VX690 Pacific
POS/ECR Specifications

Document Title:	VX690 Pacific POS/ECR Specifications
Release Version:	2.16
Issued:	July 16, 2018
Status:	Release

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Revision History

Version	Date	Author	Description of change
2.00	May 18, 2016	Michael Persson	Format change copied from 1.03
2.01	May 19, 2016	Michael Persson	Added feedback
2.02	May 19, 2016	Michael Persson	Added software download request
2.03	May 25, 2016	Michael Persson	Removed IP references.
2.04	May 26, 2016	Michael Persson	Added POS usability options
2.05	May 27, 2016	Michael Persson	Removed extra transactions
2.06	May 27, 2016	Michael Persson	Refined access method
2.08	July 27, 2017	Michael Persson	Refreshed document
2.10	May 15, 2018	Carlo Alvarez	Updated for WPP 03.01.00. Updated to document all results of discussions within the project team.
2.11	May 23, 2018	Carlo Alvarez	Added note that WPP 03.01.00 will support only printing on the terminal Added note that Void should always be available Added note that Hospitality options (e.g. Waiter prompt) should be disabled in VeriCentre Added descriptions on what each Function Code will do Added note that PAN and Expiration Date will be masked as per VeriCentre settings 'when transmitted from terminal to PC/POS' Added 'SV' Response Code and added flow of Signature Verification Added sections for Refund request and response message formats Added Field 00 (Response Code) in the Reprint Receipt response message Added Field 00 (Response Code) in the Comms Test response message Added Transaction behaviours concerning Comms Test and Passwords
2.12	June 7, 2018	Carlo Alvarez	Changed Baud Rate to 115200bps (Sec 2.2.1) Added note that Function Code input is masked like PIN input (Sec 3.2) Updated Field 31 (Expiry Date) format Updated Field 03 (Date) and Field 04 (Time) formats Added Response Code: TC i.e. Transaction Cancelled and added Response Texts (Sec 7.1.2) Removed: 'Return to POS timeout' and related notes (Sec 3.1 and 3.4) Added Sec 11.5
2.13	June 8, 2018	Carlo Alvarez	Reverted Baud Rate to 9600bps (Sec 2.2.1)
2.14	July 6, 2018	Carlo Alvarez	Removed PC/ECR Option to perform Comms Test from the terminal

2.15	July 9, 2018	Carlo Alvarez	Added VeriCentre options for Baud Rate. Updated Message Format examples specifically Trans. Amt and Cash Amt fields.
2.16	July 16, 2018	Ralph Diwa	Incorporate feedback from Michael P.
2.16	July 16, 2018	Michael Persson	Converted to release.

Contents

1.0 GENERAL OPERATION

1.1 GENERAL INFORMATION

The Verifone ECR is designed to provide a simple solution to double entry of amounts. This development is intended primarily for the Supermarket / multilane environments to eliminate double keying errors. The transaction amount needs only to be entered once and then transmitted to the terminal by the POS to complete the transaction online.

WPP 03.01.00 is the first release to implement this specification. In the sections below, details specific to WPP 03.01.00 are tagged with "[WPP 03.01.00]".

- The operation of the POS ECR must not interfere with the operation of the terminal communications, both in regards of the transaction and downloads. Transactions may be 3G, dial or IP or wireless and the POS/ECR must work alongside these modes.
- The POS will drive the transactions. Once ECR is enabled on the terminal, the terminal will wait for input form the POS.
- Only printing on the terminal is supported.
- No PCI-DSS controlled information will be passed from the terminal to the POS. Masking will be the same as configured in Vericentre.
- This is solution is technically referred to as "**Interfaced**" as all transactions are handled via the terminal communications ports. This document however will use the term "**Integrated**" to describe the solution as this is terminology is used more widely.

1.2 TRANSACTIONS SUPPORTED

The ECR spec is designed to support the following transactions –

- Sale
- Sale & Cash
- Refund
- Void
- Logon
- Settlement
- Reprint Receipt
- Communication test (ECR Test)

[WPP 03.01.00]
Tipping is not supported. Tipping should be disabled in VeriCentre.
DCC is not supported. DCC should be disabled in VeriCentre.

2.0 SYSTEM REQUIREMENTS

2.1 HARDWARE REQUIREMENTS

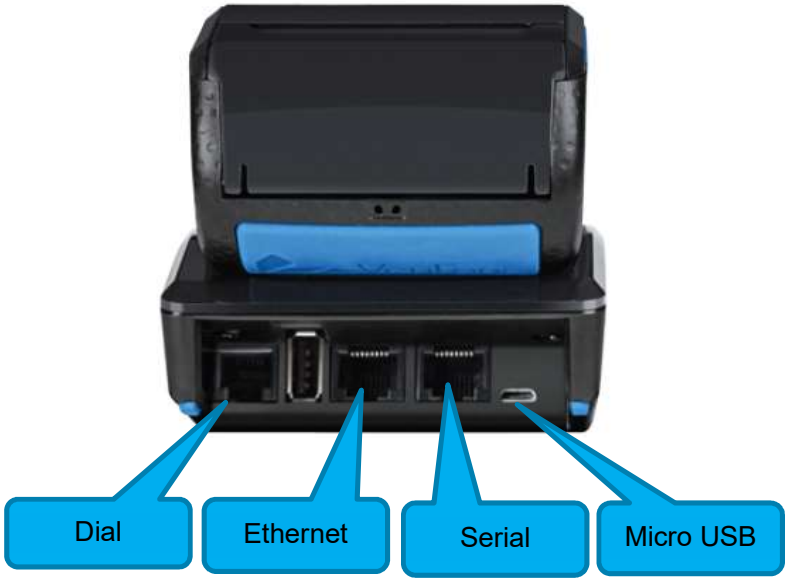
2.1.1 Terminal

The following POS communications methods between the PC/ECR and the terminal (VX690) will be supported:
Serial - RS232 serial port is connected on the base
USB - micro USB port on the base

2.1.2 POS/ECR system

As mentioned above an RS232 port, or equivalent, will be required to communicate with the Terminal e.g. typically the communications hardware found in a PC. A suitable operating system must also be available that will support the serial communications protocol driver specified in paragraph 1.3 below.
The Base USB port is a slave USB version 2.0.

