NARADA® FINANCIAL SWITCH POS TERMINAL INTERFACE SPECIFICATION DOCUMENT

VERSION 4.0

Prepared By

Yalamanchili Software Exports Limited
Shakti Towers, Tower-1, Floor-2
No.766 Anna Salai,
Chennai, India. PINCODE: 600 002

NON-DISCLOSURE AGREEMENT

The reader of this document hereby undertakes to keep all information, documents, and knowledge of whatever kind obtained by them or by any of our advisers or agents (whether orally, in writing or in any way recorded or by observation ("the Information"), Yalamanchili International Pte Ltd. Singapore in connection with the proposals referred to in clause three below (hereafter referred to as "YALAMANCHILI") secret and confidential and we further undertake, agree and acknowledge the following:

The reader will not (save with the prior written consent of YALAMANCHILI or as required by law or the relevant regulatory body) communicate any of the Information to any other person or body, ("except associated companies"), in connection with the proposals referred to in the clause below.

The reader will not make or permit or procure to be made or solicit or assist any other person to make any announcement or disclosure of our discussions with YALAMANCHILI, whether or not any discussions commence, proceed or are terminated, without YALAMANCHILI's prior written consent except as required by law or competent regulatory body. If agreements to any cooperation with YALAMANCHILI, at or after the date of such cooperation, no announcement of the cooperation will be made except by mutual agreement between YALAMANCHILI and the reader or as required by law or competent regulatory body.

The reader will make no use of the Information for any purpose other than giving consideration to the possibility of putting forward proposals concerning a potential cooperation with YALAMANCHILI or for the purpose of such proposals, and, in particular, but without prejudice to the generality of the foregoing, the reader will not use the Information to obtain any commercial benefit or for any purpose detrimental to YALAMANCHILI.

Document Version History

Sl. No	Section Changed	Amended By	Amended Date	Description of Change	Resultant Version No.	Origin of Change
1	Draft	MuthuKumar R.				
2	2,3 & 4	MuthuKumar R.	06-Feb-12	UPDATED DATA FIELD DESCRIPTION	1.1	1.0
3	2 & 4	Muthukumar R.	13-APR-12	INCLUDED DE:07 AND FOR NETWORK MESSAGE	1.2	1.1
4	2	Muthukumar R.	18-APR-12	INCLUDED SETTLEMENT CLOSURE PROCESS CODE AND REVERSAL FOR COMPLETION	1.2.1	1.2
5	2, & 3	Muthukumar R.	01-Jun-12	EXPLAINED EMV DATA FIELDS AND MAKE IT OPTIONAL OF DE:90 FOR PRE-AUTH REVERSAL	1.2.2	1.2.1
6	2 & 3	Muthukumar R.	11-Jun-12	UPDATE TRACK2 DETAILS AND MAKE IT OPTIONAL FIELD OF TRACK2 IN REVERSAL	1.2.3	1.2.2
7	2 & 3	Arockia Raj J	12-Feb-13	UPDATE NEW FUNCTIONALITIES	2.0	2.1
8	2	Seshadri K j	21-Jun-2017	UPDATED FUNCTIONALITY REWARDS POINTS UPDATE REWARDS POINTS UPDATE REVERSAL	2.1	2.2
9	2	Seshadri K J	24-Jul-2017	Changes Done for adding a new pos entry mode FOR nfc TRANSACTIONS	2.3	2.1
10	2	Seshadri K J	18-May-2018	CHANGES DONE TO SPECIFY VALUES RETENTION IN 0320 MESSAGES ADDED A NEW TRANSACCTION FOR tc UPLOAD	2.4	2.3
11	2	Muthu Kumar	19-Jun-2018	CHANGES DONE IN SECTION 2.3 – PROCESSING CODE Section 2.4 – de:125 dEFINITION	2.5	2.4
12	2	Seshadri K J	29-May-2019	Changes done to indicate the specific value cvv2 TO BE SENT IN de:048	2.6	2.5
13	6	Seshadri K J	12-Jun-2019	Changes done for modifying the description for RESPONSE CODE : 82	2.7	2.6

Sl. No	Section Changed	Amended By	Amended Date	Description of Change	Resultant Version No.	Origin of Change
14	2.4, 6	Seshadri K J	05-Jul-2019	CHANGES DONE FOR RESPONSE CODE 94 FOR BATCH UPLOAD RESPONSE 0330 Changes done for DE:025, DE:022 DE:023,DE:037,de:038 to specify to retain original data	2.8	2.7
15	6	Seshadri K J	06-Jul-2019	Changes done for DE:012, DE:013 to indicate that the value has to be retained from the original transaction	2.9	2.8
16	6	Seshadri K J	13-Aug-2019	Changes done in explanations of DE:039 for providing additional information on BATCH UPLOAD 0320	2.9	3.0
17	7	Seshadri K J	07-Dec-2021	Changes done in Explanations of DE:039 for 0500 Messages	3.1	3.0
18	8	Seshadri K J	24-Apr-2024	Review of Specs	3.2	3.1
19	All	Archana M	22-Sep-2025	Changes done for DUKPT, DE:022, DE:048, data dumps. Update field level changes.	4.0	3.2

Distribution List

Name of Recipient	Department/Group	Country	Date Sent	Remarks

Table of Contents

1. INTRODUCTION 6
1.1. Structure of the Document 6
1.2. Abbreviation 6
1.3. Definitions 6
2. MESSAGE FORMAT 7
2.1. Header 7
2.2. Application Area Data 8
2.3. Data Element Definition 12
3. TRANSACTION TYPES & FIELDS 29
4. DATA DUMPS 31
5. KEY MANAGEMENT 44
5.1 Unique TMK Process Overview 44
5.2 Key Exchange 46
5.3 PIN Block Encryption 46
5.4 Message Authentication Code 47
6. HOST RESPONSE CODE MATRIX 49
7. CONTACT DETAILS 51

1. INTRODUCTION

1.1. Structure of the Document

The objective of this project is to develop an interface between the Point-of-Sale (POS) terminal and the authorization system, enabling seamless and comprehensive processing of payment transactions.
This solution will allow customers to use their bank-issued [debit/credit/prepaid] Cards on the Terminals to perform various financial transactions. By implementing the payment interface solution, the transaction will be routed to authorization host through online.

The purpose of this document is to provide an attempt at outlining some of these principles, with particular attention to the YSE Financial Switch – POS Terminal Interface.

1.2. Abbreviation

Abbreviation	Description
LMK	Local Master Key
TAK	Terminal Authentication Key
TPK	Terminal PIN Key
MAC	Message Authentication Code
PIN	Personal Identification Number
ECB	Electronic Code Book
WAN	Wide Area Network
TPDU	Transport Protocol Data Unit
POS	Point of Sale
BCD	Binary Coded Decimal
ASCII	American Standard Code for Information Interchange
MTI	Message Type Indicator

1.3. Definitions

Term	Description
YSE	Transaction Processing Switch provided by YSE
TCP/IP	The Internet Protocol Suite (commonly TCP/IP) is the set of communications protocols used for the Internet and other similar networks
HOST	This is the transaction server which receives financial transaction from the Terminal and process
ISO 8583	Standard for Financial Transaction Card Originated Messages - Interchange message specifications
Bitmap	bitmap is a field or subfield within a message which indicates which other data elements or data element subfields may be present elsewhere in a message

2. MESSAGE FORMAT

The structure of terminal/host message consists of two major parts: the header and application data

HEADER					APPLICATION AREA		
TCP		TPDU			Msg Type	Bit Map	Data Elements
		ID	Dest. Addr.	Orig. Addr.			
		1	2	2	2	8	0 – 230
1	1	5			10 – 240		

Message Length

2.1. Header

2.1.1. TCP

The length of the message (excluding the TCP Header) is sent in binary format. The length is 2 bytes. Eg:- if the length of the message from TPDU is 500 bytes it would be expressed as binary and hex display is 0x01 0Xf4

2.1.2. TPDU (Transport Protocol Data Unit)

TPDU Transport Protocol Data Unit (This is only sent in the message if the POS Terminal is directly connected to NARADA® through a NAC(Network Access Controller) over PSTN(not applicable if connected via TLS or TCP-IP over WIFI or GPRS). The length of this field is 5 bytes.

The TPDU contains addressing information related to both the transaction destinations (host systems). The TPDU is a 5- byte header that precedes the Application Area.
This is only applicable if the POS Terminal connects directly to NARADA® via PSTN mode of connectivity, for any other mode of connectivity this is not required.

Request TPDU

- TPDU Id Identifies TPDU Type (0x60 – Transactions, 0x68 – NMS/TNMS)
- Destination Address Network international identifier
- Originator Address Identifies the individual terminal or process originating the txn. Example value : 60 00 01 00 00

Response TPDU

- TPDU Id Identifies TPDU Type (Same values as in Request Msg.)
- Destination Address Same as Originator Address in request msg.

- Originator Address Same as Destination Address in request msg. Example value : 60 01 00 00 00

2.2. Application Area Data

The messages are sent in ISO 8583 Standard (1987 Version) Each Application message consists of three components in the following sequence: Message Type Identifier, Bit Map and a variable number of data elements. The maximum data content of a message is 240 bytes.

