TranzWare Online

TranzWare ISO8583 Terminal Protocol (TITP)

May 20, 2013

Revision History

Date	Version	TWO Version	Description of Change
25.12.2002	1.0		
20.06.2003	1.1		Field 63 (CVV2 data transfer, available balance).
	1.2		Protocol v. 2 – see P3
	1.2		Added quasicash – see P3
17.08.2005	1.3		Added field 23
14.11.2005	1.4		Added Processing Code 50 – Payment and 53 – Prepaid, Added new field 57 – Additional Data Added new Response Code 81 Added new Response Code 82
15.12.2005	1.5		Improved the description of the field 62 Working keys
03.03.2006	1.6		Added the description of the subfield 55.9F5B
21.03.2006	1.7		Improved the description of the fields 25 and 49
03.04.2006	1.8		Improved format of the field 49
17.05.06	1.9		Added extra Processing Code 97 - Settlement with Cutover Request
23.06.2006	1.92		Renamed the Settlement with Cutover Request (Processing Code = 97) transaction to Cutover Request. Do not transfer the field 63 containing the totals for the Cutover Request transaction.
02.08.2006	2.0		Modified the subfield title (from “Length” to “Extra Length”) of the field 62 – Working keys
02.08.2006	2.1		Added the description of the new transactions: Statement: field 3 position 1-2= 34; field 57.34 – statement records PIN Change: field 3 position 1-2 = 70; field 57.70 – New PIN Transfer: field 3 position 1-2 = 40, position 5 – to account type
20.07.2006	2.2		Added the tag 8A to the field 55
22.08.2006	2.3		Added extra Processing Code 09 – Purchase with Cashback Request.
28.11.2006	2.4		Added the subfield 63.33 (DUK/PT Key Serial Number)
12.02.2007	2.5		Added the subfields 57.21 (From Account Description) and 57.22 (To Account Description)

Date	Version	TWO Version	Description of Change
27.02.2007	2.6		The Pre-purchase completion request transaction: MTI = 0200 Processing Code = 00 Field 37 = <value transmitted by the host in response to Pre-purchase>
08.05.2007	2.7		Added extra Processing Codes: 61 – P2P Card Transfer, 62 – P2P Cash Transfer, P2P Calc Fee. Added subfields of the field 57: 61 – payee type, 62 – card PAN of the transfer recipient, 63 – acquiring fee amount.
14.05.2007	2.8		Added the subfield 63.29 (Additional Host Print Data)
08.08.2007	2.9		Added subfield of the field 57: 30 – fee amount.
04.12.2007	2.10		Added extra Processing Code 17 for the Cash Advance transaction.
18.01.2008	2.11		62 Working keys – modified the description of the subfield. Improved field 39 format description.
26.02.2008	2.12		Added fields 57.23 (From Account) and 57.24 (To Account)
13.03.2008	2.13		Added subfield 63.29 (Additional Data) in the request from the terminal
15.01.2009	2.14		The description of fields (Working Keys) and 62 (Working Keys) is extended
26.01.2009	2.15		Added the section “Field Usage in Different Messages”
06.03.2009	2.16	5.1.3.x	Added the subfield 63.34 (DUK/PT Key Serial Number 2)
20.03.2009	2.17		Changed the description of the field 55
07.04.2009	2.18		Changed the table for the use of fields in the messages. Added the request for connection check (Echo Test): MTI = 0800, Processing Code = 99.
13.05.2009	2.19		Changed the description of the field 60 Original Amount, there is indicated the necessity to send the amount of the original transaction considering the acquiring fee
09.06.2009	2.20		Added the subfield 63.89 (Reserved for Future Use).
11.06.2009	2.21		Changed the decryptions of the messages 0400/0410 in the “Fields Usage in Different Messages ” section.
16.06.2009	2.22	5.1.6.x	Added the sub-fields of the field 57: 50 – cardholder address, 64 – data on a person who sent the funds to VISA card via P2P Cash Transfer. Added the field 59 (Detail Addenda).

Date	Version	TWO Version	Description of Change
01.10.2009	2.23	5.1.7.x	Added new values of the field 22 (POS entry mode): 07– ContactlessEMV and 91 – ContactlessMSD. Extended the description of the field 57 (Additional Data). Added the subfields: 57.31 (Issuer fee) and 57.32 (Account currency code).
12.01.2010	2.24	-	Modified the description of the field 64 (section “Fields Usage in Different Messages”)
27.02.2010	2.25	-	Modified the description of the field 64 (MAC).
10.06.2010	2.26	5.1.11x	Supplemented the description of the field 57, subfield 64 (Sender Data).
30.08.2010	2.27	5.1.12.x	The tag 8A (ISO Authorization Response Code) can be transferred in the requests for Offline transactions.
06.10.2010	2.28	5.1.12.x	Supplemented the description of the field 39
06.12.2010	2.29	5.1.14.x	Supplemented the description of the field 59
22.04.2011	2.30	5.1.17.x	Added Processing Code 95 Extended the usage of the field 62 Added the “Traffic Encryption” section
27.05.2011	2.31	5.1.17.x	Extended the description of the fields 57 (Additional Data) and 59 (Detail Addenda).
30.05.2011	2.31	5.1.17.x	Extended the description of the field 57, subfield 64.
06.07.2011	2.32	-	Added the “Recommendations on Chip Card Transactions Processing ” section.
18.07.2011	2.33	5.1.18.x	Changed the description of the field 39 (the “Fields Usage in Different Messages” section). Extended the description of the field 39 (Response Code).
17.08.2011	2.34	-	Changed the description of the field P-1 Secondary Bitmap.
09.09.2011	2.34	-	Changed the description of the field 57, subfield 64.
26.11.2011	2.35	5.1.20.x	Added subfields: 57.58 (dynamic conversion amount) and 57.59 (Code of dynamic conversion currency).
22.12.2011	2.36	5.1.21.x	Added the subfield 57.80 (Transit Program) Added the subfield 57.71 (New PIN Confirm) Added the subfield 63.35 (DUKPT Key Serial Number 3)
13.03.2012	2.37	5.1.22.x	Added the subfield 57.51 (Address Verification Result)