2.1.3 VX690 ports



2.2 PHYSICAL PORTS - SERIAL

The physical configuration for the serial interface between the PC/ECR and the Terminal is detailed in the following table.

2.2.1 Serial parameters

Data Rate	9600 bps is default 9600, 38400 and 115200 bps are supported (see Section 3.1 Vericentre options)
Connection	RS232C (V.24). Terminal connector is a proprietary 10 pin serial cable
Mode	Terminal port is full duplex
Transmission	Asynchronous, 8 data bits, no parity, 1 stop bit (N,8,1)
Characters	ASCII character set (for character fields)

2.2.2 Cable configuration - VX690 terminals

The cable configuration and RS232C signals are specified in the following table.
A Verifone supplied interface cable is recommended to be used P/N 26264-01

		MALE MOD-10		FEMALE DE-9	
WIRE NO.	DESCRIPTION	PIN NO.	LEGEND	PIN NO.	DESCRIPTION
	TXCLK	1	SHIELD		N.C.
	+8.5V	2			N.C.
1	CD	3		4	DTR
2	DTR	4		1	CD
3	GND	5		5	GND
4	RXD	6		3	TXD
5	TXD	7		2	RXD
6	CTS	8		7	RTS
7	RTS	9		8	CTS
	RXCLK	10			N.C.
	SHIELD		DRAIN WIRE		SHIELD

2.3 PHYSICAL PORTS - USB

The micro USB cables are as per industry standard.
A Verifone supplied USB driver software must be loaded on the POS/ECR system.

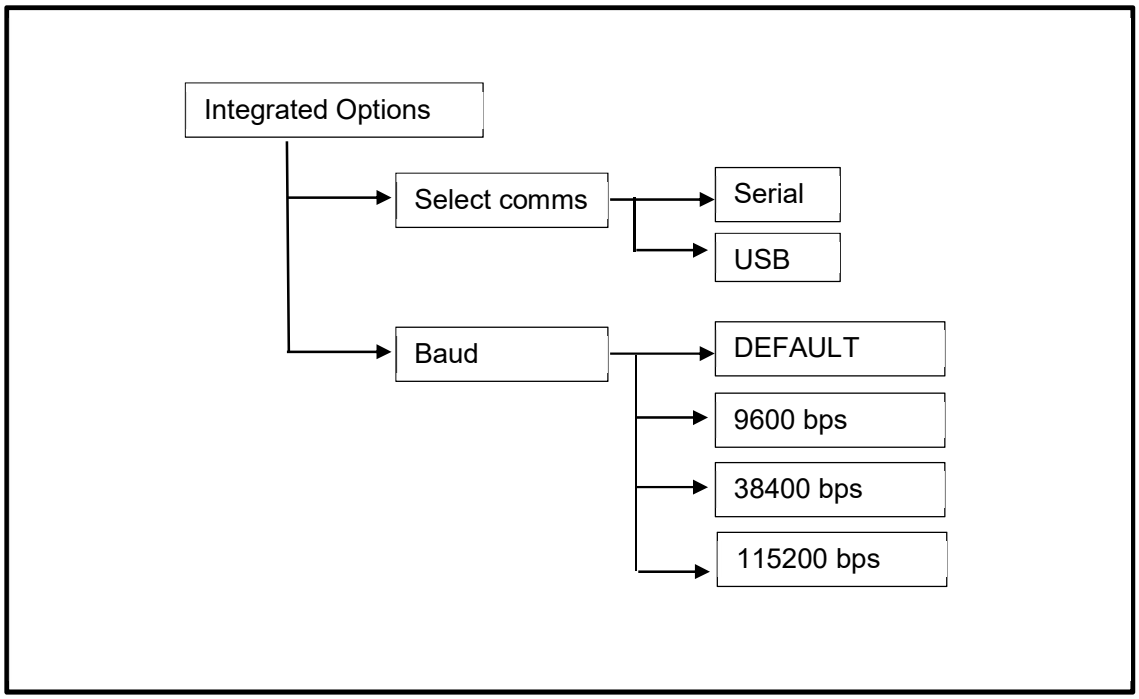
3.0 SOFTWARE CONFIGURATION

The terminal will need to be configured for the POS communications method to be used along with errors for non-connectivity

3.1 VERICENTRE OPTIONS

These options to be added to Vericentre, or similar based of software implementation

[WPP 03.01.00]
Only printing on terminal is supported. No option necessary to toggle 'Terminal prints receipt' and 'POS prints receipt.



IMPORTANT: Void should always be enabled in VeriCentre; Signature Verification requires that Void is available. See section 9.1 Invalid Signature.
Hospitality options (e.g. Waiter prompt) shall be disabled in VeriCentre.