1. Message Type Identifier

The Message Type Identifier (MTI) is a four-digit numeric code used to classify the nature of a transaction message in the ISO 8583 standard.

The first and second digits identify the class of message. The third and fourth digits identify the message function and transmission mode.

Digits 1 & 2	Message Class	Digits 3 & 4	Transmission Mode
01	Authorization	00	Interactive Request
02	Financial	10	Interactive Response
03	File Update/Transfer	20	Non Interactive Advice
04	Reversal	30	Non Interactive Advice Response
05	Reconciliation Control		
06	Administrative		
08	N/W Management		

The following Message Type Identifiers are used:

Msg Type	Application
0100 0110	Authorization Request Authorization Response
0200 0210 0220 0230	Financial Transaction Request Financial Transaction Request Response Financial Transaction Advice Financial Transaction Advice Response
0320 0330	File Update/Transfer Advice Request File Update/Transfer Advice Response
0400 0410	Reversal Request Reversal Request Response
0500 0510	Card Acceptor Reconciliation Request Card Acceptor Reconciliation Request Response
0800 0810	Network Management Request Network Management Request Response

2. Bitmap

ISO 8583 employs a mechanism known as the bitmap to indicate the presence or absence of specific data elements within a transaction message. Each data element is assigned a unique position in this control field.

- A bit value of 1 signifies that the corresponding data element is included in the message.
- A bit value of 0 indicates that the data element is not present.

Each transaction message contains one bitmap, consisting of 64 bits, numbered from left to right starting at bit 1. Notably, the first bit serves a special purpose: if it is set to 1, it signals the presence of a secondary bitmap, which allows for the inclusion of additional data elements beyond the initial 64.

3. Message Type & Processing Code

The processing code is used in conjunction with the message type to define the type of transaction being sent by the terminal to the host. It also includes the account selection information. The following is a table specifying the message type and processing code for each transaction below: -

Transaction	Message Type	Processing Code
POS Enquiry / Balance Pre authorization Mini Statement Cheque Book Request Statement Request Rewards(Loyalty) Pts Update Rewards(Loyalty) Pts Update(Reversal) Billpayment Reference Inquiry	0100	30 00 00 33 a0 00 24 a0 00 11 a0 00 39 10 00 39 20 00 34 00 00
Sale Purchase Refund Rewards Sale Card Activation Card Load Top up Cash Advance Cash Deposit Bill Payment Prepaid Refunds	0200	00 a0 0x 00 a0 0x 20 a0 0x 10 a0 0x 72 10 00 28 10 00 19 00 00 01 00 00 21 00 00 27 00 00 29 00 00
Off-line Sale Sales Completion Adjust, Sale Void, Sale		00 a0 0x 00 a0 0x 02 a0 0x 02 a0 0x

Transaction	Message Type	Processing Code
Adjust, Refund Void, Refund Void, Rewards Void Load/Reload Void Pre-Authorization Void Bill-Payment Void Prepaid Refunds Upload Transaction Certificate	0220	22 a0 0x 22 a0 0x 40 a0 0x 02 00 00 51 00 00 52 00 00 55 00 00 88 00 00
Reversal	0400	Same as original Transaction
Pin Create Pin Change	0300	30 00 00 94 00 00
Settlement Request Settlement Closure [After batch upload]	0500	92 00 00 96 00 00
Batch Upload	0320	Same as Original Transaction
Key Exchange	0800	991380-TMK key exchange 991280-TMK key exchange 990280-Auto PIN Block Key 990380-Manual PIN Block Key 990480-Auto MAC Key 990580-Manual MAC Key

The account information is represented by the third digit of the processing code. The following values are used:

Code	Account Selected
0	Default Account
1	Savings Account
2	Checking Account
3	Credit Facility
4	Universal Account

Note:-
The above specification covers all the possible transactions supported in our POS Driving. The project specific transactions enabled would be agreed as part of your scope of work with your respective client management team of YSP.

a. Message Format

The format of each field is defined below. All fields are either BCD or character (ASCII) fields. Each variable length field is preceded by 2 or 3 numeric characters to define

the actual length used for this field, and the variable length will be in BCD right justified. The following abbreviations are used to define the field formats: -

Bit	Data Element Name	Format	Attribute
	Message Type	BCD	F4
	Bit Map	Binary	F8
1	Bit Map Extended	Binary	F8
2	PAN	BCD	LLVAR(1)
3	Processing Code	BCD	F6
4	Transaction Amount	BCD	F12
7	Transaction Date and Time	BCD	F10
11	Trace Audit Number	BCD	F6
12	Local Time	BCD	F6
13	Local Date	BCD	F4
14	Expiry Date	BCD	F4
19	Acquiring Institution Country Code	BCD	F3
22	POS Entry Mode	BCD	F3
23	PAN Sequence Number	BCD	F3
24	Network International Identifier	BCD	F3
25	POS Condition Code	BCD	F2
35	Track 2	BCD	LLVAR
37	Retrieval Reference Number	ASCII	F12
38	Auth ID Response	ASCII	F6
39	Response code	ASCII	F2
41	Card Acceptor Terminal ID	ASCII	F8
42	Card Acquirer ID	ASCII	F15
43	Card Acceptor Name & Location	ASCII	F40
47	Additional Data-1	ASCII	LLLVAR(2)
48	Additional Data-2	ASCII	LLLVAR(2)
49	Transactions Currency Code	BCD	F3
52	PIN Block Data	Binary	F16
53	Security Related Control Information	ASCII	LLVAR
54	Additional Amount	ASCII	LLLVAR(2)
55	EMV/Chip Data	Binary	LLLVAR
60	Advice Reason Code	ASCII	LLLVAR
61	Point-of-Service Data	ASCII	LLLVAR
62	Information Data	ASCII	LLLVAR
63	Private Data	ASCII	LLLVAR
64	Private Data	BCD	F16
70	Network Management Information Code	BCD	F3
90	Original Data Elements	BCD	F42
125	Private Data	BINARY Or ASCII	LLLVAR
	Convention		
	LLVAR - Variable length, length of 2 characters		
	Fn – Fixed size of n digits		

Example for Length Specification:

(1)**LLVAR**

Length is 37 Hex Value: 0x37

(2)**LLLVAR**

Length is 003 Hex Value: 0x00 0x03

Explanation:

In LLVAR the Length is 37 which is compressed to 1 byte as variable lengths is specified in BCD. But in LLLVAR the length is 003, that is compressed to 2 bytes right justified.

Example, in case of CVV2 if value is 123 the DE:048 is represented as

0x00 0x03 0x31 0x32 0x33

2.3. Data Element Definition

1. Data Element 2: Primary Account Number

Description:

This field holds the cardholder's card number used in both financial and non-financial payment transactions. Commonly referred to as the Primary Account Number (PAN), the first six digits identify the issuing bank and are known as the Bank Identification Number (BIN). The PAN typically ranges from 12 to 19 digits in length.

Message Type:
0100/0110, 0200/0210, 0220/0230, 0400/0410, 0320/0330

2. Data Element 3: Processing Code

Description:

A series of digits used to describe the effect of a transaction on the customer account and the accounts affected.
It identifies the Type of transaction and Account type selected, like for Purchase from Savings Account it will be ‘001000’ etc.

Values:
Format & Position AA BB CC where:

AA - Transaction Type
BB - From Account Type
CC - To Account Type
Refer Sec 2.2.3 for the various valid values.
*Note: For Key Exchange Messages this field should contain a value **'99XX80'***

Message Type:
0100, 0200, 0220, 0400, 0500, 0800, 0320

3. **Data Element 4: Transaction Amount**

Description:

This field contains the transaction amount requested by the cardholder. The associated currency is specified in DE 49: Transaction Currency Code, which also defines the decimal precision for the amount. The value in this field is always padded with **leading zeros** to maintain a fixed length format.

Message Type:
0100, 0200, 0220, 0400, 0320

4. **Data Element 07: Transaction Date and Time**

Description:

This field records the date and time when the transaction occurs, expressed in GMT (Greenwich Mean Time). The format follows MMDDHHMMSS, where:

Also note that the hours HH is represented in 24 hours format.

Message Type:
0800/0810

5. **Data Element 11: System Trace Number**

Description:

This field represents a unique identification number generated at the terminal. It remains consistent throughout the lifecycle of a transaction, including the original and its reversal. However, for operations such as Void, Refund, Sale Completion, or Batch Upload, a new STAN is generated. In these related transactions, the original STAN is referenced and transmitted in (DE: 060), which is explained further in this document.

Message Type:
ALL

6. **Data Element 12: Local Transaction Time**

Description:

This field contains the **local time** (terminal location local date-time) when the transaction occurs. The format must be HHMMSS. Also note that the hours HH is represented in 24 hours format.

In case of Batch Upload the value from the original transaction has to be retained.

Message Type:
0100/0110, 0200/0210, 0220/0230, 0400/0410

7. **Data Element 13: Local Transaction Date**

Description:

This field contains the month and day when the transaction occurs, based on the local date (terminal location local date-time). The format must be MMDD and please note that MM start as 01 and ends at 12.