Date	Version	TWO Version	Description of Change
02.05.2012	2.38	5.1.23.x	Added the Processing Code 51 – Payment Precheck Extended the description of field 4 (Transaction Amount) Added the subfield 57.11 (Vendor Institution)
17.05.2012	2.39	5.1.24.x	Added the Processing Code 59 – POS Message To Institution Extended the description of field 57 (Additional Data) Supported the POS Message To Institution, Cardless Cash Advance transactions
15.06.2012	2.40	5.1.23.x	Extended the description of the field 59 (Detail Addenda), see “Additional Data on VISA Fleet Cards”
26.07.2012	2.41	5.1.24.x	Supported *Cardless Cash Advance* for *ProcCode 01*
27.07.2012	2.41	5.1.24.x	Added the subfield *57.37 (External Retrieval Reference Number)*.
25.09.2012	2.42	5.1.25.x	Corrected the format and size of the subfield 57.90 (Subcode)
04.10.2012	2.43	5.1.25.x	Added the subfield 57.91 (Dynamic Value)
19.11.2012	2.44	5.1.26.x	Supported partial authorization: • Extended the description of the field 4 • Added the Response Code 10 (Partial approval).
19.11.12	2.44	-	Extended the description of the field 39: added the description of the Response Code 95.
17.01.13	2.45	5.1.27.x	Added the subfield 57.92 - MasterCard PayPass PAN Mapping File Information
14.03.13	2.46	5.1.28.x	Added new code of authorizer response (WeakPIN)
25.03.13	2.47	5.1.28.x	Added new field *58 – Detail Addenda Extended*
22.04.13	2.48	-	Corrected the *Invoice* Number format

Table of Contents

1. Overview

The document describes the TITP protocol designed for communication between the POS terminals (other similar devices) and systems with host supporting TranzWare Online (hereinafter - **TWO**) and TranzAxis. The protocol is based on ISO8583.

The part initiating request to TWO is referred to as *terminal, device*, *POS* and *POS terminal*. The service receiving requests from the terminal and responding is referred to as *server, host, driver* or *TWO*.

2. Terminal-to-Host Communication

When performing the financial transactions and administrative operations, the terminal exchanges messages with host. The connection is established/broken on the terminal initiative. The host connects to terminal either directly or via the network hub. In the first case, the terminal holds a connection during a transaction, in the latter case, the connection can be held permanently.

The exchange protocol includes one or several pairs of messages: terminal request and host response. The messages are transferred as packets incorporating message body and framing. The format of message body is based on ISO 8583. The frames allow to separate packets. TWO host supports several framing methods described in the document **Frame.doc**.

3. Message Format

A message consists of the elements of various format and length. The table below provides the message element formats:

Legend	Description
A	English characters (a-z, A-Z). Each character is 1-byte.
n	Digits (0-9). Each character is 1-nibble in the BCD encoding.
an	Alphabetic characters and digits (0-9, a-z, A-Z). Each character is 1-byte.
ans	Alphabetic characters, digits and special characters (all ASCII characters within the range from 20h to 7Eh). Each character is 1 byte.
b	Binary data. Each character is 1-byte.
z	Track 2 data read from the magnetic stripe. Each character is 1-nibble.
MM	Month
DD	Day
YY	Year
hh	Hour
mm	Minutes
ss	Seconds

The element length can be either fixed or variable. In the latter case, the element length is of one or two bytes (if the element max length exceeds 99) in BCD encoding.

The field length is shown as follows:

n5 – figure including 5 decimal digits

ans..16 – string including not more than sixteen characters

Message Structure

Description	Terminal Name (see below)	Header (see below)	Message Type Identifier (MTI)	Bit Map	Data Elements
Format	ans8	b5	n4	b8	…

Terminal Name

It contains the terminal unique name and transferred only if the message is encrypted, see p. 9 Traffic Encryption.

Header

The Header length is 5 bytes, its contents are neither analyzed nor used by the host. In the host response, the first byte from the request remains unchanged, whereas the 2nd and 3rd bytes are swapped with the 4th and 5th.

4. Message Type Identifier (MTI)

Format: n4

The *Message Type Identifier* (message type) parameter is a set of 4 digits, where the first pair of digits stands for the message class and the second one - for the message transfer mode.

The message type is mandatory for all the messages.

The table below lists all the available types of messages:

Transaction Type Identifier	Description
0100	Authorization Request
0110	Authorization Request Response
0200	Financial Transaction Request
0210	Financial Transaction Request Response
0220	Financial Transaction Advice
0230	Financial Transaction Advice Response
0320	Batch Upload Request
0330	Batch Upload Response
0400	Reversal Advice
0410	Reversal Advice Response
0500	Settlement Request
0510	Settlement Response
0800	Network Management Request
0810	Network Management Request Response

5. List of Fields

Field	Format	Description	Respective Field of the TWO Transactions Log
P-0	b8	Primary Bitmap	
P-1	b8	Secondary Bitmap	
P-2	n ..19	Primary Account Number	PAN
P-3	n6	Processing Code	
P-3.1	n2	Transaction Code	TRANCODE
P-3.2	n2	Debit Account Type	FROMACCTTYPE
P-3.3	n2	To Account Type	TOACCTTYPE
P-4	n12	Transaction Amount	AMOUNT
P-11	n6	System Trace Audit Number	
P-12	n6	Local (Terminal) Transaction Time	ORIGTIME
P-13	n4	Local (Terminal) Transaction Date	ORIGTIME
P-14	n4	Date, Expiration	
P-22	n3	POS Entry Mode	POSENTRYMODE
P-23	n3	Card Sequence Number	CARDMEMBER
P-25	n2	POS Condition Code	POSCONDITION
P-35	z ..37	Track 2 Data	TRACK2
P-37	ans12	Retrieval Reference Number	TRANNUMBER
P-38	ans6	Authorization Identification Response	APPROVALCODE
P-39	n2	Response Code	RESPCODE
P-41	ans8	Card Acceptor Terminal Identification	TERMNAME
P-42	ans15	Card Acceptor Identification Code	
P-45	ans ..76	Track 1 Data	TRACK1
P-48	b34	Working Keys	
P-49	an3	Transaction Currency Code	CURRENCY
P-52	b8	Personal Identification Number	PIN
P-54	an ..120	Additional Amounts	

Field	Format	Description	Respective Field of the TWO Transactions Log
P-55	b ..255	ICC System Related Data	ICC_APPPROFILE ICC_TVR ICC_TRANDATE ICC_TRANTYPE ICC_CURRENCY ICC_AMOUNT ICC_CBAMOUNT ICC_ISSUERDATA ICC_TERMCOUNTRY ICC_TERMSN ICC_CRYPTOGRAM ICC_CRYPTINFORMDATA ICC_TERMCAPS ICC_APPTRANCOUNT ICC_RANDOM ICC_TERRMTRANCOUNT ICC_ISSUERSCRIPT1 ICC_ISSUERSCRIPT2 ICC_IAD ICC_CARDMEMBER ICC_ISSUERSCRIPTRESULTS
P-57	ans ..999	Additional Data	
P-58	ans ..4000	Detail Addenda External	DETAILADDENDAEXT
P-59	ans ..4000	Detail Addenda	DETAILADDENDA
P-60	ans ..999	Private Use	
P-62	ans ..999	Private Use	
P-63	ans ..999	Private Use	
P-64	b8	MAC	