3.2 TERMINAL OPTIONS

At terminal level via Utility Menu the ECR interface status can be tested. By default all interface options will be tested during this phase
The POS mode can be disabled/enabled at the terminal. VC download will overwrite this setting
Serial port to be hard coded at Asynchronous, 8 data bits, no parity, 1 stop bit (N,8,1)

When in POS Mode, pressing the "*" key on the keypad prompts the user to enter a function code. Merchant password may be prompted. (This is as per PCEFTPOS)

Enter the function code to access the following Items

- Settlement
- Reports
- Utility
- Functions
- Logon
- Load parameters

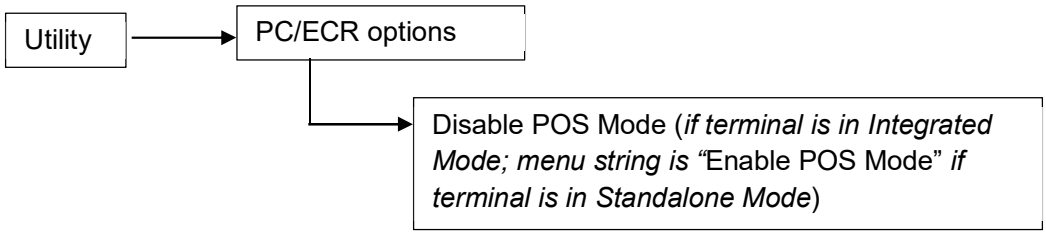
[WPP 03.01.00]

Function	Code	Equivalent in Standalone Mode
Settlement	38620001	Menu > Settlement
Reports	38620002	Menu > Reports
Utility	38620003	Menu > Utility
Functions	38620004	Menu > Functions
Logon	38620005	Menu > Logon
Load Parameters	38620006	Menu > Load Params

Input of the Code is masked on the display like PIN input.

3.3 TERMINAL MENU OPTIONS

Sub Menu



3.4 TERMINAL DISPLAY

When in ECR mode, the terminal will display:

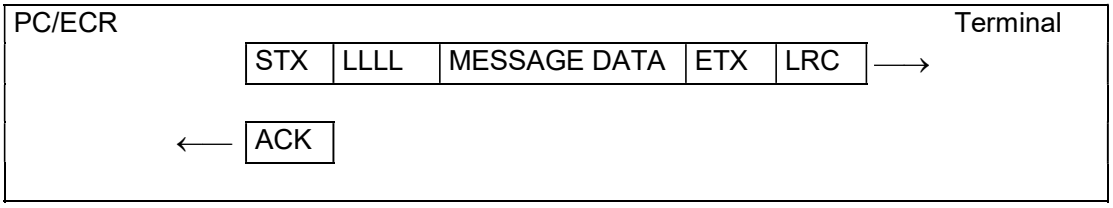
- An image showing terminal is in POS/ECR mode
- An icon showing the POS communications type configured
- An indicator on whether it is active or inactive

4.0 POS COMMUNICATIONS PROTOCOL

It can be reasonable assumed that the RS232C connection between the PC/ECR and the terminal is almost completely free of errors therefore, a simple communications protocol between the two devices can do the job well. In order to prevent a single error on the line from causing a message to be lost, a message is acknowledged when the receiver returns an ACK (06h) character. Therefore, only one single unacknowledged message can be outstanding at any one time in one direction. Please note that the receipt of a message does not imply that the previous message sent has been received.

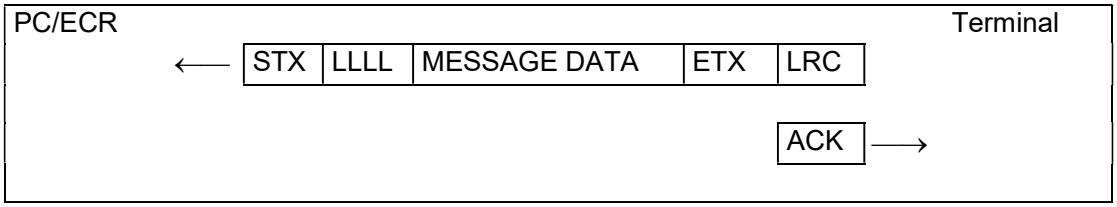
4.1 REQUEST MESSAGE FROM PC/ECR TO TERMINAL

The PC/ECR transmits a message. The Terminal acknowledges receipt of the message by transmitting a single ACK (06h) character.



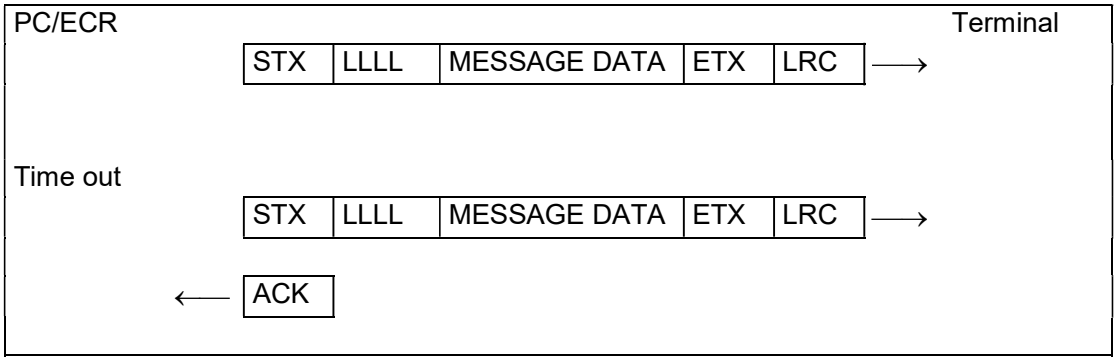
4.2 RESPONSE MESSAGE FROM TERMINAL TO PC/ECR

The Terminal transmits a message. The PC/ECR acknowledges receipt of the message by transmitting a single ACK (06h) character.



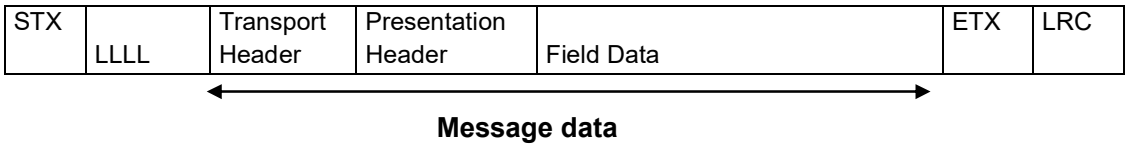
4.3 ERROR RECOVERY

If the PC/ECR, or the Terminal, sends a message and does not receive an ACK within 1 second the message should be transmitted again. If the second transmission does not receive an ACK within 1 second that message should be treated as 'undeliverable' and the application should take whatever action(s) is (are) required to recover. If the PC/ECR, or Terminal, receives a message in error (either Bad Length, missing ETX, or incorrect LRC etc.) the message should be ignored. These errors should only be caused by transmission errors and the re-transmission process described earlier will correct the error. There is no automatic method for recovering from application errors that cause the message to appear corrupted.