In case of Batch Upload the value from the original transaction has to be retained.

Message Type:
0100, 0200, 0220, 0400

8. **Data Element 14: Card Expiry Date**

Description:

This field specifies the expiration date of the card, indicating the year and month after which the card is no longer valid. The format is YYMM, where:

- YY represents the last two digits of the expiration year
- MM denotes the month, ranging from 01 to 12

Message Type:
0100, 0200, 0220, 0400

9. Data Element 19: Acquiring Institution Country Code

Description:

This field specifies the country code of the acquiring institution associated with the POS or ATM terminal. It must contain a valid three-digit ISO numeric country code, representing the country where the terminal is physically located and where the transaction is processed.

Message Type:
0100, 0200, 0220, 0400

10. Data Element 22: POS Entry Mode

Description:

This field consists of 3 Digit Numeric values wherein first 2 Digit Indicates the PAN and Data Entry Mode while the 3rd Position specifies the Pin Entry Capability.

Values:

Positions 1-2: PAN and Date Entry Mode

Position 1 - 2	PAN Entry Mode
01	Manual (key entry)
02	Magnetic stripe read, CVV checking may not be possible.
05	Integrated circuit card read
07	Contactless M/Chip/Visa Pay Wave
08	NFC Payments
80	Chip Card at Chip Terminal but the terminal was unable to process the transaction using chip, therefore the terminal defaulted to the Magnetic Stripe read. (Fallback Mode)
90	Magnetic stripe read, CVV check possible.
81	PAN entry via electronic commerce, including chip.

Position 3	PAN Entry Mode
0	Unknown
1	Terminal has PIN entry capability
3	Software Based PIN Entry Capability

Message Type:

0100, 0200, 0220, 0400, 0320

Note:- During Batch Upload the same value as in Original Authorization should be sent.

11. Data Element 23: PAN sequence number

Description:

This field is used to identify the PAN Sequence Number of the payment card, which is part of the EMV data stored on the card chip.

Note: - During Batch Upload the same value as in Original Authorization should be sent.

Message Type:
0100/0110, 0200/0210, 0220/0230, 0400/0410

12. Data Element 25: Point-Of-Service Condition Code

Description:

This element contains the values of identifying the transaction conditions at the POS Terminal.

Values:
Non EMV Terminals
For all transactions value is '00'

EMV Terminals

Transaction Type	POS Condition Code
Online Purchase / Refunds	00
Sale Completion	06
Void Purchase / Refunds	Same as Original Transaction
Offline Sale/Refund	00
Reversal	Same as Original Transaction
Batch Upload	Same as Original Transaction
Settlement	NA
Key Exchange	NA

Message Type:
0100, 0200, 0220, 0400, 0320

Note: - This value applies to the Terminal, and for each scheme the values will be transmitted according to their respective process.

13. Data Element 32 : Acquiring Institution Code

Description:

This field identifies the financial institution responsible for receiving and processing the transaction on behalf of the merchant. It is essential when transactions must be routed to a specific acquiring institution, particularly in multi-acquirer environments.

Please reach out to your assigned client representative to obtain the valid values for your project.

14. Data Element 35: Track2 Data

Description:

This field holds the complete magnetic stripe data, specifically corresponding to Track 2 information encoded on the card. It is populated when Data Element 22 indicates that the transaction was performed via a card swipe

Track-2			
No	**Field**	**Length**	**Value**
1	PAN/Card Number	12 - 19	1234567890123456
2	Field Separator	1	= or D
3	Card Expiry Date (YYMM)	4	3010
4	Service Code	3	226
5	Key Index	1	Default value 1
6	Mandatory	3	100
7	Mandatory	1	0
8	CVV1	3	123
9	Mandatory	5	00000
10	End Sentinel	1	?
11	LRC	1	

Message Type:
0200, 0100, 0220

Values:

1. For EMV transactions this has to be the track data from the EMV Data Elements.
2. In case of magnetic stripe or fallback it would be the TRACK data from

magnetic stripe.

15. Data Element 37: Retrieval Reference Number

Description:

This field contains a 12-digit numeric value used in conjunction with other data elements to uniquely identify all messages associated with a specific cardholder transaction.

This is of the format YDDDHHSSSSSS(equivalent to the GMT Date Time)

Format	Explanation
Y	Last digit of Year. If year is 2004, this is 4
DDD	This is the Julian Day of the Year between 001 to 366. This should be equivalent to DDMM value in DE:007
HH	This is the Hour of the Date in DE:007
SSSSSS	This is the same value as that of DE:011

Message Type:
0200/0210, 0100/0110, 0220/0230, 0500/0510, 0320/0330

Note: - In case of 0320 batch upload the terminal has to upload value from the original 0210/0110 response value in the 0320 message.

16. Data Element 38: Authorization Identification Response

Description:

This field contains 6 digits authorization code provided by the issuer when transaction is approved. But this is also passed to the issuer in case of reversal messages by the acquirer for an approved transaction.

Message Type:
0210, 0110, 0230, 0510, 0320, 0330

Note: - In case of 0320 batch upload the terminal has to upload value from the original 0210/0110 response value in the 0320 message.

17. Data Element 39: Response Code

Description:

This field contains a 2-digit value that represents the transaction decision outcome, indicating whether the transaction was approved, declined, or

encountered an error. The detailed response codes are in Section 6 HOST RESPONSE CODE Matrix

Message Type:
0210, 0110, 0230, 0510, 0330, 0410, 0430

Note: -

In case of receipt of a 0320 batch upload message the switch validates the presence of an original approved authorization (namely Purchase or Sale Completion or Refund; Not Void) and also its settlement status. The response message 0330 by the Switch is given below basis the validations explained below.

a. In case the original authorization is approved, but not settled (also termed as reconciled) then an additional check is made if there has been a batch upload equivalent to the authorization which has been settled.
    a. *Validation Failed*
        i. The Switch responds back with an Approved response in the 0330 message.

    b. *Validation* Passed
        i. An additional validation is performed and a check is done to confirm if there exists an settled authorization (settled either by back office at Switch or by Terminal either original 0200/0220 settled or a 0320 which was settled) then the following happens

            1. *Validation Pass*
                I. The Switch responds back with a '0330' message and the value of '94' in DE: 039 (Response Code).

                II. Expected Action by Terminal

                    i. The Terminal should not consider that transaction for the calculation of Batch Totals when submitting the reconciliation (or settlement) 0500 message with processing code '96xxxx'.

                    ii. Additionally the terminal on receipt of '94' response code should print the charge-slip for that particular transaction with the transaction information and add a text saying "RC-94, PLEASE CONTACT YOUR BANK TO RECONCILE THIS TRANSACTION"

            2. *Validation Fail*

I. This means there is no original authorization Key Field :- Card Number, Merchant ID, Terminal ID, Retrieval Reference Number) then the following happens

II. The switch responds back to the Terminal with the value of '76' in DE:039(Response Code).

III. Expected Action by Terminal

1. The Terminal should not consider that transaction for the calculation of Batch Totals when submitting the reconciliation (or settlement) 0500 message with processing code '96xxxx'.

2. Additionally the terminal on receipt of '76' response code should print the charge-slip for that particular transaction with the transaction information and add a text saying "RC-76, PLEASE CONTACT YOUR BANK TO RECONCILE THIS TRANSACTION"

b. In case of receipt of a 0500 reconciliation message if the DE:060 is all ZEROS then the Switch would reject with a message citing 'FORMAT ERROR'

Note:

1. 0500 Reconciliation Messages are applicable only in the conditions below
   a. The POS Terminal is directly connected to NARADA®
   b. The terminal is configured for reconciliation with the Switch - Manual or Automatic Settlement.

18. Data Element 41: Card Acceptor Terminal Identification

Description:

This field contains code that identifies a terminal at the card acceptor location. This field must be left-justified and the reminder of the field space-filled.

Message Type:
0200/0210, 0100/0110, 0220/0230, 0500/0510, 0320/0330

19. Data Element 42: Card Acceptor Identification Code

Description:

This field contains alphanumeric code that identifies the card acceptor for defining the point of service terminal.

Message Type:

0200/0210, 0100/0110, 0220/0230, 0500/0510, 0320/0330

20. Data Element 43: Card Acceptor Name and Location

Description:

This field indicates to identify the transaction origination location and the length is 40 characters which was fixed one.

Format:
Position 1-25 : Merchant or Bank Name
Position 26-38 : City Name
Position 39-40 : 2 digits alpha country code

Message Type:
0200, 0100, 0220

Note: This is required only if the Merchant Management System is managed by the client. If MMS is handled by switch then it is optional.

21. Data Element 48: Additional Data-2

Description:

This field is used to receive additional information from Terminal. This is the field in which the 3 digit CVV2 is sent from the POS Terminal.