6. Fields Usage in Different Messages

M – mandatory

C – conditionally

O – optionally

ME – mandatory echo

CE – conditional echo

OE – optional echo

Field	100	110	200	210	220	230	320	330	400	410	500	510	800	810
P-2	C	CE	C	CE	C				C	CE				
P-3	M	ME	M	ME	M	ME	M	ME	M	ME	M	ME	M	ME
P-4	M	ME	C	CE C	C	CE	C	CE						
P-11	M	ME	M	ME	M	ME	M	ME	M	ME	M	ME	M	ME
P-12	C	CE, M	C	CE, M	C		M	ME	C	CE		M	O	OE, M
P-13	C	CE,M	C	CE, M	C		M	ME	C	CE		M	O	OE, M
P-14	C	C	C		C		M	ME		-				
P-22	M		M		M		M	ME		-				
P-23	C	CE	C	CE	C	CE								
P-25	M		M		M		M	ME		-				
P-35	C		C		C				C	-				
P-37		M	C	CE M	C	CE M	C			C		C		
P-38		C	C	C	C	C	C							
P-39		M	C	M	M	M		M	C	M		M		M
P-41	M	ME	M	ME	M	ME	M	ME	M	ME	M	ME	M	ME
P-42	O		O		O		O							
P-48		C		C		C				C				
P-49	C	CE	C	CE	C	CE			O	OE				
P-52	C	CE	C	CE										
P-54	C		C		C				C	CE				
P-55	C	C	C	C	C	C			C	C				
P-57	C	C	C	C	C	C								
P-58	O	OE	O	OE	O	OE			O	OE				
P-59	O	OE	O	OE	O	OE			O	OE				
P-60	C		C		C		M				M			
P-62	C		C		C				C	CE				C
P-63	C	C	C	C	C	C					C			
P-64	C	C	C	C	C	C	C	C	C	C	C	C		

7. Fields Definition

7.1 P-0 Primary Bitmap

Format: b8

Bitmap consists of 64 bits, each of them indicating the presence (bit=1) or absence (bit=0) of message elements described below.

Primary Bitmap is present in all the messages.

7.2 P-1 Secondary Bitmap

Format: b8

The second bitmap.

It is never used.

7.3 P-2 PAN

Format: n ..19

Card number.

If PAN contains odd number of characters, the field is right-padded with “F”, e.g. 1234567F.

7.4 P-3 Processing Code

Format: n6

The first two digits stand for the transaction code (Processing Code).

Processing Code	MTI	Transaction
00	0100	Pre-Purchase
	0200	Purchase if P-37 is absent Pre-Purchase Complete if P-37 is present
	0220	Offline Purchase if P-37 is absent Pre-Purchase Complete if P-37 is present
01	0200, 0220	Cash Advance if *PAN (*F2) is present
		Cardless Cash Advance if the request does not include *PAN (F2)*, but contains *ApprovalCode (F38)*
02	0200	Void
	0220	Offline Void if P4=0 Adjust purchase or adjust cash advance, if P4>0
03	0200, 0220	Void if P4=0 Adjust Purchase or Adjust Cash Advance if P4>0
09	0200	Purchase with Cashback
11	0200, 0220	Quasi Cash
17	0200, 0220	Cash Advance, if PAN (F2) is present
		Cardless Cash Advance, if PAN (F2) is absent in the request, but ApprovalCode (F38) is present
20	0200, 0220	Merchandize Return
21	0200, 0220	Deposit

Processing Code	MTI	Transaction
22	0200	Void
	0220	Offline Void if P4=0 Adjust Merchandize Return /Deposit if P4>0
30	0100	In protocol v.1 - Card Verification In protocol v.2 and later versions - Pre-Purchase
31	0100, 0200	Balance Inquiry
33	0200, 0220	Void if P4=0 Adjust Merchandize Return /Deposit if P4>0
34	0200	Statement Request
38	0100, 0200	Card Verification
40	200, 220	Transfer
50	0200, 0220	Payment
51	0200	Payment Precheck
53	0200, 0220	Prepaid
59	0200, 0220	POS Message To Institution
61	0200	P2P Card Transfer
62	0200, 0220	P2P Cash Transfer
63	0200	P2P Transfer Calc Fee
70	200	PIN Change
As in the original transaction	0320	Batch Upload

Processing Code	MTI	Transaction
As in the original transaction	0400	Previous Transaction Reversal
92	0500	Settlement Request
97	0500	Cutover Request (a terminal proceeds to the next business day)
96	0500	Settlement after Upload
92	0800	New Working Keys Inquiry from the Host
95	0800	New Working Key for traffic encryption inquiry
99	0800	Echo test (request for connection check)

The third and the fourth digits of the P-3 stand for the account type:

00 – default account

10 – savings account

20 – current (checking) account

30 – credit account

For the Transfer transaction, the 5th digit stands for the type of transfer destination account (To Account):

0 – default account

1 – savings account

2 – current (checking) account

3 – credit account

The 6th digit of the P-3 in the host response to the terminal can be equal to 4, thus enforcing the terminal to perform initialization.

7.5 P-4 Transaction Amount

Format: n12

Includes the transaction amount with the acquiring fee (if the terminal calculates the acquiring fee) in the transaction minor currency units (field P-49).

For the adjustment transactions, it contains the transaction adjusted amount.

For the partial reversal and partial void transactions, it contains reversal amount.

In the host response to the balance request, it contains the available balance.

In response to *Payment Precheck* transaction, it can contain new amount (amount to be paid).

For the partial authorization (P-39=10), it transfers the approved transaction amount in the host response.

7.6 P-11 System Trace Audit Number

Format: n6

The message number assigned by the terminal increases with each message. In the reversal, this field value matches the one of the original transaction. In the host response, the field value matches the one of the respective request.

7.7 P-12 Local (Terminal) Transaction Time

Format: n6 (HHMMSS)

Includes the terminal local time.

7.8 P-13 Local (Terminal) Transaction Date

Format: n4 (MMDD)

Includes the local date of terminal initiated a transaction.

7.9 P-14 Date, Expiration

Format: n4 (YYMM)

Card expiration date. The field is used in case Track I and Track II data are absent.

7.10 P-22 POS Entry Mode

Format: n3

The first two digits indicate the card data entry mode:

01 – Manual

02 – Magnetic stripe

05 - ICC read

07 – ContactlessEMV

09 – Magnetic stripe

80 – EMV Fallback transaction

90 – Magnetic stripe

91 – ContactlessMSD

The third digit indicates the PIN entry facility at the current terminal:

1 – PIN can be entered

2 – PIN cannot be entered.

