME	Value from 0210
18	Merchant Type	n-4	ME	ME	Value from 0200
19	Acquiring Institution Country code	n-3	CE	CE	Value from 0200
23	Card Sequence Number	n-3	CE	CE	Value from 0200
32	Acquiring Institution Identification Code	n...11(LLVAR)	ME	ME	Value from 0200
37	Retrieval Reference Number	an-12	ME	ME	Value from 0200
38	Authorization Identification Response	an-6	O	O	Value from 0210
39	Response Code	an-2	-	M	
41	Card Acceptor Terminal Identification	ans-8	ME	ME	Value from 0200
42	Card Acceptor Identification Code	ans-15	ME	-	Value from 0200
43	Card Acceptor Name and Location	ans-40	ME	-	Value from 0200
49	Transaction Currency Code	an-3	ME	ME	Value from 0200
50	Settlement Currency Code	an-3	O	O	
60	Self - Defined Field	ans…060, LLLVAR	ME	ME	Value from 0200
62	Service Code	ans…10, LLVAR	ME	ME	Value from 0210
63	Transaction Reference Number	ans…016, LLLVAR	CE	M	Value from 0210
90	Original Data Element	n-42	M	-	
128	Message Authentication Code	an-16	M	M	

7.6 Tokenization service

Tokenization services include the following message:

- Token Verify Card
- Token Verify OTP
- Token Purchase
- Token Fast Purchase
- Token Reversal

7.6.1 Token Verify Card

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	05xx00
4	Transaction Amount	n-12	M	→	ME	→	Tokenization transaction amount
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4	-	M	ME	→	Date in GMT + 7

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
		(MMDD)					
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n…11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 (LLLVAR)					Contains 03 sub-field that details as following
48.1	Sub-field 1	ans…255	O	→	OE	→	Send OTP value method
48.2	Sub-field 2	ans…200	M	→	ME	→	Information of support verify cardholder
48.3	Sub-field 3	ans…300	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
50	Settlement Currency Code	n-3	-	M	ME	→	
60	Self- Defined Field	ans…060, LLLVAR	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	TK_CARDVER
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.6.2 Token Verify OTP

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	05xx00
4	Transaction Amount	n-12	M	→	ME	→	Tokenization transaction amount
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Only present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 (LLLVAR)					Contains 02 sub-field that details as following
48.1	Sub-field 1	ans…200	M	→	ME	→	Information of verify OTP or CVV/CSC/PIN (if

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
							ISS support authentication)
48.2	Sub-field 2	ans…300	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
60	Self-Defined Field	ans…060, LLLVAR	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	TK_OTPVER
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.6.3 Token Purchase

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	00xx00

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
4	Transaction Amount	n-12	M	→	ME	→	Tokenization transaction amount
5	Settlement Amount	n-12	-	M	ME	→	Tokenization settlement amount
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	
32	Acquiring Institution Identification Code	n…11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Only present when a response message is successful

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Private Data	ans…999 (LLLVAR)	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	n-3	-	M	ME	→	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful
60	Self-Defined Field	ans…060, LLLVAR	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	TK_PUR
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.6.4 Token Fast Purchase

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
---	Message Type	n-4	0200		0210		
---	Primary Bit Map	an-16	M	M	M	M	
1	Secondary Bit Map	an-16	M	M	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	M	→	ME	→	
3	Processing Code	n-6	M	→	ME	→	00xx00
4	Transaction Amount	n-12	M	→	ME	→	Tokenization transaction amount
5	Settlement Amount	n-12	-	M	ME	→	
7	Transmission Date and Time	n-10 (MMDDhhmmss)	M	→	ME	→	Date and time in GMT
9	Settlement Conversion Rate	n-8	-	M	ME	→	
11	System Trace Audit Number	n-6	M	→	ME	→	
12	Time, Local Transaction	n-6 (hhmmss)	M	→	ME	→	Time in GMT + 7
13	Date, Local Transaction	n-4 (MMDD)	M	→	ME	→	Date in GMT + 7
14	Expiration Date	n-4 (YYMM)	O	→	-	-	
15	Date, Settlement	n-4 (MMDD)	-	M	ME	→	Date in GMT + 7
18	Merchant Type	n-4	M	→	ME	→	
22	Point of Service Entry Mode Code	n-3	M	→	-	-	
25	Point of Service Condition Code	n-2	M	→	-	-	

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
32	Acquiring Institution Identification Code	n…11 (LLVAR)	M	→	ME	→	
37	Retrieval Reference Number	an-12	M	→	ME	→	
38	Authorization Identification Response	ans-6	-	-	C	→	Only present when a response message is successful
39	Response Code	an-2	-	-	M	→	
41	Card Acceptor Terminal Identification	ans-8	M	→	ME	→	
42	Card Acceptor Identification Code	ans-15	M	→	-	-	
43	Card Acceptor Name and Location	ans-40	M	→	-	-	
48	Additional Data Private	ans…999 (LLLVAR)					Contains 03 sub-fields that details as following
48.1	Sub-field 1	ans…255	O	→	OE	→	Send OTP value method
48.2	Sub-field 2	ans…200	M	→	ME	→	Information of verify cardholder
48.3	Sub-field 3	ans…300	O	→	OE	→	Information of general transaction description
49	Transaction Currency Code	n-3	M	→	ME	→	
50	Settlement Currency Code	an-3	-	M	ME	→	
54	Additional Amounts	ans…120 (LLLVAR)	-	-	M	→	Contains balance amount. Zero-filled if transaction is not successful