In MasterCard for mPOS & Device Type the following values should be present:

Sub Element	Sub Field	Values
21 - Acceptance Data	**01** - mPOS Acceptance Device Type	**0** - Dedicated mPOS Terminal with PCI compliant dongle
21 - Acceptance Data	**01** - mPOS Acceptance Device Type	**1** - Off the Shelf Mobile Device
22 - Multi-Purpose Merchant Indicator	**02 -** Single Tap Indicator	**1 -** Merchant capable of single tap processing

Message Type:
0200, 0100

22. Data Element 49: Transaction Currency Code

Description:

This field contains a code that identifies the currency of the transaction amount fields. This represents the currency in which the transaction is actually implemented.

Message Type:
0200/0210, 0100/0110, 0400/0410

23. Data Element 52: PIN Block data

Description:

This field is used to transmit the Pin Block Data for Pin based transactions.

Values:
Pin Block Data in Hex Format.

Message Type:
0200 (Pin Entered Transactions)

24. Data Element 53: Security Related Control Information

Description:

This field contains 20 digit Key Serial Number with last 5 digit as Transaction Counter (TC) in DUKPT transactions.

Message Type:
0200, 0100, 0800

Note:-

Type	KSN Length	TC Length
Key Exchange	15	-
For Transaction	15	5

25. Data Element 54: Additional Amount

Description:

This field is used only for Tip Adjust transactions wherein the Adjusted Amount is sent in this field. This field contains the a/c Balance with decimals represented as last 2 positions. In case of a/c balance, it may contain maximum 6 type of amounts.

The amount format as below:

- Account type (position 1-2)
- Amount type (position 3-4)
- Currency code (position 5-7)
- Amount Sign (position 8) – "C" or "D"
- Amount (position 9-20)

"C" – Denotes positive balance
"D" – Denotes negative balance
List of amount type:

01 – Ledger Balance
02 – Available Balance

Message Type:

0200

26. Data Element 55: Integrated Circuit Card [ICC] related Data [EMV]

Description:

This field contains integrated circuit card data that is transmitted from the ICC to the card issuer and from the card issuer to the ICC. The format of the field is a special form of the composite data element that uses three subfields after the length subfield. It will come in a format called TLV [Tag Length Value].
Usage: VSDC Chip data / Master Card Chip.

Sl.No	TAG Name	Description	TAG Usage
1	84	Dedicated File Name	Mandatory
2	9F26	Application Cryptogram	Mandatory
3	9F27	Cryptogram Information Data	Mandatory
4	9F10	Issuer Application Data	Mandatory
5	9F36	Application Transaction Counter	Mandatory
6	95	Terminal Verification Result	Mandatory
7	9F37	Unpredictable Number	Mandatory
8	5F2A	Transaction Currency Code	Mandatory
9	9C	Transaction Type	Mandatory
10	9F33	Terminal capabilities	Mandatory
11	9A	Transaction date	Mandatory
12	9F02	Amount, authorized (numeric)	Mandatory
13	9F1A	Terminal Country Code	Mandatory
14	9F34	Cardholder Verification Method results	Mandatory
15	82	Application Interchange Profile	Mandatory

Message Type:

0100/0110, 0200/0210, 0220/0230, 0400/0410,0320

Note:-

1. If the Card is sharing additional tag's the same has to be sent to Host, the above are only mandatory EMV Tags.
2. In case of 0320 message this value has to be retained from the original 0200/0220 message

27. Data Element 60: Advice Reason Code

Description:

This field is used to send the Original Transaction Amount in case of Adjust or advise messages while for settlement transactions this field contains the Batch No. In case of Batch upload transactions this field carries out the details of the Original transactions.

Values:
Adjust / Void / Tip Adjust Transactions – Original transaction Amount 12 Digits
Settlement Transactions this field contains the Batch No – 6 Digits.

In case of Batch Upload Transactions this field will contain
Original Transaction Message Type – 4 Digits
STAN – 6 Digits
RRN – 12 Digits

Message Type:
0220, 0500, 0320

28. Data Element 61: Point-of-Service Data

Description:

This field is also a private field, which is applicable only for Master Card interchange alone. It indicates the conditions that exist at the point of service at the time of the transactions. This field used to have 14 sub fields. The below sub-fields are necessary for all transaction.

Sub Field	Description	Length
3	POS terminal location	1
10	Cardholder-Activated Terminal Level	1
11	POS Card Data Terminal Input Capability Indicator	1
13	POS country code	3
14	POS Postal code	10

Message Type:
0100, 0200, 0220, 0400

Note:This is required only if the Merchant Management System is managed by the client. If MMS is handled by switch then it is optional.

29. Data Element 62: Information Data

Description:

This field is also a private field, which is used to send the Invoice Number of the transaction. In case of Settlement/Reconciliation Message (ISO MTI : 0500) this field contains the Application version.

In Key Exchange, Application version should be send in the request message.

Values:

Type	Values
Settlement Transactions:	Application Version
For Other transactions:	Invoice Number (6 Digits) or Reference Number [20 digits] This has to be increased only for approved transactions. This is not the same as Audit Trace Number (DE:011). This is like a Ledger Posting No. for the Terminal
Key Exchange:	PIN Block Key or MAC Key

Message Type:
0100, 0200, 0220, 0400, 0500, 0800, 0320

30. Data Element 63: Private Data

Description:

This field is generally used in Settlement transactions wherein the Settlement Amount is sent in this field. System will manipulate the settlement amount based on the merchant currency.

Values:
Settlement: This field length is 30 Digits wherein,
Total No of Credited Transaction: First 3 Digits
Total Amount: 12 Digits
Total No of Debited Transaction: 3 Digits
Total Amount: 12 Digits

Message Type:
0200, 0220, 0400, 0500, 0320

31. Data Element 64: MAC data

Description:

This field is used to transmit the MAC Data for all transactions to implement more secure validation.

Values:
The MAC Data is in Hex Format. [16 digits]

Message Type:
0100, 0200, 0220, 0400

Note: This is required if there is a Host-to-Host Connection between the POS Network Aggregator and NARADA® with the communication being TCP-IP.This is optional if the communication is via TLS.

32. Data Element 70 : Network Identification Code

Description:

This field is used only in network messages.

Values:
001 – Sign on
301 – Hand shake
161 – Key exchange

Message Type:
0800/0810

Note: This is only applicable if it is host to host connection

33. Data Element 90 : Original Data

Description:

This field is applicable only for reversal message and it contains original request message information.

Values:
The following original request message data elements should available in this field.
N4 [Original Message type]+N6 [System trace no]+N4[Location transaction date]+N6[Local transaction time]+N11 [Acquirer institution identification code]

Message Type: 0400
Note: This is only applicable if it is host to host connection

34. Data Element 125 : Key Exchange / Private Data

Description:

This field carries private data and supports two transaction types: Key Exchange and Bill Payment Reference Inquiry.

Key Exchange Transaction

This field is used to transmit KEY during the time of key exchange along with Key check value.

Values:
Usage-1
This data is in binary format [compressed with HEX format] in case of Key Exchange

Usage-2
This field will contain the Biller Code, Biller Instrument Number (Mobile Number or Electricity Bill Meter Number/Account Number or Customer ID of Fixed Line Phone Number), Billing Date). It can also contain additional information as required, but all data will be separated by a '#' character

Billpayment Reference Inquiry

In case of Billpayment Reference Inquiry this would contain the reference number required for making an inquiry with the Billing Service Provider.

Billpayment Reference Inquiry is for India Region.

Message Type:
0800/0810
0200/0210
0220/0230
0400/0410

3. TRANSACTION TYPES & FIELDS

Bit	Data Element Name	Financial Message		Reversal		Void		Settlement		Batch Upload	
		Req	Res	Req	Res	Req	Res	Req	Res	Req	Res
	Message Type	0200	0210	0400	0410	0220	0230	0500	0510	0320	0330
	Bit Map	M	M	M	M	M	M			M	M
1	Bit Map Extended	C	C	C	C	C	C			C	C
2	PAN	C	C	C	C	C	C			C	C
3	Processing Code	M	M	M	M	M	M	M	M	M	M
4	Tran Amount	M	M	M	C	M	M			M	M
7	Transmission Date & Time	C		C		C					
11	Trace Audit Number	M	M	M	M	M	M	M	M	M	M
12	Local Time	M	M	M	M	M	M		M	M	M
13	Local Date	M	M	M	M	M	M		M	M	M
14	Expiry Date	C	C	C	C	C	C			C	C
19	Acquiring Institution Country Code	M	C	M	C	M	M			M	M
22	POS Entry Mode	M		M		M				M	
23	PAN Sequence Number	C		C		C				C	
24	NII	C	C	C		C		M	M	C	
25	POS Condition Code	M		M		M				M	
35	Track 2	M	C	C	C	M	C				
37	Retrieval Reference Number	C	M		M	M	M		M		M
38	Auth ID Response		M		M		M			M	M
39	Response code		M		M		M		M		M
41	Card Acceptor Terminal ID	M	M	M	M	M	M	M	M	M	M
42	Card Acquirer ID	M		M		M		M		M	
43	Card Acceptor Name & Location	C		C		C				C	
47	Additional Data-1	C		C		C				C	
48	Additional Data-2	C		C		C				C	
49	Transactions Currency Code	M	C	M	C	M	M			M	M
52	PIN Block Data	C	C	C	C	C	C			C	C
53	Security Related Control Information	M									
54	Additional Amount										
55	Chip Data	C	C	C	C	C	C			C	C
60	Advice Reason Code	C	C	C	C	C	C	M		C	C
61	Point-of-service Data	C		C		C				C	
62	Information Data	M		M		M		M		M	
63	Private Data	C	C	C	C	C	C	M		C	C
64	Private Data	C	C	C	C	C	C			C	C
70	Network management information code										
90	Original Data			C		C					
125	Key Exchange										