7.11 P 23 Card Sequence Number

Format: n3

Includes the card member number (MBR).

7.12 P-25 POS Condition Code

Format: n2

Includes a code indicating the transaction conditions:

00 – normal

03 - merchant suspicious

05 - card not present

08 - mail/phone order

7.13 P-35 Track 2

Format: z ..37

Includes the information from the second track of the card magnetic stripe (originator), to the exclusion of the start and end sentinels and LRC. It is allowed to use ‘=’ or ‘D’ as a separator.

If Track2 includes odd number of characters, the field is right-padded with “F”, e.g. 12345678901234=041210111234F.

7.14 P-37 Retrieval Reference Number

Format: ans12

Includes the transaction identifier assigned by host. The value in the void request must match the one in the source transaction.

7.15 P-38 Authorization Identification Response

Format: ans6

Includes the response identification code (approval code) assigned by the authorization institution to the approved transaction.

Request:

It is present for the *Pre-Purchase Complete* transactions and indicates approval code of the original *Pre-purchase* transaction; it is also recommended for the approved transaction of the type 220 (Financial Transaction Advice).

Response:

It is present for any approved transactions.

7.16 P-39 Response Code

Format: ans2

Includes the authorizer response code.

The table provides a list of the available codes transferred to the terminal.

Code	Description
00	Approved
01	Contact card issuer
03	Format error
05	External decline
10	Partial approval
12	Invalid transaction
13	Merchant limit exceeded
14	Invalid track 2
25	Weak PIN
30	Invalid format
41	Lost card
43	Stolen card
51	Insufficient funds
54	Expired card
55	Invalid PIN, PIN tries exceeded
58	Invalid processing code
62	Invalid MAC
78	Original request not found
81	Wrong format of customer information field (Invalid format of the payment information field)
82	Prepaid Code not found (Prepaid-code to the defined amount is not found)
89	Invalid terminal id.
91	Destination not available
94	Duplicate transmission
95	Reconcile error, should start Batch Upload
96	System error

The field can be present in the offline-request in order to transfer the transactions declined offline to host.

Response code transmitted to terminal in case the card must be captured is specified on host.

It can contain the void reason in the reversals and Transaction Void requests (VOID). The table provides a list of available values:

Code	Description
01	Timeout. The terminal generates such reversal if it does not receive the

Code	Description
	response to the previous request.
08	Reversal at the request of customer.
10	Reversal initiated by the terminal in case of terminal technical fault.
20	Reversal performed due to the high risk of fraud operation (Fraud Alert).
21	Reversal initiated by the terminal in case the received response contains invalid MAC.

7.17 P-41 Card Acceptor Terminal ID

Format: ans ..8

Includes the terminal unique name.

7.18 P-42 Card Acceptor ID Code

Format: ans15

Includes the terminal unique code.

7.19 P-45 Track 1

Format: ans ..76

Includes the information from the first track of the card magnetic stripe (originator), to the exclusion of the start and end sentinels and LRC.

7.20 P-48 Working Keys

Format: b34

It is used to transfer the working keys to the terminal. The field may be present in the response to the request sent from the terminal in case MAC verification was not successful.

Subfield	Format	Size (byte)	Value
Length	B2	2	'0x00 0x32'
MAC	b16	16	Cryptogram of new working MAC key.
PIN	b16	16	Cryptogram of new working PIN key.

Single-length working keys (8 bytes) are right-padded with binary zeros up to 16 bytes.

E.g.:

For the single-length key (hex): b5 cb 01 f2 35 0d aa 0b,

b5 cb 01 f2 35 0d aa 0b 00 00 00 00 00 00 00 00 will be transmitted to the terminal.

If PIN keys are not used, the PIN subfield transfers ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff (hex) to the terminal.

7.21 P-49 Transaction Currency Code

Format: an3

Includes ISO numeric code of the transaction currency. If the field is empty, code from the host settings is applied.

7.22 P-52 PIN

Format: b 8

Includes PIN-block cryptogram.

PIN-block format: ANSI X9.8 (ISO Format 0).

7.23 P-54 Extra Amounts

Format: an ..120

Includes the acquiring fee amount in the transaction currency (P-49).

Negative fee (“-“ precedes the amount) stands for the acquiring bonus.

If it is present in the original transaction, it is mandatory for the partial reversal and partial void transactions and it must contain the amount of the fee being returned. E.g.:

For the original transaction to the amount of 100.00 USD with the fee 1.00 USD (1% of the amount), the terminal should send the following data:

F4=’000000010100’ (transaction amount with the fee)

F49=840 (transaction currency is USD)

F54=’000000000100’ (fee amount)

If the transaction actual amount is 80.00 USD, the terminal should send a partial void containing the following data:

F4=’000000002020’ (reversal amount with the fee)

F49=840 (transaction currency is USD)

F54=’000000000020’ (amount of the fee being returned)

7.24 P-55 ICC System Related Data

Format: b ..255

The data related to EMV transactions are packed in compliance with BER-TLV standard. Transaction EMV tags requirements are provided in the documentation **EMV2000**).

Message Type	Tag	Length, bytes	Value
REQUEST	9F26	8	Application Cryptogram
	9F27	1	Cryptogram Info Data
	9F10	..32	Issuer Application Data
	9F37	4	Unpredictable Number
	9F36	2	ATC
	95	5	TVR
	9A	3	Transaction Date
	9C	1	Transaction Type
	9F02	6	Transaction Amount
	5F2A	2	Transaction Currency Code
	5F34	1	Application Sequence Number
	82	2	Application Interchange Profile
	9F1A	2	Terminal Country Code
	9F03	6	Amount Other
	9F33	3	Terminal Capabilities
	4F	5..16	Application ID
	9F08	2	Application Version Number
	9F34	3	CVM Results
	9F35	1	Terminal Type
	9F1E	8	IFD Serial Number

Message Type	Tag	Length, bytes	Value
	9F53	1	Transaction Category Code
	84	5..16	Dedicated File Name
	9F09	2	Terminal Application Version Number
	9F41	2..4	Transaction Sequence Counter
	9F5B	..20	Issuer Script Results Transmitted in the reversals only.
	8A	2	ISO Authorization Response Code Transmitted in the Offline transactions only.
RESPONSE	91	8..16	Issuer Authentication Data
	71	..127	Issuer Script Template 1
	72	..127	Issuer Script Template 2
	8A	2	ISO Authorization Response Code

7.25 P-57 Additional Data

Format: ans ..999

It is used by the terminal and host to transfer the transaction additional data. For the protocol v.3, it is not transferred in the host responses.