5.0 MESSAGE STRUCTURE

The messages that are transmitted on the link between the PC/ECR and the Terminal will use the following structure.



FIELD	BYTES	VALUE	COMMENT
STX	1	02h	Start of Text. This character is used to indicate the start of a frame.
LLLL	2		Length of the MESSAGE DATA to follow. This is transmitted in BCD (Binary Coded Decimal) form. The most significant byte is transmitted first, followed by the least significant byte. For example, a length of 138 bytes will be transmitted as 01h 38h. The LLLL field allows the inclusion of binary data in the message. The maximum allowable value for LLLL will depend on the implementation.
Message	Variable		The Message Data consists of a Transport Header, a Presentation Header and Field Data where Field Data is made up of one or more Field Elements.
ETX	1	03h	End of Text Logically this field is not required because of the length indicator (LLLL), but it is included as an extra check to ensure that the message was successfully received and that the receiver is in synchronization with the transmitted message.
LRC	1		Longitudinal Redundancy Character. This character is calculated by Exclusive OR-ing each character following (but not including) the STX up to (and including) the ETX.

5.1 MESSAGE DATA

The message data within a message consists of three different components in the order shown in the diagram below. The different components are detailed in the sections that follow.

MESSAGE DATA		
Transport Header	Presentation Header	Field Data

5.2 TRANSPORT HEADER

The first data in the Message Data is the Transport Header. The Transport Header provides flexibility in message routing and allows more than one application to use the same network. The fields comprising the Transport Header are arranged in the following order.

TRANSPORT HEADER		
Transport Header Type	Transport Destination	Transport Source

FIELD	BYTES	VALUE	USE
Transport Header Type	2	'60'	Used to select the type of application this message is used for where a value of '60' defines an 'Application Message'.
Transport Destination	4	'0000'	Allows the PC/ECR to select the destination to which this message is to be routed. If this value is '0000' the Terminal will determine the correct destination to route the message to from its internal tables. Note: '0000' will be used for this application.
Transport Source	4	'0000'	The first two digits of this field must be '00'. Typically this will be '00', but if there are multiple devices connected to the PC/ECR, this field can be used to identify the individual device where the request originated.

5.3 PRESENTATION HEADER

The next data in the Message Data is the Presentation Header. The Presentation Header indicates if this is a request or a response, the transaction code, a response code and an indication if there are more messages associated with this message. The fields comprising the Presentation Header are arranged in the following order.

PRESENTATION HEADER					
Format Version	Request-Response Indicator	Transaction Code	Response Code	More Data Indicator	Field Separator

FIELD	BYTES	VALUES	USE
Format Version	1	'1' or '2'	Indicates what format of the messages is used. See the Field Data section for a full explanation of the differences between Format Version 1 and Format Version 2. **[WPP 03.01.00] Only Format Version 1 is supported.**
Request-Response Indicator	1		'0' This message is a request message which requires a response. The terminal will print all receipts. '1' This message is a response message. '2' This message is a request message which does not require a response. 'A' This message is a request message which requires a response. The PC/ECR system will print all receipts.
Transaction Code	2		Identifies the type of transaction this message is performing. See valid Transaction Codes described later in this document.
Response Code	2		Identifies the result of the transaction in a response. Response code should be set to '00' for all request messages. See list of valid Response Codes described later in this document.
More Indicator	1		Reserved for future use.
Field Separator	1	1Ch	This field is used to make it easier to identify the end of the presentation header when looking at message traces.

5.4 FIELD DATA

The Field Data consists of one or more Field Elements arranged one after the other in the message. Please note that some messages do not require any field elements e.g. Communications test.

FIELD DATA				
Field Elements	Field Element	•••••	Field Element	Field Element

There are two formats available for use. The format used in the message is indicated by the **Format Version** field in the **Presentation Header**.

5.4.1 Field Data Format Version 1

[WPP 03.01.00]
Only Field Data Format Version 1 will be supported.

Format Version 1 allows alphanumeric Field Types, and lengths up to a theoretical maximum of 9999. The fields comprising the Field Element in Format Version 1 are arranged in the following order.

FIELD ELEMENT FORMAT VERSION 1			
Field Type	LLLL	Data	Field Separator

FIELD	BYTES	VALUE	USE
Field Type	2		Indicates the type of data that is included in this field element. This is an alphanumeric field. Characters 0-9 and A-Z are available for use. See 'Field type definitions' for a complete list of available values.
LLLL	2		Indicates the length in bytes of the data to follow. Length can have a value from 0000 to a value that will not cause the total message to exceed the maximum size allowed for the implementation. **LLLL is transmitted in BCD (Binary Coded Decimal)** form. The most significant byte is transmitted first, followed by the least significant byte. For example, a length of 256 bytes will be transmitted as 02h 56h. See 'Field type definitions' for a complete list of applicable values.
Data	LLLL		The data for this field. If no data is in this field (for example when the functionality is indicated by the field type on its own) there will be no data present.

FIELD	BYTES	VALUE	USE
Field Separator	1	1Ch	This field is used to make it easier to identify the end of a field element when looking at message traces. The field length should be used to determine the length of the data. The field separator is not included in the field length. On the last data element in the message. the field separator is optional, the ETX character may be used without an ending field separator.