Bit	Data Element Name	Key Exchange		Refund		Adjust		Pre-Auth Comp	
		Req	Res	Req	Res	Req	Res	Req	Res
	Message Type	0800	0810	0200	0210	0220	0230	0220	0230
	Bit Map			M	M	M	M	M	M
1	Bit Map Extended	C	C	C	C	C	C	C	C
2	PAN			M	M	C	C	C	C
3	Processing Code	M	M	M	M	M	M	M	M
4	Tran Amount			M	M	M	M	M	M
7	Transmission Date & Time	C	C						
11	Trace Audit Number	M	M	M	M	M	M	M	M
12	Local Time	M	M	M	M	M	M	M	M
13	Local Date			M	M	M	M	M	M
14	Expiry Date			M	M	C	C	C	C
19	Acquiring Institution Country Code			M	M	M	M	M	M
22	POS Entry Mode			M		M		M	
23	PAN Sequence Number			C		C		C	
24	NII			C		C		C	
25	POS Condition Code			M		M		M	
35	Track 2					M	M	O	O
37	Retrieval Reference Number				M		M		M
38	Auth ID Response				M		M		M
39	Response code		M		M		M		M
41	Card Acceptor Terminal ID	M	M	M	M	M	M	M	M
42	Card Acquirer ID	M	M	M		M		M	
43	Card Acceptor Name & Location			C		C		C	
47	Additional Data-1			C		C		C	
48	Additional Data-2			C		C		C	
49	Transactions Currency Code			M	M	M	M	M	M
52	PIN Block Data					C	C	C	C
53	Security Related Control Information	M	M						
54	Additional Amount								
55	Chip Data					C	C	C	C
60	Advice Reason Code			C	C	C	C	C	C
61	Point-of-service Data			C		C		C	
62	Information Data	M	M	M		M		M	
63	Private Data			C	C	C	C	C	C
64	Private Data			C	C	C	C	C	C
70	Network management information code	M	M						
90	Original Data								
125	Key Exchange	M							

4. DATA DUMPS

1. *Financial Message*

Full financial transactions contain both authorization and clearing information in a single message.

Request: 0200 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000002700]
Element Number : 011 Length : 6 Value : [000217]
Element Number : 012 Length : 6 Value : [110042]
Element Number : 013 Length : 4 Value : [0116]
Element Number : 014 Length : 4 Value : [XXXX]
Element Number : 019 Length : 3 Value : [784]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [001]
Element Number : 024 Length : 3 Value : [078]
Element Number : 025 Length : 2 Value : [00]
Element Number : 035 Length : 32 Value : [476134XXXXXX0047=XXXXXXXXXXXXXXX]
Element Number : 037 Length : 12 Value : [110042000217]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 049 Length : 3 Value : [784]
Element Number : 052 Length : 16 Value : [97CECCE05E361813]
Element Number : 053 Length : 20 Value : [98250904730001000043]
Element Number : 055 Length : 272 Value : [9F2701809F100706011203A088029F37042F3BB2A89F36020007
950500000480009A032601169C01009F02060000000027005F2A020784820238009F1A0207849F0306000000000
0009F3303E0F8C89F34034203009F3501229F1E0830343733303030318407A00000000310109F090200969F4104
000013819F26080F688DBA6D9BA06B5F340101]
Element Number : 062 Length : 6 Value : [000001]

Response: 0210 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000002700]
Element Number : 011 Length : 6 Value : [000217]
Element Number : 012 Length : 6 Value : [123055]
Element Number : 013 Length : 4 Value : [0116]
Element Number : 024 Length : 3 Value : [078]
Element Number : 037 Length : 12 Value : [601643000217]
Element Number : 038 Length : 6 Value : [062744]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 055 Length : 30 Value : [9F360200079108F29AD04000860000]

2. *Reversal*

In case of any communication error in performing a transaction like timeouts or error condition regarding an earlier financial transaction then the terminal generates a reversal of the transaction to advise the HOST to cancel the original transaction.

Request: 0200 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000001300]
Element Number : 011 Length : 6 Value : [000015]
Element Number : 012 Length : 6 Value : [164729]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 014 Length : 4 Value : [XXXX]
Element Number : 019 Length : 3 Value : [784]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [001]
Element Number : 024 Length : 3 Value : [078]
Element Number : 025 Length : 2 Value : [00]
Element Number : 035 Length : 32 Value : [476134XXXXXX0047=XXXXXXXXXXXXXXX]
Element Number : 037 Length : 12 Value : [164729000015]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 049 Length : 3 Value : [784]
Element Number : 052 Length : 16 Value : [CCD2742EA95A09FC]
Element Number : 053 Length : 20 Value : [98250904730001000165]
Element Number : 055 Length : 266 Value : [9F2701809F100706011203A080029F37043BCEDB9C9F36020004
950500000480009A032602119C01009F02060000000013005F2A020784820238009F1A0207849F0306000000000
0009F3303E0F8C89F34034203009F3501229F1E0830343733303030318407A00000000310109F090200969F4104
000021489F26082489D4660A00B77E5F340101]
Element Number : 062 Length : 6 Value : [000001]

Response: 0210 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000001300]
Element Number : 011 Length : 6 Value : [000015]
Element Number : 012 Length : 6 Value : [181737]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 024 Length : 3 Value : [078]
Element Number : 037 Length : 12 Value : [604234000015]
Element Number : 038 Length : 6 Value : [035023]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 055 Length : 30 Value : [9F36020004910882EA495600860000]

Request: 0400 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000001300]
Element Number : 011 Length : 6 Value : [000015]
Element Number : 012 Length : 6 Value : [164729]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 014 Length : 4 Value : [XXXX]
Element Number : 019 Length : 3 Value : [784]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [001]
Element Number : 024 Length : 3 Value : [078]
Element Number : 025 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 049 Length : 3 Value : [784]
Element Number : 055 Length : 56 Value : [9505000004800 09F1E083034373330303031
9F100706011203A080029F10080105A000034000009F3602009B]
Element Number : 062 Length : 6 Value : [000001]
Element Number : 090 Length : 42 Value : [000000000000200000015021116472900000000000]

Response: 0410 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 011 Length : 6 Value : [000015]
Element Number : 012 Length : 6 Value : [181821]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 024 Length : 3 Value : [078]
Element Number : 037 Length : 12 Value : [604221000015]
Element Number : 038 Length : 6 Value : [000015]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]

3. *Void*

In case the customer returns back the goods, the customer has to be cancelled of his original transaction. The void sale option facilitates this option. This can be performed only on unsettled transactions.

Request: 0200 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0039]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000040000]
Element Number : 011 Length : 6 Value : [000051]
Element Number : 012 Length : 6 Value : [124122]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 014 Length : 4 Value : [3112]
Element Number : 019 Length : 3 Value : [784]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [001]
Element Number : 024 Length : 3 Value : [078]
Element Number : 025 Length : 2 Value : [00]
Element Number : 035 Length : 32 Value : [476134XXXXXX0039=XXXXXXXXXXXXXXX]
Element Number : 037 Length : 12 Value : [124122000051]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 049 Length : 3 Value : [784]
Element Number : 055 Length : 264 Value : [9F2701809F100706011203A098029F37044F94B2C89F36020002
950500000080009A032602119C01009F02060000000400005F2A020784820238009F1A0207849F0306000000000
0009F3303E0F8C89F34031E03009F3501229F1E0830343733303030318407A00000000310109F090200969F4104
000021089F2608E1486B1603E6C9385F340101]
Element Number : 062 Length : 6 Value : [000001]

Response: 0210 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0039]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000040000]
Element Number : 011 Length : 6 Value : [000051]
Element Number : 012 Length : 6 Value : [141129]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 024 Length : 3 Value : [078]
Element Number : 037 Length : 12 Value : [604227000051]
Element Number : 038 Length : 6 Value : [18138P]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 055 Length : 30 Value : [9F36020002910A8F9D54F9000000003030]

Request: 0220 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0039]
Element Number : 003 Length : 6 Value : [020000]
Element Number : 004 Length : 12 Value : [000000040000]
Element Number : 011 Length : 6 Value : [000051]
Element Number : 012 Length : 6 Value : [141129]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 014 Length : 4 Value : [XXXX]
Element Number : 019 Length : 3 Value : [784]
Element Number : 022 Length : 3 Value : [011]
Element Number : 024 Length : 3 Value : [078]
Element Number : 025 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 049 Length : 3 Value : [784]
Element Number : 060 Length : 12 Value : [000000040000]
Element Number : 062 Length : 6 Value : [000001]
Element Number : 090 Length : 42 Value : [000000000000200000051021114112900000000000]

Response: 0230 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0039]
Element Number : 003 Length : 6 Value : [020000]
Element Number : 011 Length : 6 Value : [000051]
Element Number : 012 Length : 6 Value : [141328]
Element Number : 013 Length : 4 Value : [0211]
Element Number : 024 Length : 3 Value : [078]
Element Number : 037 Length : 12 Value : [604227000051]
Element Number : 038 Length : 6 Value : [000051]
Element Number : 039 Length : 2 Value : [00]
Element Number : 042 Length : 8 Value : [890090 1]

4. Refund

In case the Merchant wants a credit back to the customer's account this option is used. This is just a reverse process of the Sale transaction.