The field can include one or several subfields. Each subfield has own identifier of length and subfield type, thus enabling to extend a list of subfields without violating the field parsing rules.

Subfield format:

Subfield Length n3 - length of the subfield including the Subfield ID ('LLL' – ASCII) length

Subfield ID n2 - subfield identifier (ASCII)

Subfield body ans..999 - subfield contents

Subfield ID	Format	Size	Description
10	ANS..30	Up to 30 bytes	To Account – destination account, in payment transaction – vendor account, in Prepaid – Prepaid-provider account, in Transfer transaction – transfer destination account
11	n..9	Up to 9 bytes	Vendor Institution – identifier of the vendor institution in the *Payment* and *Payment Precheck* transactions. It is mandatory if the vendor financial institution differs from the terminal institution.
12	ANS..900	Up to 900 bytes	Personal Payment Information – payment details entered by the cardholder (e.g.: phone number). It may include several '/'-separated fields (e.g.: '12345/6789/111')
15	ANS..100	Up to 100 bytes	Prepaid code to be printed on an invoice. It is posted in the response to the Prepaid transaction. Format: Code1[/Code2].
21	ans..250	Up to 250 bytes	From Account Description – description of the source account. If present, it is posted in response to a transaction.
22	ans..250	Up to 250 bytes	To Account Description – description of the destination account. If present, it is posted in response to a transaction.
23	ans..30	Up to 30 bytes	From Account – source account number. If present, it is posted in response to a transaction.

Subfield ID	Format	Size	Description
24	ans..30	Up to 30 bytes	To Account – destination account number. If present, it is posted in response to a transaction.
30	a1 + n12	13 bytes	Acquiring fee amount in the transaction currency. If present, it is posted in response to a transaction. The first character is D or C: • D – fee amount to be debited • C – fee amount to be credited (bonus)
31	a1 + n12	13 bytes	Issuer fee amount in the account currency. If present, it is transferred in the response to transaction. The first char is D or C: • D – fee amount is debited from the account • C – fee amount is credited to the account (e.g., bonus)
32	n3	3 bytes	ISO numeric code of the account currency. It is transferred in the response if the issuer fee is present.
34	ans..300	Up to 300 bytes	Statements records – posted in response to the Statement transaction, contains the card history. The field includes several records of the fixed size (each string is a separate operation). The record format: an20: mmddkkk000000000000s where dd – day, mm – month, kkk – operation code (see TWO dictionary), 000 – amount (indicated in the minor currency units, left-padded with spaces), s – character (+,-). E.g.: ‘0707022 121200-0707022 1200-0707022 12100-‘.
37	ans..12	Up to 12 bytes	External Retrieval Reference Number – transaction identifier sent to the external payment system. It is transferred in the response to the transactions authorized in the external system.
50	ans..50	Up to 50 bytes	Cardholder address. It is indicated in the Pre-purchase, Purchase and Card Verification transactions if it is necessary to verify an address. The field contains the following sub-fields separated by

Subfield ID	Format	Size	Description
			character with the 0x1D code: 1) PostalCode – cardholder postal code; 2) Address – cardholder address in Latin upper-case chars. Numeric data must be transferred as digits, e.g.: "Thirty-One Park Place" must be transferred as "31 Park Place".
51	a1	1 byte	Result of the cardholder address verification. It is specified in the response to the transaction which processing involves verification of the address transferred in *P57.50*. See the available values in the “Result of the cardholder address verification” table.
58	n12	12 bytes	Transaction amount in the minimum units of the dynamic conversion currency. It is specified in the request together with the Subfield ID 59 if the terminal supports the Dynamic Currency Conversion (DCC).
59	n3	3 bytes	ISO code of the dynamic conversion currency. It is specified in the request together with the Subfield ID 58 if the terminal supports Dynamic Currency Conversion (DCC).
61	n1	1 byte	Sender type: • ‘1’ – unknown • ‘2’ – on-us • ’3’ – resident • ’4’ – foreign It is indicated in the *P2P Cash Transfer* and *P2P Transfer Calc Fee* transactions.
62	n..19	Up to 19 bytes	Card PAN of the transfer recipient. The field is mandatory for the following transactions: • P2P Card Transfer • P2P Cash Transfer • P2P Transfer Calc Fee
63	a1 + n12	13 bytes	Acquiring fee amount in the transaction currency (field p-49) is transmitted in response to the *P2P Transfer Calc Fee* transaction.

Subfield ID	Format	Size	Description
			The first character is D or C: • D – fee amount to be debited • C – fee amount to be credited (e.g.: bonus)
64	ans…250	Up to 250 bytes	Data on a person who sent the funds to payment system card via P2P Cash Transfer transaction It is indicated in the transaction request. The field contains the following sub-fields separated by the character with the code 0x1D: 1) <reserved> – bank field; 2) SenderName – sender name in Latin upper-case chars; 3) ResidentCityInLatin – sender city in Latin upper-case chars; 4) ResidentCountry – sender country code; 5) SenderPostalCode – sender postal code 6) Address – sender address 7) RecipientName 0 recipient name in Latin chars 8) IdentificationType – type of identity document 1 – passport 2 – driving license 3 – social insurance number 4 – TPN 9) IdentityNumber – document number
70	ans16	16 bytes	New PIN. It is used in the PIN Change transaction, contains PIN block with the new PIN entered by the customer. It is posted as ASCII Hex. E.g.: the 0123456789ABCDEF block will be posted as hex 30 13 32 33 34 35 36 37 38 39 41 42 43 44 45 46.
71	ans16	16 bytes	New PIN Confirmation. It is used in the PIN Change transaction, contains PIN block with repeated PIN entered by customer. It is posted as ASCII Hex. E.g.: the 0123456789ABCDEF block will be posted as hex 30 13 32 33 34 35 36 37 38 39 41 42 43 44 45 46.
75	ans11	Up to 11 bytes	Agent Unique Account Result. For details, refer to specifications V.I.P. System BASE I

Subfield ID	Format	Size	Description
			Technical Specifications, Volume 1 and V.I.P. System SMS POS Technical Specifications, Volume 1, section "FIELD 126.18 - AGENT UNIQUE ACCOUNT RESULT".
80	ans4	4 bytes	Transit Program. Consists of 2 subfields: 1. Transit Transaction Type Indicator Available values: • 01 Prefunded • 02 Real-time Authorized • 03 Post-Authorized Aggregated • 04 Authorized Aggregated Split Clearing • 05 Other • 06-99 Reserved for Future Use 2. Transportation Mode Indicator Available values: • 00 Unknown • 01 Urban Bus • 02 Interurban Bus • 03 Light Train Mass Transmit (Underground Metro, LTR) • 04 Train • 05 Commuter Train • 06 Water Borne Vehicle • 07 Toll • 08 Parking • 09 Taxi • 10 High Speed Train • 11 Rural Bus • 12 Express Commuter Train • 13 Para Transit • 14 Self Drive Vehicle • 15 Coach • 16 Locomotive • 17 Powered Motor Vehicle