5.4.2 Field Data Format Version 2

See Appendix B

5.4.3 Field Separators

Some implementations will find it easier to develop this interface if field data appears in a particular order with 'field separators' to represent the 'end' of a field or fields that are missing. To support this it is recommended to use the Field Separator characters (1Ch). This can be easily supported in the parsing routine by ignoring any Field Separator characters when it is expecting the first character of the Field Type. This means that it is not possible to have a Field Type that has a value of '1Ch' as its first byte.

[WPP 03.01.00]
This suggested implementation shall not be applied to WPP 03.01.00.

6.0 TRANSACTION CODES

Transaction codes will be available to perform the required functions between the Terminal and the PC/ECR system as detailed in the table below. Each transaction code is identified using a two character's ASCII code as described below.

6.1 SUPPORTED/TESTED

Code	Code description	description
20	SALE	Sale
26	REFUND	Refund
42	VOIDTRAN	Void sale
		Void sale with Invoice number
50	ECR_CARDREAD	ECR Card read
61	SETTLE	Settlement
A0	ECR_RECEIPT	Retrieve Last Receipt
		Retrieve last receipt with invoice number
D0	ECR_COMMS	Comms Test to ECR
E7	DBCASH	Cash Advance
E8	SALCASH	Sale & Cash
G9	LOGON	LOGON – single acquirer/all acquirers

6.2 NOT SUPPORTED (INFO ONLY)

Code	Code description	description
10	PRE_AUTH	Auth
25	SALOFFL	Offline Sale
71	PRTLIST	Review Total
A5	ECR_CARDTABLE	Card Table Info
A6	ECR_SWLOAD	Software download
D5	INITIALIZE	Terminal initialization
D6	PROGLD_FUN	Program Load Function
E6	BALINQ	Balance Inquiry
GA	STATISTICS	Statistics
F2	TESTTRAN	test transaction
EB	ECR_REVERSAL	ECR Reversal
A7	ECR_KEYLOAD	Pinpad profile download
A8	ECR_RSA	RSA
A9	ECR_MERFUNC	Merchant function
AA	ECR_PPP_START	ECR start PPP connection
AB	ECR_PPP_STOP	ECR stop PPP connection
AC	ECR_REBOOT	Reboot terminal
GB	Read CARD PAN	Terminal prompts for swipe, tap or insert
GC	Get Cust ID	Terminal sends message to retrieve cust ID

7.0 FIELD TYPES

Each different type of **Field Element** within the **Field Data** is designated by a different **Field Type value**. Each Field Type also has an **attribute and a length** associated with it. The length may be a single number, which indicates a fixed length field or a variable length which indicate a maximum length. Variable length fields are indicated by two dots preceding the length. For example, Transaction amount is a variable length field up to 12 characters long which has a length description of '..12'.

7.1 FIELD ATTRIBUTES

The following table lists the different field attributes available for use in the Field Type Definition Table.

ATTRIBUTE	WHAT IT MEANS
ANS	Alpha, Numeric and Special characters
N	Numeric
$	Amount. Numeric characters expressed in number of cents. No '$ sign' or 'decimal point' is included in the length e.g. $125.00 has a length of 5.
B	Binary Data The data is a stream of bytes that could take any value.

7.2 FIELD TYPE DEFINITIONS

The following table lists the defined field type definitions with their attributes and the lengths of each field.

FIELD TYPE	ATTR	LENGTH	FIELD DATA
00	ANS	2	Response code
01	ANS	6	Auth number
02	ANS	..30	Response text
03	ANS	6	Transaction date in the format 'YYMMDD'
04	ANS	4	Transaction time in the format 'HHMM'
16	ANS	8	Terminal Id
20	ANS	..2048	Receipt data
30	ANS	..19	Primary Account Number*
31	ANS	4	Expiration Date in the format 'YYMM'*
32	ANS	..76	Track1 buffer
33	ANS	..37	Track2 buffer*

40	ANS	..12	Amount, Transaction
41	ANS	..12	Amount, Tip
42	ANS	..12	Amount, cash
50	ANS	6	Batch number
65	ANS	6	Invoice number
79	ANS	..12	RRN
DD	ANS	1	Acquirer Id
MM	ANS	8	Multi-Merchant – not applicable
MN	ANS	..15	Merchant ID
LC	ANS	2	Card Table LRC

*These values will be masked as per Vericentre settings when transmitting from terminal to PC/POS

[WPP 03.01.00]
Tipping is not supported. Tipping should be disabled in VeriCentre.
DCC is not supported. DCC should be disabled in VeriCentre.

8.0 RESPONSE CODES

The following table lists the possible response codes that the Terminal will send back to the PC/ECR in a response message.

RESP CODE	RESP TEXT	MEANING
nn	Equivalent Response Text in Standalone (00 = Approved, 55 = Incorrect PIN, etc.)	Response code value in bit 39 as returned in the host response message
CE	Communications Error	Communications Error. Terminal failed to establish protocol.
ED	Destination Error	Destination Error Terminal cannot determine where this transaction should be sent to.
EN	Network Request Error	Network Request Error Terminal is unable to make a connection to the host for processing the transaction, or there is a communications error being processed.
LC	Unexpected Lost of Carrier	Unexpected loss of carrier.
NA	Transaction Type not Available	Transaction type not available
ND	Declined	Declined
NS	Declined – Settlement Required	Declined - Settlement required
SV	Signature Verification Required	Signature Verification required See section 9.1 Invalid Signature
TO	Timeout Error	Timeout Error The Terminal did not receive a response from the host in time.
VN	Void not Allowed	Void not allowed
TB	Terminal Busy	The Terminal is currently Busy
IE	Invalid ECR Message	Invalid ECR message
TC	Transaction Cancelled	Transaction Cancelled

[WPP 03.01.00]
Specification will follow Base Application implementation of Response Codes. Only in cases not handled by the Base Application will the above Response Codes be used e.g. IE, Invalid ECR message

9.0 PC/ECR EXCEPTION PROCESSING

9.1 INVALID SIGNATURE

The terminal shall automatically approve any transaction that requires Signature Verification (Receipt will include the signature line but there will be no prompt on the terminal for Signature Verification). It is the PC/ECR operator's responsibility to verify the signature. Then, in case of a Signature Mismatch PC/ECR should initiate a Void.