Request: 0100 Message

Element Number : 002 Length : 16 Value : [476134XXXXXX0047]
Element Number : 003 Length : 6 Value : [200000]
Element Number : 004 Length : 12 Value : [000000001200]
Element Number : 011 Length : 6 Value : [000003]
Element Number : 012 Length : 6 Value : [095757]
Element Number : 013 Length : 4 Value : [0212]
Element Number : 014 Length : 4 Value : [3112]
Element Number : 019 Length : 3 Value : [784]
Element Number : 022 Length : 3 Value : [011]]
Element Number : 024 Length : 3 Value : [078]
Element Number : 025 Length : 2 Value : [00]
Element Number : 035 Length : 37 Value : [476134XXXXXX0047=3112XXXXXXXXX]
Element Number : 037 Length : 12 Value : [095757000003]
Element Number : 041 Length : 8 Value : [8900901]
Element Number : 042 Length : 15 Value : [01000006]
Element Number : 049 Length : 3 Value : [784]
Element Number : 062 Length : 6 Value : [000001]

Response: 0110 Message

Element Number : 003 Length : 6 Value : [200000]
Element Number : 011 Length : 6 Value : [000003]
Element Number : 012 Length : 6 Value : [112758]
Element Number : 013 Length : 4 Value : [0212]
Element Number : 024 Length : 3 Value : [078]
Element Number : 035 Length : 37 Value : [476134XXXXXX0047=3112XXXXXXXXX]
Element Number : 037 Length : 12 Value : [604358000003]
Element Number : 038 Length : 6 Value : [006836]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [8900901]

5. *Settlement*

The Terminal needs to settle all the transactions done in a batch in order to receive the payment for the performed transactions. Reconciliation is done between the Terminal and SYSTEM totals.

Request: 0500 Message

Element Number : 003 Length : 6 Value : [920000]
Element Number : 011 Length : 6 Value : [000026]
Element Number : 019 Length : 3 Value : [262]
Element Number : 024 Length : 3 Value : [012]
Element Number : 041 Length : 8 Value : [00000016]
Element Number : 042 Length : 15 Value : [926211030000158]
Element Number : 049 Length : 3 Value : [978]
Element Number : 060 Length : 6 Value : [000001]
Element Number : 062 Length : 6 Value : [000026]
Element Number : 063 Length : 30 Value : [000000000000000002000000027000]

Response: 0510 Message

Element Number : 003 Length : 6 Value : [920000]
Element Number : 011 Length : 6 Value : [000026]
Element Number : 012 Length : 6 Value : [182903]
Element Number : 013 Length : 4 Value : [0726]
Element Number : 024 Length : 3 Value : [012]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000016]

6. *Batch Upload*

In case of reconciliation error between EDC and SYSTEM totals during settlement the terminal is triggered to initiate advice message of all successful transactions for proper reconciliation.

Request: Message Type 0500

Element Number : 003 Length : 6 Value : [920000]
Element Number : 011 Length : 6 Value : [000022]
Element Number : 019 Length : 3 Value : [262]
Element Number : 024 Length : 3 Value : [012]
Element Number : 041 Length : 8 Value : [00000016]
Element Number : 042 Length : 15 Value : [926211030000158]
Element Number : 049 Length : 3 Value : [978]
Element Number : 060 Length : 6 Value : [000002]
Element Number : 062 Length : 6 Value : [v2.00.03]
Element Number : 063 Length : 30 Value : [000000000000000002000000027000]

Response: Message Type 0510

Element Number : 003 Length : 6 Value : [920000]
Element Number : 011 Length : 6 Value : [000022]
Element Number : 012 Length : 6 Value : [182824]
Element Number : 013 Length : 4 Value : [0726]
Element Number : 024 Length : 3 Value : [012]
Element Number : 039 Length : 2 Value : [95]
Element Number : 041 Length : 8 Value : [00000016]

Request: Message Type 0320

Element Number : 002 Length : 16 Value : [51626XXXXXX06575]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000002000]
Element Number : 011 Length : 6 Value : [000024]
Element Number : 012 Length : 6 Value : [150106]
Element Number : 013 Length : 4 Value : [0726]
Element Number : 014 Length : 4 Value : [1707]
Element Number : 019 Length : 3 Value : [262]
Element Number : 022 Length : 3 Value : [010]
Element Number : 024 Length : 3 Value : [012]
Element Number : 025 Length : 2 Value : [00]
Element Number : 038 Length : 6 Value : [005371]
Element Number : 041 Length : 8 Value : [00000016]
Element Number : 042 Length : 15 Value : [926211030000158]
Element Number : 049 Length : 3 Value : [978]
Element Number : 060 Length : 22 Value : [0200000010720714000010]
Element Number : 062 Length : 0 Value : []

Response: Message Type 0330

Element Number : 002 Length : 16 Value : [51626XXXXXX06575]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 011 Length : 6 Value : [000024]
Element Number : 012 Length : 6 Value : [182836]
Element Number : 024 Length : 3 Value : [012]
Element Number : 037 Length : 0 Value : [0]
Element Number : 038 Length : 6 Value : [005371]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000016]

Request: Message Type 0500

Element Number : 003 Length : 6 Value : [960000]
Element Number : 011 Length : 6 Value : [000023]
Element Number : 019 Length : 3 Value : [262]
Element Number : 024 Length : 3 Value : [012]
Element Number : 041 Length : 8 Value : [00000016]
Element Number : 042 Length : 15 Value : [926211030000158]
Element Number : 049 Length : 3 Value : [978]
Element Number : 060 Length : 6 Value : [000001]
Element Number : 062 Length : 6 Value : [000026]
Element Number : 063 Length : 30 Value : [000000000000000002000000027000]

Response: Message Type 0510

Element Number : 003 Length : 6 Value : [960000]
Element Number : 011 Length : 6 Value : [000023]
Element Number : 012 Length : 6 Value : [182903]
Element Number : 013 Length : 4 Value : [0726]
Element Number : 024 Length : 3 Value : [012]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000016]

7. TMK Key Exchange

This is for the generation of the Unique TMK.

Request:

Element Number : 001 Length : 4 Value : [0800]
Element Number : 003 Length : 6 Value : [991380]
Element Number : 011 Length : 6 Value : [000006]
Element Number : 024 Length : 3 Value : [078]
Element Number : 041 Length : 8 Value : [00000022]
Element Number : 042 Length : 15 Value : [100000000000182]
Element Number : 043 Length : 40 Value : [Prakruti]
Element Number : 062 Length : 6 Value : [v2.00.03]
Element Number : 063 Length : 15 Value : [98250623730001]
Element Number : 125 Length : 32 Value : [0123456789ABCDEF0123456789ABCDEF]

Response:

Element Number : 001 Length : 4 Value : [0810]
Element Number : 003 Length : 6 Value : [991380]
Element Number : 011 Length : 6 Value : [000006]
Element Number : 012 Length : 6 Value : [142548]
Element Number : 013 Length : 4 Value : [0821]
Element Number : 024 Length : 3 Value : [078]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000022]
Element Number : 042 Length : 15 Value : [120186500048891]
Element Number : 043 Length : 40 Value : [Prakruti]
Element Number : 062 Length : 38 Value : [325838F288258A30B6418117EF9BFD7767E852]
Element Number : 063 Length : 15 Value : [98250623730001]

Derive an IPEK from BDK

Request:

Element Number : 001 Length : 4 Value : [0800]
Element Number : 003 Length : 6 Value : [990280]
Element Number : 007 Length : 10 Value : [0821085557]
Element Number : 011 Length : 6 Value : [000007]
Element Number : 012 Length : 6 Value : [085557]
Element Number : 041 Length : 8 Value : [00000022]
Element Number : 042 Length : 15 Value : [100000000000182]
Element Number : 053 Length : 15 Value : [982506237300010]
Element Number : 070 Length : 3 Value : [161]

Response:

Element Number : 001 Length : 4 Value : [0810]
Element Number : 003 Length : 6 Value : [990280]
Element Number : 011 Length : 6 Value : [000007]
Element Number : 012 Length : 6 Value : [142558]
Element Number : 013 Length : 4 Value : [0821]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000022]
Element Number : 062 Length : 38 Value : [CE65D5CB033CFFD1C2076FBBF11BD980845273]
Element Number : 070 Length : 3 Value : [161]

8. Pre authorization

A pre-authorization (Pre-Auth) transaction is a temporary hold placed on a customer's payment method—usually a credit or debit card—to ensure that funds are available before the final transaction is settled.