Subfield ID	Format	Size	Description
			• 18 Trailer • 19 Regional Train • 20 Inter City • 21 Funicular Train • 22 Cable Car • 23-99 Reserved for Future Use For details, refer to *MasterCard Customer Interface Specification* / section *"DE 48-Additional Data-Private Use, Subelement 64–Transit Program"*.
90	n 12	12 bytes	Subcode Transaction subcode. It is used in the *POS Message To Institution* transaction.
91	ans..301	up to 301 bytes	Dynamic value This dynamic value is written to the TERMLOCATION transaction field. Field structure: 1 byte – flag of the operation with the dynamic value (0 – add dynamic value to the terminal address, 1 – replace the terminal address by the dynamic value) 2-301 bytes – dynamic values
92			It contains the *MasterCard PayPass PAN Mapping File Information*. See the field format and description in the *MasterCard Customer Interface Specification*, section *Chapter 4 Data Element Definitions*, *DE 48—Additional Data—Private Use, Subelement 33—PAN Mapping File Information*.

Result of the cardholder address verification

Value	Result of the postal code verification	Address Verification Result
A	Match	Mismatch
B	Not verified due to incompatible formats	Match
C	Not verified due to incompatible formats	Not verified due to incompatible formats
D	For VISA only: match	For VISA only: match
F	For addresses in the UK only: match	For addresses in the UK only: match
G	Address cannot be verified as it is the international transaction (the issue is outside the USA)	
I	Address cannot be verified as it is the international transaction	
M	Match	Match
N	Mismatch	Mismatch
P	Match	Not verified due to incompatible formats
R	Service is unavailable	
S	Service is not supported by the acquirer	
U	No data for address verification/service is not supported by the issuer	
W	Match (for addresses in the USA, the 9 digit postal code matches)	Mismatch
X	Match (for addresses in the USA, the 9 digit postal code matches)	Match
Y	For addresses in the USA only: the 5 digit postal code matches	Match
Z	For addresses in the USA only: the 5 digit postal code matches	Match

7.26 P-58 Detail Addenda Extended

Format: ans..4000

It is used by the terminal to transfer the information on the extra programs, services and other peculiarities concerned the financial transaction.

For details on parameters, see xsd scheme *tranAddendum.xsd.*

7.27 P-59 Detail Addenda

Format: ans..4000

It is used by the terminal to transfer the information on the extra programs, services and other peculiarities concerned the financial transaction. The field is used in clearing.

For the transactions by *American Express* cards, it corresponds to the *AEGNS Industry Specific Detail Addenda (9240/9340)* messages. See the field format description in specification *American Express/Addenda Messages*.

For the air ticket purchase transactions by VISA cards, the field transfers the ticket number in the tag VISAAVIATICKET. In this case, the format of data transfer is as follows: tag name «VISAAVIATICKET», the symbol «=», field value (air ticket number).

7.27.1 Additional Data on VISA Fleet Cards

The field transfers the additional data for the transactions by the VISA Fleet cards performed at the "fuel merchants" terminals.

The terminals with the following MCCs are of the “fuel merchants” class:

MCC	Description
4468	Marinas, Marine Service, and Supplies
5499	Miscellaneous Food Stores—Convenience Stores and Specialty Markets
5541	Service Stations (with or without ancillary services)
5542	Automated Fuel Dispensers
5983	Fuel Dealers—Fuel Oil, Wood, Coal, and Liquefied Petroleum

Format of data being transferred

The data are transferred as a structure in the UAMP format. The structure consists of the subfields separated by the symbol 0x10(hex). The subfields format is ‘parameter=value’, where ‘parameter’ is a parameter notation (see below), ‘value’ – parameter value. If the value contains the symbol ‘=’, it is replaced by [SP]3D, where [SP] is special symbol 0x13, ‘3D’ – ASCII code of the symbol ‘=’, that is, in hex format, the value is as follows 0x13 0x33 0x44. The symbols with the following codes are also forbidden: 0x0a, 0x10, 0x1d, 0x1c, 0x07, 0x13. To transfer these symbols, the special symbol [SP] is used, e.g., [SP]0A, [SP]10, [SP]1D, etc. For details on the UAMP format, refer to UAMP.doc.

Currently, the following data can be transferred:

Parameter	Notation	Format
Purchasing Card Data	PCD	ans..17
Type of Purchase	01	an1
Service Type	02	an1
Fuel Type	03	an2
Unit of Measure	04	an1
Quantity	05	n12
Unit Cost	06	n12
Gross Fuel Price	07	n12
Net Fuel Price	08	n12

Parameter	Notation	Format
Gross Non-Fuel Price	09	n12
Net Non-Fuel Price	0A	n12
Odometer Reading	0B	n7
VAT/Tax Rate	0E	n4
Miscellaneous Fuel Tax Exemption Status	0F	an1
Miscellaneous Fuel Tax	10	n12
Miscellaneous Non-Fuel Tax Exemption Status	11	an1
Miscellaneous Non-Fuel Tax	12	n12
Local Tax Included	13	an1
Local Tax	14	n12
National Tax Included	15	an1
National Tax	16	n12
Other Tax	17	n12
Merchant VAT Registration/Single Business Reference Number	18	an20
Customer VAT Registration Number	19	an13
Message Identifier	1B	an15
Additional Data Indicator	1C	an1
Summary Commodity Code	1E	n4
Non-Fuel Product Code 1	1F01	an2
Non-Fuel Product Code 2	1F02	an2
Non-Fuel Product Code 3	1F03	an2
Non-Fuel Product Code 4	1F04	an2
Non-Fuel Product Code 5	1F05	an2
Non-Fuel Product Code 6	1F06	an2
Non-Fuel Product Code 7	1F07	an2
Non-Fuel Product Code 8	1F08	an2
Fuel Brand	1F09	an4
Fuel Transaction Validation Results	1F0A	an5
Fuel Acceptance Mode	1F0B	an1
Driver Identification	1F0C	an20
Job Number	1F0D	an10
Fleet Number	1F0E	an8
Vehicle Registration Number	1F0F	an14

For details on parameters, refer to the specifications V*.I.P. System BASE I Technical Specifications, Volume 1* and *V.I.P. System SMS POS Technical Specifications, Volume 1:*

- See the details on the Purchasing Card Data parameter in section "FIELD 48, USAGE 36 – PURCHASING CARD DATA"
- See the details on other parameters in section "FIELD 104, USAGE 2 – TRANSACTION-SPECIFIC DATA, Dataset ID 5C, Commercial Card Data".