The flow shall be:

1. ECR sends a Sale request to terminal
2. Terminal performs the sale (e.g. contacts host, etc.)
3. Host approves
4. Terminal determines if the transaction requires Signature Verification
    a. If Sig Verification is NOT needed, terminal responds to ECR with Field 00="00" (Response Code), meaning 'Transaction is Approved'.
    b. If Sig Verification IS needed, terminal responds to ECR with Field 00="SV" (Response Code), meaning 'ECR needs to perform Sig Verification'
5. When the ECR receives a Response Code of "SV", ECR prompts "Signature Correct? YES/NO" (or something to that effect)
    a. If operator selects YES, transaction is Approved
    b. If operator selects NO, ECR sends a Void request to the terminal

Notes:

- Host does not respond with "08", Terminal has existing mechanisms to determine if a transaction requires Sig Verification or not.
- Void should always be supported.

9.2 PC/ECR ACK FAILURE

If the terminal times out waiting for an ack for the transaction response message sent from the terminal to the POS, the terminal will display "Timeout ECR" and the operator needs to initiate a Reprint last receipt on the POS.

10.0 SOFTWARE REQUIREMENTS

10.1 TERMINAL

10.1.1 General

The terminal software must be modified to allow the PC/ECR system to communicate with the Terminal. It is recommended that the standard Hypercom ECR device driver is included in the pacific software

10.1.2 Communications initiation

The terminal processing must be modified so that at the 'Idle prompt' the terminal will wait for one of two events to occur:

- A request message is sent from the PC/ECR system. The PC/ECR system will indicate that a request message is about to be transmitted by setting the 'DTR' signal to 'high'.

10.2 PC/ECR <-> TERMINAL MESSAGE SPECIFICATIONS

10.2.1 Mandatory Fields

For all request messages from PC/ECR, all mandatory elements as described below should be present in the request. Otherwise, the message will be rejected as Invalid Message.
A request message from PC/ECR containing any element not mandatory or not conditional as described below shall be rejected as Invalid Message.

[WPP 03.01.00]
Only printing on terminal is supported. Field 20 (Receipt Data) is crossed out in all the descriptions below but it is not deleted for future use.
Tipping is not supported. Tipping should be disabled in VeriCentre. Field 41 (Amount, tip) is crossed out in all the descriptions below but it is not deleted for future use.

10.2.2 Sale request message from PC/ECR

The request message from the PC/ECR system will have the layout described below. The system must allow for the PAN either being entered through the terminal or sent to the terminal from the PC/ECR system as part of the request message.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
30	Primary Account Number	C	Present if PAN is supplied by PC/ECR	
31	Expiration Date in the format 'MMYY'	C	Present if Field 30 is present	
40	Amount, Transaction	M		

Sample Message Layout

STX Start of text character '02h'
LLLL Message length
6000000000 Transport header –
- 60 application message
- 0000 transport destination
- 0000 transport source

1020000 Presentation header
- 1 format version
- 0 request message requiring a response
- 20 transaction code 'Sale'
- 00 response code
- 0 more indicator

1Ch field separator
3000164557036582501923 field element
- 30 field type 'Primary Account Number (PAN)'
- 0016 data length
- 4557036582501923 PAN

1CH field separator
3100041210 field element
- 31 field type 'Card Expiration date' in format MMYY
- 0004 data length
- 1210 card expiration date

1Ch field separator
40000512500 field element
- 40 field type 'Amount, transaction'
- 0005 data length
- 12500 amount, $125.00

1Ch field separator
ETX End of text character '03h'
LRC LRC generated for message

10.2.3 Sale response message to PC/ECR

The response message to the PC/ECR system will have the layout as described below if a host response was received by the terminal.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
01	Auth number	M		
02	Response text	M		
03	Transaction date	M		
04	Transaction time	M		
16	Terminal Id	M		
~~20~~	~~Receipt data~~	~~M~~		
30	Primary Account Number*	M		Masked
31	Expiration Date in the format 'MMYY'*	M		Masked
40	Amount, Transaction	M		
~~41~~	~~Amount, Tip~~	~~C~~		
65	Invoice number	M		
79	RRN	M		

* Masked as per VeriCentre settings

Sample Message Layout

STX — Start of text character '02h'
LLLL — Message length
6000000000 — Transport header –
- 60 — application message
- 0000 — transport destination
- 0000 — transport source

1120XX1 — Presentation header
- 1 — format version
- 1 — response message
- 20 — transaction code 'Sale'
- XX — response code, see par. 1.9 above
- 1 — more indicator

1Ch — field separator
00000208 — field element, transaction response code (field 39)
- 00 — filed type
- 0002 — field length
- 08 — response code

1Ch — field separator
010006002514 — field element, transaction auth number (field 38)
- 01 — field type

- 0006	field length
- 002514	auth number
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
030006081110	field element, transaction date (field 13)
- 03	field type
- 0006	field length
- 081110	transaction date
1Ch	field separator
040006091326	field element, transaction time (field 12)
- 04	field type
- 0006	field length
- 091326	transaction time
1Ch	field separator
16000892913391	field element, terminal id
- 16	field type
- 0008	field length
- 92913391	terminal id
1Ch	field separator
~~20LLLLXXX…~~	~~field element, receipt data~~
~~- 20~~	~~field type~~
~~- LLLL~~	~~field length~~
~~- XXX…~~	~~receipt data~~
~~1Ch~~	~~field separator~~
300016455703658250192 3	field element, card number
- 30	field type
- 0016	length
- 4557036582501923	card number
1Ch	field separator
3100041210	field element, expiry date
- 31	field type
- 0004	field length
- 1210	expiry date
1Ch	field separator
40000512500	field element, transaction amount
- 40	field type
- 0005	field length
- 12500	amount ($125.00)
1Ch	field separator
~~410012000000000000~~	~~field element, transaction tip amount~~
~~- 41~~	~~field type~~
~~- 0012~~	~~field length~~

~~- 000000000000 amount ($00.00)~~
~~1Ch field separator~~
650006000311 field element, invoice number
- 65 field type
- 0006 field length
- 000311 invoice number
1Ch field separator
790012000000000148 field element, transaction RRN (field 37)
- 79 field type
- 0012 field length
- 000000000148 RRN
1Ch field separator
ETX End of text character ‘03h’
LRC LRC generated for message

10.2.4 Sale + Cash request message from PC/ECR

The request message from the PC/ECR system will have the layout described below. The system must allow for the PAN either being entered through the terminal or sent to the terminal from the PC/ECR system as part of the request message.