Sale completion refers to a transaction that completes a previously authorized sale by submitting the final amount for settlement.

Request: Message Type 0220

Element Number : 002 Length : 16 Value : [553801XXXXXXX223]
Element Number : 003 Length : 6 Value : [330000]
Element Number : 004 Length : 12 Value : [000000001300]
Element Number : 006 Length : 12 Value : [000000001300]
Element Number : 011 Length : 6 Value : [000961]
Element Number : 012 Length : 6 Value : [122911]
Element Number : 013 Length : 4 Value : [0308]
Element Number : 014 Length : 4 Value : [2112]
Element Number : 019 Length : 3 Value : [262]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [000]
Element Number : 024 Length : 3 Value : [012]
Element Number : 025 Length : 2 Value : [00]
Element Number : 035 Length : 37 Value : [553801XXXXXXX223=2112226XXXXXXXXXXXXX]
Element Number : 037 Length : 12 Value : [030800000961]
Element Number : 041 Length : 8 Value : [00000661]
Element Number : 042 Length : 15 Value : [983411000002267]
Element Number : 049 Length : 3 Value : [262]
Element Number : 051 Length : 3 Value : [262]
Element Number : 055 Length : 264 Value : [9F02060000000013008202380 09F3602
00969F2608616E160F6FC8F0FD9F2701809F34034403029F10120110A7800304000043BE00000000000000FF
9F3303E0F0C89F1A0202629F3501229505000000800 05F2A0202629A031703089C01009F37046D1084AE]
Element Number : 062 Length : 6 Value : [000961]
Element Number : 102 Length : 10 Value : [0010001112]

Response: Message Type 0230

Element Number : 003 Length : 6 Value : [330000]
Element Number : 004 Length : 12 Value : [000000001300]
Element Number : 011 Length : 6 Value : [000961]
Element Number : 012 Length : 6 Value : [122911]
Element Number : 013 Length : 4 Value : [0308]
Element Number : 024 Length : 3 Value : [012]
Element Number : 035 Length : 37 Value : [553801XXXXXXX223=21122261734371300000]
Element Number : 037 Length : 12 Value : [030800000961]
Element Number : 038 Length : 6 Value : [155779]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000661]
Element Number : 055 Length : 36 Value : [910A2E24D2186F129AB20012]

10. Adjust sale

An adjust sale refers to modifying a transaction recorded in the POS terminal before it is settled.

Request Message Type : 0200

Element Number : 002 Length : 16 Value : [553801XXXXXXX223]
Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000001200]
Element Number : 006 Length : 12 Value : [000000001200]
Element Number : 011 Length : 6 Value : [000958]
Element Number : 012 Length : 6 Value : [122234]
Element Number : 013 Length : 4 Value : [0308]
Element Number : 014 Length : 4 Value : [2112]
Element Number : 019 Length : 3 Value : [262]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [000]
Element Number : 024 Length : 3 Value : [012]
Element Number : 025 Length : 2 Value : [00]
Element Number : 035 Length : 37 Value : [553801XXXXXXX223=2112226XXXXXXXXXXX]
Element Number : 037 Length : 12 Value : [030800000958]
Element Number : 041 Length : 8 Value : [00000661]
Element Number : 042 Length : 15 Value : [983411000002267]
Element Number : 049 Length : 3 Value : [262]
Element Number : 051 Length : 3 Value : [262]
Element Number : 055 Length : 264 Value : [9F02060000000001200820238009F360200949F260857B40A109FAF1A409F2701809F34034403029F10120110A78003040000BDFD00000000000000FF9F3303E0F0C89F1A0202629F35012295050000008000 5F2A0202629A031703089C01009F3704E9348F57]
Element Number : 062 Length : 6 Value : [000958]
Element Number : 102 Length : 10 Value : [0010001112]

Response: Message Type 0210

Element Number : 003 Length : 6 Value : [000000]
Element Number : 004 Length : 12 Value : [000000001200]
Element Number : 011 Length : 6 Value : [000958]
Element Number : 012 Length : 6 Value : [144206]
Element Number : 013 Length : 4 Value : [0308]
Element Number : 024 Length : 3 Value : [012]
Element Number : 037 Length : 12 Value : [030800000958]
Element Number : 038 Length : 6 Value : [037418]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000661]
Element Number : 055 Length : 36 Value : [910AEB3C0FA5824CA43E0012]

Request Message Type : 0220

Element Number : 002 Length : 16 Value : [553801XXXXXXX223]
Element Number : 003 Length : 6 Value : [020000]
Element Number : 004 Length : 12 Value : [000000000000]
Element Number : 011 Length : 6 Value : [000960]
Element Number : 012 Length : 6 Value : [122357]
Element Number : 013 Length : 4 Value : [0308]
Element Number : 014 Length : 4 Value : [2112]
Element Number : 019 Length : 3 Value : [262]
Element Number : 022 Length : 3 Value : [051]
Element Number : 023 Length : 3 Value : [000]
Element Number : 024 Length : 3 Value : [012]
Element Number : 025 Length : 2 Value : [00]
Element Number : 037 Length : 12 Value : [030800000958]
Element Number : 038 Length : 6 Value : [037418]
Element Number : 041 Length : 8 Value : [00000661]
Element Number : 042 Length : 15 Value : [983411000002267]
Element Number : 049 Length : 3 Value : [262]
Element Number : 051 Length : 3 Value : [262]
Element Number : 060 Length : 12 Value : [000000001200]
Element Number : 062 Length : 6 Value : [000958]

Response: Message Type 0230

Element Number : 003 Length : 6 Value : [020000]
Element Number : 004 Length : 12 Value : [000000001200]
Element Number : 011 Length : 6 Value : [000960]
Element Number : 012 Length : 6 Value : [144620]
Element Number : 013 Length : 4 Value : [0308]
Element Number : 024 Length : 3 Value : [012]
Element Number : 037 Length : 12 Value : [030800000958]
Element Number : 038 Length : 6 Value : [037418]
Element Number : 039 Length : 2 Value : [00]
Element Number : 041 Length : 8 Value : [00000661]

5. KEY MANAGEMENT

5.1 Unique TMK Process Overview

There are two methods YSE system will support to handle Unique TMK process.

Method 1: Load TMK

There are two 32 digits components are required to implement unique TMK validation.

- One component will be static KEY and another one has to generate using the following parameter.
  - Terminal Id
  - Serial number of terminal
  - Right padded with zeros to make 32 digits component
- For e.g: Unique TMK Key = 32 digit Static Master Key (MK) XOR 32 digit Dynamic Key (Terminal Id + Serial No + less right padded with zero to make 32 digit).
- Need to XOR the above two components. The output will be maintained in the terminal as Master TMK.
- During the time of TMK key exchange the serial number and the terminal id will be transmitted to YSE Switch. (Ref. Section 4.4.3).
- After the TMK Key Exchange the new unique TMK Key will be used to process the TAK and TPK Key Exchange in both end (POSTERMINAL and YSE Switch).
- The mode of encryption is ECB.

Sample values:
TMK XOR with Terminal Id + Terminal Serial Number
==========
Component1:00000122D1234567890000000000000

Check value: 2F2CFC
Component 2: 70387F8940024CEA4CD04A57E50DA45B (Clear TMK)
Check Value: A3C721
FINAL CHECK VALUE: 027C71 (XOR COMPONENT 1 AND COMPONENT 2)

Method 2: Generate and export a TMK

There are two 32 digits Master Key components has to share between YSE and Terminal as it required to implement unique TMK validation.

- Terminal will generate 32 digit random TMK and it will be encrypted under the above Master Key.
- The same encrypted components send to YSE switch by the terminal.
- Along with encrypted key component terminal will provide the following parameters in online TMK key exchange message.
  - Terminal Id
  - Serial number of terminal
- The same has been stored after decryption of Master Key in YSE switch and mark it as TMK of the particular terminal. The mode of decryption is CBC.
- Post successful response send by YSE switch, terminal will initiate session key exchange request.
- YSE will send response with session key encrypted under particular terminal TMK. The mode of encryption is ECB.

Sample Values:
Clear MK : E2235597B6B9957F9C2E12254E0265B9
Check Value : B1 C7 18
Clear TMK: 17CBF23F4AB14C698F48A52EEC587B0C
Check Value: 9F 37 02
TMK encrypted under MK: 556214096C95250FC3E641BF6CD8A0F9
Check value: 9F 37 02
Mode of Encryption: CBC

Method 3: Derive and export the IPEK / TAK

There are two 32 digits Master Key components has to share between YSE and Terminal as it required to implement unique TMK validation.

- Terminal initiate TMK download request to YSE and pass the following information.
  - Merchant Id
  - Terminal Id
  - Serial Number
  - Merchant Name
- Using the above merchant a/c information YSE will generate 32 digit TMK component using
- Master KEY and stored the same.
- YSE will send encrypted TMK using MK to terminal during the time of download key response message.
- The same has been stored in the terminal after decryption using MK. The mode of decryption is ECB.
- These keys are used to exchange the following session keys.
  - Terminal PIN Key [TPK]
  - Terminal Authentication Key [TAK]
- YSE will send response with session key encrypted under particular terminal TMK. The mode of encryption is ECB.