Field No.	Field Name	Attribute	Request		Response		Remark
			ACQ	SW	ISS	SW	
60	User Defined Field	ans…060, LLLVAR	M	→	ME	→	
62	Service Code	ans…10 (LLVAR)	M	→	ME	→	TK_FASTPUR
63	Transaction reference number	ans…016 (LLLVAR)	-	M	ME	→	
102	From Account Identification	an…28 (LLVAR)	-	-	O	→	Cardholder account
128	Message Authentication Code	an-16	M	M	M	M	

7.6.5 Token Reversal

Field No.	Field Name	Attribute	SW	ISS	Remark
---	Message Type	n-4	420	430	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
2	Primary Account Number (PAN)	an...19 (LLVAR)	ME	ME	Value from 0200
3	Processing Code	n-6	ME	ME	Value from 0200
4	Transaction Amount	n-12	ME	ME	Value from 0200
5	Amount, Settlement	n-12	ME	ME	Value from 0200
7	Transmission Date and Time	n-10	ME	ME	New value
9	Settlement Conversion Rate	n-8	ME	ME	Value from 0200
11	System Trace Audit Number	n-6	ME	ME	New value
12	Time, Local Transaction	n-6 (hhmmss)	ME	ME	Value from 0200

Field No.	Field Name	Attribute	SW	ISS	Remark
13	Date, Local Transaction	n-4 (MMDD)	ME	ME	Value from 0200
15	Date, Settlement	n-4 (MMDD)	ME	ME	Value from 0200
18	Merchant Type	n-4	ME	ME	Value from 0200
32	Acquiring Institution Identification Code	n...11(LLVAR)	ME	ME	Value from 0200
37	Retrieval Reference Number	an-12	ME	ME	Value from 0200
38	Authorization Identification Response	ans-6	CE	CE	Value from 0210
39	Response Code	an-2	-	M	
41	Card Acceptor Terminal Identification	ans-8	ME	ME	Value from 0200
42	Card Acceptor Identification Code	ans-15	ME	-	Value from 0200
43	Card Acceptor Name and Location	ans-40	ME	-	Value from 0200
49	Transaction Currency Code	n-3	ME	ME	Value from 0200
50	Settlement Currency Code	n-3	ME	ME	Value from 0210
60	User defined field	ans…060 (LLLVAR)	C+	→	
62	Service Code	ans…10, LLVAR	ME	ME	Value from 0210
63	Transaction Reference Number	ans…016 (LLLVAR)	ME	ME	Value from 0200
90	Original Data Element	n-42	ME	-	
128	Message Authentication Code	an-16	M	M	

7.7 Network transaction

This section describes network transaction format for each system connection between Member Bank and NAPAS:

7.7.1 Key exchange

Field No.	Field Name	Attribute	Request	Response	Remark
---	Message Type	n-4	0800	0810	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
7	Transmission Date and Time	n-10	M	ME	Date and time in GMT
11	System Trace Audit Number	n-6	M	ME	
32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	ME	
39	Response Code	an-2	-	M	
48	Additional Data Private	ans...999 (LLLVAR)	M	ME	
53	Security Information	n-16	O	OE	
70	Network Management Information Code	n-3	M	ME	161 – Key Exchange

7.7.2 Sign On, Sign Off, Echo-test

Field No.	Field Name	Attribute	Request	Response	Remark
---	Message Type	n-4	0800	0810	
---	Primary Bit Map	an-16	M	M	
1	Secondary Bit Map	an-16	M	M	
7	Transmission Date and Time	n-10	M	ME	Date and time in GMT
11	System Trace Audit Number	n-6	M	ME	

32	Acquiring Institution Identification Code	n...11 (LLVAR)	M	ME	
39	Response Code	an-2	-	M	
70	Network Management Information Code	n-3	M	ME	001 – Sign on 002 – Sign off 301 – Echo test

Noted: For Interbank Fund Transfer 24/7: only use Echo test message between systems, not use sign-on, sign-off and exchange key at present. Furthermore, use static MAC and exchange periodically.

8 Effective document

The NAPAS Technical Specification for switching service takes effect from **01st January, 2017**.

9 Document management

Internal reference document:

No.	Document Name
1	BANKNETVN Technical Specification Document (version 1.6.1).
2	SMARTLINK Technical Specification Document (version 2.0).
3	Regulation for Member Organization Participating on the SMARTLINK System.
4	Regulation for Member Organization Participating on the BANKNETVN System.
5	Regulation for Business Settlement and Reconcilation Process on the BANKNETVN System (released at 28th February, 2013).

External reference document:

No.	Document Name
1	ISO 8583-1987 Technical Specification Document.
2	Technical Specification Documents of VISA Organization.
3	Technical Specification Documents of MASTERCARD Organization.
4	Technical Specification Documents of UPI Organization.