Message is very similar to Sale except for the transaction code and the addition of Field 42 (Amount, cash).

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
30	Primary Account Number	C	Present if PAN is supplied by PC/ECR	
31	Expiration Date in the format 'MMYY'	C	Present if Field 30 is present	
40	Amount, Transaction	M		
42	**Amount, cash**	**M**		

Sample Message Layout

STX — Start of text character '02h'
LLLL — Message length
6000000000 — Transport header –
- 60 — application message
- 0000 — transport destination
- 0000 — transport source

1020000 — Presentation header
- 1 — format version
- 0 — request message requiring a response
- **E8** — **transaction code 'Sale + Cash'**
- 00 — response code
- 0 — more indicator

1Ch — field separator
300016455703658250192 3 — field element
- 30 — field type 'Primary Account Number (PAN)'
- 0016 — data length
- 4557036582501923 — PAN

1CH — field separator
3100041210 — field element
- 31 — field type 'Card Expiration date' in format MMYY
- 0004 — data length
- 1210 — card expiration date

1Ch — field separator
40000512500 — field element
- **40 — field type 'Amount, transaction'**
- **0005 — data length**

- 12500 **amount, $125.00**
1Ch **field separator**
420003500 **field element**
- 42 **field type 'Amount, cash'**
- 0003 **data length**
- 500 **amount, $5.00**
1Ch **field separator**
ETX End of text character '03h'
LRC LRC generated for message

10.2.5 Sale + Cash response message to PC/ECR

The response message to the PC/ECR system will have the layout as described below if a host response was received by the terminal.

Message is very similar to Sale except for the transaction code and the addition of Field 42 (Amount, cash).

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
01	Auth number	M		
02	Response text	M		
03	Transaction date	M		
04	Transaction time	M		
16	Terminal Id	M		
~~20~~	~~Receipt data~~	~~M~~		
30	Primary Account Number*	M		Masked
31	Expiration Date in the format 'MMYY'*	M		Masked
40	Amount, Transaction	M		
~~41~~	~~Amount, Tip~~	~~C~~		
42	**Amount, cash**	**M**		
65	Invoice number	M		
79	RRN	M		

* Masked as per VeriCentre settings

Sample Message Layout

STX Start of text character '02h'
LLLL Message length
6000000000 Transport header –
- 60 application message
- 0000 transport destination
- 0000 transport source

1120XX1	Presentation header
- 1	format version
- 1	response message
- E8	**transaction code 'Sale + Cash'**
- XX	response code, see par. 1.9 above
- 1	more indicator
1Ch	field separator
00000208	field element, transaction response code (field 39)
- 00	filed type
- 0002	field length
- 08	response code
1Ch	field separator
010006002514	field element, transaction auth number (field 38)
- 01	field type
- 0006	field length
- 002514	auth number
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
030006081110	field element, transaction date(field 13)
- 03	field type
- 0006	field length
- 081110	transaction date
1Ch	field separator
040006091326	field element, transaction time(field 12)
- 04	field type
- 0006	field length
- 091326	transaction time
1Ch	field separator
16000892913391	field element, terminal id
- 16	field type
- 0008	field length
- 92913391	terminal id
1Ch	field separator
~~20LLLLXXX…~~	~~field element, receipt data~~
~~- 20~~	~~field type~~
~~- LLLL~~	~~field length~~
~~- XXX…~~	~~receipt data~~
~~1Ch~~	~~field separator~~
3000164557036582501923	field element, card number
- 30	field type
- 0016	length
- 4557036582501923	card number

1Ch field separator
3100041210 field element, expiry date
- 31 field type
- 0004 field length
- 1210 expiry date
1Ch field separator
40000512500 field element, transaction amount
- 40 field type
- 0005 field length
- 12500 amount ($125.00)
1Ch field separator
~~410012000000000000 field element, transaction tip amount~~
~~- 41 field type~~
~~- 0012 field length~~
~~- 000000000000 amount ($00.00)~~
~~1Ch field separator~~
420003500 field element, transaction cash amount
- 42 field type
- 0003 field length
- 500 amount ($5.00)
1Ch field separator
650006000311 field element, invoice number
- 65 field type
- 0006 field length
- 000311 invoice number
1Ch field separator
790012000000000148 field element, transaction RRN(field 37)
- 79 field type
- 0012 field length
- 000000000148 RRN
1Ch field separator
ETX End of text character ‘03h’
LRC LRC generated for message

10.2.6 Cashout request message from PC/ECR

The request message from the PC/ECR system will have the layout described below. The system must allow for the PAN either being entered through the terminal or sent to the terminal from the PC/ECR system as part of the request message.