DUKPT:

Derived Unique Key Per Transaction is a cryptographic key management method which ensures that every transaction uses a unique encryption key, which is derived from a fixed base key and a unique identifier called the Key Serial Number (KSN).

5.2 Key Exchange

The Terminal Authentication Key (TAK) and Terminal PIN Key (TPK) will be exchanged with YSE Switch. The Terminal application will initiate two key exchange requests to YSE Switch to exchange TAK and TPK. YSE Switch will generate TAK and TPK using the HSM and encrypt under TMK and send to the Terminal. The Terminal application will decrypt the TAK and TPK and stored in the Terminal. Following are additional details of session keys

- The TAK and TPK are double length keys and will be sent in the 62nd field by YSE Switch.
- The 3 bytes check value (KVC) will be padded at the end of TAK and TPK keys, which is received from Thales 8000 HSM
- The encryption mode is ECB.
- Variants are used in TAK and TPK encryption under TMK
- The variants are based on Thales 8000 HSM.

Sample Values:
Encrypted TPK under TMK (Triple DES - ECB mode of encryption)
==========
CLEAR TPK: F4E9981586DF25450B436D8F91576EAD
CHECK VALUE: B3B434
Variant Used: X
Encrypted TPK under TMK: 715DF4A81D97644672DBEEFC9C3624A3
Encrypted TAK under TMK (Triple DES - ECB mode of encryption)
==========
CLEAR TAK: 5DAEC8D52952D9E5D57CDCE5FB021A34
CHECK VALUE: 753DA8
Variant Used: X
Encrypted TAK UNDER TMK: B79D05DBD351000244224DEA8516ABEF

5.3 PIN Block Encryption

The user will enter the PIN and the same will be encrypted using the TPK stored in the terminal. The PIN Block will be returned by the encryption function

Sample Values:
Card No: 9999999999999999
Pin Block format: ANSI
Clear Pin: 1234
Key Used for Encryption (Clear TPK): F4E9981586DF25450B436D8F91576EAD
Encrypted Pin Block: D95E512C61638CE0

5.4 Message Authentication Code

The Message Authentication Code (MAC) can be computed to verify that a message transferred by a telecommunications network has not been altered. This method involves submitting sensitive elements of a message to Triple DES with a secret key. The originator (Host/Terminal) appends the MAC to the message. The recipient uses the same elements and secret key to compute the MAC and compares it with the one sent by the originator (Host/Terminal). If the two agree, the message is accepted as valid.
There will be a Key exchange message initiated by Terminal to receive the TAK from Host.
The MAC string will be formed from specific fields. The MAC string will be generated using the TAK stored in the terminal. MAC algorithm is ANSI X9.19
The following fields were used to generate the MAC is as follows.
Note: The MAC input data should have multiples of 8 bytes. If doesn't have multiple of 8 bytes then we have to make right padded with "F".

Message Type - 0100

Msgtype
DE2 - PAN(In case Manual sale OR DE35 not present)
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number
DE35 – Track 2

Message Type - 0110

Msgtype
DE2 - PAN(In case Manual sale OR DE35 not present)
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number
DE35 – Track 2
DE38 – Auth Id
DE39 – Response Code

Message Type - 0200

Msgtype
DE2 - PAN(In case Manual sale OR DE35 not present)
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number
DE35 – Track 2

Message Type - 0210

Msgtype
DE2 - PAN(In case Manual sale OR DE35 not present)
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number
DE35 – Track 2
DE38 – Auth Id

DE39 – Response Code

Message Type - 0220

Msgtype
DE2 - PAN
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number

Message Type - 0230

Msgtype
DE2 - PAN
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number
DE38 – Auth Id
DE39 – Response Code

Message Type - 0400

Msgtype
DE2 – PAN
DE3 – Processing Code
DE4 – Transaction Amount
DE11 – System Audit Trace Number
DE39 – Response Code

Message Type - 0410

Msgtype
DE2 – PAN
DE3 – Processing Code
DE11 – System Audit Trace Number
DE39 – Response Code

Sample Values:

Mac Generation (ANSI X9.19 Method)
==========
Key Used for Mac Generation (Clear TAK):
5DAEC8D52952D9E5D57CDCE5FB021A34
Input Data:
0000000214050000000100009999999999999999=110810100000904464000012345FFF
Processing code - 000000
Trace number - 021405
Transaction Amount - 000000010000
Track2 - 9999999999999999=11081010000090446400
Auth Id -012345
MAC Value: D645B06268707857

6. HOST RESPONSE CODE MATRIX

Code	Description
00	APPROVED AND COMPLETED SUCCESSFUL
01	REFER TO CARD ISSUER
02	REFER TO CARD ISSUER, SPECIAL CONDITION
03	INVALID MERCHANT OR SERVICE PROVIDER
04	PICK UP CARD (NO FRAUD)
05	DO NOT HONOR
06	ERROR
07	PICK UP CARD,SPECIAL CONDITION (FRAUD ACCOUNT)
10	PARTIAL APPROVAL
11	APPROVED (V.I.P)
12	INVALID TRANSACTION
13	INVALID AMOUNT
14	INVALID ACCOUNT NUMBER (NO SUCH NUMBER)
15	NO SUCH ISSUER (FIRST 8 DIGITS OF ACCOUNT DO NOT RELATE TO AN ISSUER BIN)
19	RE-ENTER TRANSACTIONS
21	NO ACTION TAKEN (UNABLE TO BACK OUT PRIOR TRANSACTION)
25	UNABLE TO LOCATE RECORD IN FILE
28	FILE TEMPORAILY NOT AVAILABLE FOR UPDATE OR INQUIRY
30	FORMAT ERROR
39	NO CREDIT ACCOUNT
41	LOST CARD, PICK UP (FRAUD ACCOUNT)
43	STOLEN CARD,PICK UP (FRAUD ACCOUNT)
51	INSUFFICIENT FUNDS
52	NOT CHECKING ACCOUNT
53	NO SAVINGS ACCOUNT
54	EXPIRED CARD OR EXPIRATION DATE IS MISSING
55	INCORRECT PIN OR PIN MISSING
56	UNABLE TO LOCATE ORIGINAL TRANSACTION
57	TRANSACTION NOT PERMITTED TO CARD HOLDER Note:- Also sent if the Sale Completion doesn't have an original pre-authorization and equivalent business rules set in the system by the client.
58	TRANSACTION NOT ALLOWED AT TERMINAL
61	EXCEEDS APPROVAL AMOUNT LIMIT(USED BY STIP WHEN ACTIVITY Amount limit is exceeded)
62	RESTRICTED CARD (CARD INVALID IN THIS REGION OR COUNTRY)
63	SECURITY VIOLATION (SOURCE IS NOT CORRECT ISSUER)
64	INVALID ACCOUNT
65	EXCEEDED WITH DRAWAL FREQUENCY LIMIT (USED BY STIP WHEN ACTIVITY ACCOUNT LIMIT IS EXCEEDED
72	ISO ERROR
75	ALLOWABLE NUMBER OF PIN ENTRY TRIES EXCEEDED

Code	Description
76	UNSOLICITED REVERSAL (A REVERSAL WITH NO ORIGINAL TRANSACTION IN HISTORY)
77	PREVIOUS MESSAGE LOCATED FOR A REPEAT OR REVERSAL, BUT REPEAT OR REVERSAL DATA ARE INCONSISTENT WITH MESSAGE
79	ALREADY REVERSED
80	INVALID DATE (FOR USE IN PRIVATE LABLE TRANSACTIONS AND CHECK ACCEPTANCE TRANSACTIONS)
81	CRYPTOGRAPHIC ERROR IN PIN (USED FOR CRYPTOGRAPHIC ERROR FOUND BY SECURITY MODULE DURING PIN DECRYPTION)
82	INCORRECT CVV1 / CVV2 ERROR
83	UNABLE TO VERIFY PIN
85	NO REASON TO DECLINE A REQUEST FOR ACCOUNT NUMBER VERIFICATIONS OR ADDRESS VERFICATION(DATA BASE ERROR)
86	CANNOT VERIFY PIN: FOR EXAMPLE ,NO PVV
87	SERVICE INDICATOR
89	INELIGIBLE TO RECEIVE FINANCIAL POSITION INFORMATION (GIV)
91	ISSUER UNAVAILABLE OR SWITCH INOPERATIVE (STIP NOT APPLICABLE OR AVAILABLE FOR THIS TRAN - HOST NOT AVAILABLE
92	DESTINATION CANNOT BE FOUND FOR ROUTING
93	TRANSACTION CANNOT BE COMPLETED - VIOLATION OF LAW
94	DUPLICATE TRANSMISSION
96	SYSTEM MALFUNCTION

7. CONTACT DETAILS

Name	Mr. Rajkumar S
Mobile	+91 8056222236
E-mail	rajkumar.s@yalamanchili.in
Web Site	www.ysppayments.com

Name	Ms. Archana M
Mobile	+91 8807154379
E-mail	archana.m@yalamanchili.in
Web Site	www.ysppayments.com