7.28 P-60 Private Use

Format: ans..999

It is used by the terminal to transfer transaction extra details.

7.28.1 Batch Number

Format: ans6

Batch number is sent to the host on closing the batch (message type 0500).

7.28.2 Original Message Data

Format: an 22

The original transaction data are used on unloading the transactions batch (message type 0320) .

Field	Format	Size, bytes	Value
Original Message Type	an 4	4	Original transaction message type
Original Systems Trace Audit Number	an 6	6	Original transaction P-11 value
Reserved	an 12	12	Reserved for future use

7.28.3 Original Amount

Format: an 12

For the Adjustment transaction, it includes the original amount of the transaction being adjusted, at that, considering the acquiring fee.

For the Reversal and Void transactions, it includes the amount of the original transaction.

7.28.4 Cashback Amount

Format: an 12

It is used in the *Purchase with Cashback* transaction and includes cashback amount.

7.29 P-62 Private Use

Format: ans..999

It is used by the terminal in order to transfer transaction extra data.

7.29.1 Invoice Number

Format: an 6

Includes invoice number in the messages 0100, 0200, 0220, and 0320.

7.29.2 Working Keys

It is used to update the working keys. The field is transferred in the message 0810 – in response to the new working keys request (Processing Code 92). All the keys must have the same length – 8 or 16 bytes.

If one of the keys is not used, the field of that key transfers ‘ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff’ (hex) to the terminal.

Field	Format	Size, bytes	Description
Extra length	n 4	2	'0x00 0x16' or '0x00 0x32' - BCD length
PWK	B	8 or 16	Working PIN key encrypted by the terminal master key
MWK	B	8 or 16	Working MAC key encrypted by the terminal master key

7.29.3 Working EWK

Format: b 8 or b 16

It is used to update the working key of traffic encryption (EWK). The field is transferred in the message 0810, in response to the EWK request (Processing Code 95). It contains the EWK encrypted by the appropriate terminal master key. It can be of single or double length.

7.30 P-63 Private Use

Format: ans..999

7.30.1 Extra Data in Request

It is used by the terminal to transfer transaction extra data.

On receiving a request from the terminal, it contains one or several subfields.

Field format:

Field	Format	Size, bytes	Value
Length	n4	2	'0LLL' – BCD length of the data.
Subfield (1)		var	First subfield.
Subfield (2)		var	Second subfield.
: : :	: : :	: : :	Extra data can be transferred in any order. Each subfield contains own identifier and length. Unknown elements can be skipped.
Subfield (N)		var	N subfield.

Available subfields:

- CVV2
- DUK/PT Key Serial Number
- DUK/PT Key Serial Number 2
- Additional Data

7.30.1.1 CVV2

Field	Format	Size, bytes	Value
Extra length	n 4	2	'0LLL' – BCD length of the data.
Field ID	ans 2	2	‘16’ - CVV2 data

Field	Format	Size, bytes	Value
Value	an 6	6	6 characters of the CVV2 data **Position 1** 0 - CVV2 value is not transferred 1 - CVV2 value is present 2 - CVV2 value is present but illegible 9 – cardholder states that CVV2 is not present. **Position 2** 0 – return only the response code. 1 – return the response code and CVV2 verification code. **Position 3-6** CVV2 value (left-padded with spaces) If position 1 = 0, 2 or 9, the positions 3-6 should be space-padded.

7.30.1.2 DUK/PT Key Serial Number

Field	Format	Size, bytes	Value
Extra length	N4	2	'0LLL' - BCD length of the data
Field ID	ans 2	2	'33' - DUKPT data
Value	ans 20	20	Includes *Key Serial Number* for the DUKPT encryption. *Key Set Id* is transmitted in the decimal encoding. The value is right aligned. If necessary, it is left-padded with '0xFF' binary characters.

7.30.1.3 DUKPT Key Serial Number 2

Field	Format	Size, bytes	Value
Extra length	N4	2	'0LLL' - BCD length of the following data

Field	Format	Size, bytes	Value
Field ID	ans 2	2	‘34’ - DUK/PT data
Value	ans 20	20	Includes *Key Serial Number* for DUK/PT encryption. *Key Set Id* is transferred in *Key Serial Number* in the decimal encoding. The value is right aligned. If necessary, it is left-padded with ‘0xFF’ binary characters. It can be used in *PIN Change* transaction if the terminal encrypts new PIN block by another key.

7.30.1.4 DUKPT Key Serial Number 3

Field	Format	Size (bytes)	Value
Extra length	N4	2	'0LLL' - BCD length of the following data
Field ID	ans 2	2	‘35’ - DUKPT data
Value	ans 20	20	Includes *Key Serial Number* for DUKPT encryption. *Key Set Id* is transferred in *Key Serial Number* in the decimal encoding. The value is right aligned. If necessary, it is left-padded with ‘0xFF’ binary characters. It can be used in *PIN Change* transaction if the terminal encrypts new PIN block with the re-entered PIN by another key.

7.30.1.5 Additional Data

Field	Format	Size, bytes	Value

Field	Format	Size, bytes	Value
Additional length	N4	2	'0LLL' - BCD length of the following data
Field ID	ans 2	2	‘29’
Value	ans ..x	x	Additional textual data.

7.30.1.6 Reserved for Future Use

Currently, this subfield is not used.

Field	Format	Size, bytes	Value
Extra Length	N4	2	'0LLL' - BCD length of the following data
Field ID	ans 2	2	‘89’
Value	ans ..x	x	Data of variable length

7.30.2 Data in Response to Terminal

7.30.2.1 Balance Inquiry

In response to the Balance Inquiry transaction, it contains the available balance:

Format:

1. Currency character code - 3 chars (e.g.: “UAH”, “USD”, “EUR”, “RUR”, etc.)
2. Space
3. Char (“-“ or “ “)
4. Amount with a decimal point and fraction (e.g.: “14.00”)

Total: “UAH -14.00”

7.30.2.2 Extra Information

In other cases, it can contain extra information which can be printed on an invoice.

The extra information is transferred in the subfields described below. These fields do not duplicate each other, therefore both of them can be present in the response.

7.30.2.2.1 Alternate Host Response

Field	Format	Size, bytes	Description
Additional length	N4	2	'0LLL' - BCD length of the data
Field ID	ans 2	2	‘22’
Value	ans 40	40	Additional textual data to be printed on an invoice. The field is of fixed length.

7.30.2.2.2 Additional Host Print Data

Field	Format	Size, bytes	Description
Additional length	N4	2	'0LLL' - BCD length of the data
Field ID	ans 2	2	‘29’
Value	ans ..x	x	Additional textual data to be printed on a receipt. The field is of variable length.

7.30.2.2.3Reserved for Future Use

Currently, this subfield is not used.

Field	Format	Size, bytes	Value
Extra Length	N4	2	'0LLL' - BCD length of the following data
Field ID	ans 2	2	‘89’
Value	ans ..x	x	Data of variable length

7.30.3 Reconciliation Request Totals

Format: an 60

Totals are sent to the host for reconciliation in the message 0500 (Processing Code = 92).

Field	Format
Number of debit operations on credit cards	an 3
Amount of debit operations on credit cards	an 12
Number of credit operations on credit cards	an 3
Amount of credit operations on credit cards	an 12
Number of debit operations on debit cards	an 3
Amount of debit operations on debit cards	an 12
Number of credit operations on debit cards	an 3
Amount of credit operations on debit cards	an 12

Reversed/voided transactions are not included into totals. The adjustment transactions impact the amount of totals but do not impact the number of transactions.

7.31 P-64 MAC

Format: b8

Includes Message Authentication Code. MAC can be indicated in all the messages to the exclusion of 0800.

The whole message, except for the Header fields is used to calculate MAC.

MAC in the request from terminal is calculated with the enabled bit 64 in Primary Bitmap.

MAC in the message to terminal is calculated with the disabled bit 64 in Primary Bitmap.

8. Message Exchange Algorithm

8.1 Financial Online Transactions

Once the messages 0100 or 0200 are sent, the terminal is waiting for the response 0110 or 0210 from the host. If the response hasn't been received within the definite time period or it has been received in the invalid format, the terminal should reverse the transaction.

Once a financial advice 0220 or reversal 0400 has been sent, the terminal is waiting for the response 0230 or 0410. If a correctly formatted response hasn't been received within the definite time period, the terminal should resend the message 0220 or 0400.

8.2 Totals Reconciliation

On closing a batch, the terminal sends a message 0500 with P-3=920000 and the totals in P-63 to the host. The host reconciles the totals. If the totals match, the host posts to the terminal 0510 with P-39=00. In case no match is found, the host posts 0510 with P39=95. On receiving such response, the terminal may unload all the batch transactions to the host for further reconciliation in the messages 0320.

The message 0320 allows to unload the batch. Once all the batch transactions have been unloaded, the terminal sends 0500 with P-3=960000.

9. Traffic Encryption

The traffic encryption feature is optional, if it is enabled, the messages are sent encrypted. But note that only the Data Elements are encrypted (see section 3 Messages Format), the Header, MTI and Bit Map are transferred in clear text.

The encryption is based on the 3DES algorithm in the Cipher Block Chaining (CBC) mode with the zero initialization vector.

If the traffic is encrypted, the terminal name in clear text must be specified at the beginning of the message. The terminal name is used to determine the traffic encryption working key (EWK).

There is provided the facility to dynamically change the EWK. To obtain a new EWK, terminal sends the request with the message type 0800 and Processing Code 95. The request can be transferred encrypted (by the current EWK) or in clear text (e.g., it the first request for EWK). If the request is sent unencrypted, do not specify the terminal name at the beginning of the request. New EWK is transferred to terminal in the field 62.

If the traffic encryption option is enabled, the terminal can send some message in clear text (without the terminal name at the beginning). In this case, the response to terminal will be also transferred unencrypted, e.g. the non-financial message of terminal can be sent in clear text

10. Recommendations on Chip Card Transactions Processing

The recommendations are based on EMVCo “Recommendations for EMV Processing for Industry-Specific Transaction Types” v.1.1, Dec.2008. There are the following types of transactions initiated by chip cards:

1. **EMV transaction executed by the complete scheme**. It is a debit financial transaction (purchase of goods/services or disbursement of cash) that is executed regarding all mandatory functions described in the EMV specifications. Approved Transactions of such type must result in generation of TC cryptogram. If the card decides to authorize the request online, the terminal transmits the ARQC cryptogram and all the data used by card to calculate the cryptogram in the field 55 of the authorization request. The terminal must also specify that the card entry mode is chip in the field 22. For the on-us transactions, the host controls the ATC increment in each new transaction by the particular card.
2. **EMV transaction executed by the simplified scheme** (“Non-EMV Transaction using EMV functionality” in the EMVCo recommendations). It is non-financial transactions, e.g., informational and technical requests, deposit, adjustment, pre-authorization completion transactions. The terminal is able to execute such transaction by the complete scheme, in this case, the request is created according to the requirements described in p.1. To execute the transaction by the simplified scheme following the EMVCo recommendations, the terminal selects the application, initiates the transaction by card, reads the payment application data sufficient for authorization request creation, and completes by the AAC cryptogram request. In the authorization requests, the field 55 is absent, but the terminal specifies the chip entry mode in the field 22.
3. **Fallback to magnetic stripe**. It is a Fallback request if the field 55 is absent and the card entry mode 80 (EMV Fallback transaction) is specified in the field 22.

The notifications on transactions completed offline without the host connection establishing must be sent as requests with MTI 0220. In this case, they will be processed by host as electronic Slip.

The terminal must not transfer the chip fields from the original request in the requests for adjustment and preauthorization completion. It is recommended to use the simplified scheme to execute the adjustment or preauthorization completion transaction if the transaction is executed by the chip card as original transaction.

In the reversal requests, the terminal can transfer the chip fields from the original request, except for the following fields: Terminal Verification Results, Issuer Application Data and Issuer Script Results. If the terminal does not transfer the original chip fields in the reversal, the host uses the chip data from the original request.

10.1 Recommendations on Processing of Contactless Card Transactions

A set of fields in the message authorizing the contactless chip card transactions is identical to that presented in the message authorizing the EMV transactions; the same applies to the contactless magstripe card transactions. Therefore, for the proper processing of transactions by the contactless cards, the terminal should explicitly define the contactless entry mode in the field 22.

To ensure the proper unloading of information on the cardholder verification procedure to clearing file, the tag 9F34 “CVM Results” must be transferred in the requests for PayPass – MagStripe transactions. The values of this tag are created according to the EMV specifications.

Samples of CVM Results values for the PayPass – MagStripe transactions:

Method	Value	Description
Online PIN	020000	Fail CV if unsuccessful - Online Encrypted PIN - Always - Result unknown
Signature	1E0000	Fail CV if unsuccessful - Signature (paper) - Always - Result unknown
No CVM	1F0002	Fail CV if unsuccessful - No CVM - Always - Result successful