Message is very similar to Sale + Cash except for the transaction code and that Field 40 (Amount, transaction) is NOT present.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
30	Primary Account Number	C	Present if PAN is supplied by PC/ECR	
31	Expiration Date in the format 'MMYY'	C	Present if Field 30 is present	
42	Amount, cash	M		

Sample Message Layout

STX — Start of text character '02h'
LLLL — Message length
6000000000 — Transport header –
- 60 — application message
- 0000 — transport destination
- 0000 — transport source

1020000 — Presentation header
- 1 — format version
- 0 — request message requiring a response
- **E7** — **transaction code 'Cash'**
- 00 — response code
- 0 — more indicator

1Ch — field separator
3000164557036582501923 — field element
- 30 — field type 'Primary Account Number (PAN)'
- 0016 — data length
- 4557036582501923 — PAN

1CH — field separator
3100041210 — field element
- 31 — field type 'Card Expiration date' in format MMYY
- 0004 — data length
- 1210 — card expiration date

1Ch — field separator
42000510000 — **field element**
- **42** — **field type 'Amount, cash'**
- **0005** — **data length**
- **10000** — **amount, $100.00**

1Ch	**field separator**
ETX	End of text character '03h'
LRC	LRC generated for message

10.2.7 Cashout response message to PC/ECR

The response message to the PC/ECR system will have the layout as described below if a host response was received by the terminal.

Message is very similar to Sale + Cash except for the transaction code and that Field 40 (Amount, transaction) is not present.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
01	Auth number	M		
02	Response text	M		
03	Transaction date	M		
04	Transaction time	M		
16	Terminal Id	M		
~~20~~	~~Receipt data~~	~~M~~		
30	Primary Account Number*	M		Masked
31	Expiration Date in the format 'MMYY'*	M		Masked
~~41~~	~~Amount, Tip~~	~~C~~		
42	Amount, cash	M		
65	Invoice number	M		
79	RRN	M		

* Masked as per VeriCentre settings

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
1120XX1	Presentation header
- 1	format version
- 1	response message
- E7	**transaction code 'Cash'**
- XX	response code, see par. 1.9 above
- 1	more indicator
1Ch	field separator

00000208	field element, transaction response code (field 39)
- 00	filed type
- 0002	field length
- 08	response code
1Ch	field separator
010006002514	field element, transaction auth number (field 38)
- 01	field type
- 0006	field length
- 002514	auth number
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
030006081110	field element, transaction date(field 13)
- 03	field type
- 0006	field length
- 081110	transaction date
1Ch	field separator
040006091326	field element, transaction time(field 12)
- 04	field type
- 0006	field length
- 091326	transaction time
1Ch	field separator
16000892913391	field element, terminal id
- 16	field type
- 0008	field length
- 92913391	terminal id
1Ch	field separator
~~20LLLLXXX…~~	~~field element, receipt data~~
~~- 20~~	~~field type~~
~~- LLLL~~	~~field length~~
~~- XXX…~~	~~receipt data~~
~~1Ch~~	~~field separator~~
3000164557036582501923	field element, card number
- 30	field type
- 0016	length
- 4557036582501923	card number
1Ch	field separator
3100041210	field element, expiry date
- 31	field type
- 0004	field length
- 1210	expiry date
1Ch	field separator
~~410012000000000000~~	~~field element, transaction tip amount~~

~~- 41 field type~~
~~- 0012 field length~~
~~- 000000000000 amount ($00.00)~~
~~1Ch field separator~~
42000510000 field element, transaction cash amount
- 42 field type
- 0005 field length
- 10000 amount ($100.00)
1Ch field separator
650006000311 field element, invoice number
- 65 field type
- 0006 field length
- 000311 invoice number
1Ch field separator
790012000000000148 field element, transaction RRN(field 37)
- 79 field type
- 0012 field length
- 000000000148 RRN
1Ch field separator
ETX End of text character '03h'
LRC LRC generated for message

10.2.8 Refund request message from PC/ECR

The request message from the PC/ECR system will have the layout described below. The system must allow for the PAN either being entered through the terminal or sent to the terminal from the PC/ECR system as part of the request message.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
30	Primary Account Number	C	Present if PAN is supplied by PC/ECR	
31	Expiration Date in the format 'MMYY'	C	Present if Field 30 is present	
40	Amount, Transaction	M		

Sample Message Layout

STX Start of text character '02h'
LLLL Message length
6000000000 Transport header –
- 60 application message
- 0000 transport destination
- 0000 transport source

1020000 Presentation header
- 1 format version
- 0 request message requiring a response
- 26 transaction code 'Refund'
- 00 response code
- 0 more indicator

1Ch field separator
3000164557036582501923 field element
- 30 field type 'Primary Account Number (PAN)'
- 0016 data length
- 4557036582501923 PAN

1CH field separator
3100041210 field element
- 31 field type 'Card Expiration date' in format MMYY
- 0004 data length
- 1210 card expiration date

1Ch field separator
40000512500 field element
- 40 field type 'Amount, transaction'
- 0005 data length
- 12500 amount, $125.00

1Ch field separator
ETX End of text character '03h'
LRC LRC generated for message

10.2.9 Refund response message to PC/ECR

The response message to the PC/ECR system will have the layout as described below if a host response was received by the terminal.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
01	Auth number	M		
02	Response text	M		
03	Transaction date	M		
04	Transaction time	M		
16	Terminal Id	M		
~~20~~	~~Receipt data~~	~~M~~		
30	Primary Account Number*	M		Masked
31	Expiration Date in the format 'MMYY'*	M		Masked
40	Amount, Transaction	M		
~~41~~	~~Amount, Tip~~	~~C~~		
65	Invoice number	M		
79	RRN	M		

* Masked as per VeriCentre settings

Sample Message Layout

STX — Start of text character '02h'
LLLL — Message length
6000000000 — Transport header –
- 60 — application message
- 0000 — transport destination
- 0000 — transport source

1120XX1 — Presentation header
- 1 — format version
- 1 — response message
- **26** — **transaction code 'Refund'**
- XX — response code, see par. 1.9 above
- 1 — more indicator

1Ch — field separator
00000208 — field element, transaction response code (field 39)
- 00 — filed type
- 0002 — field length
- 08 — response code

1Ch — field separator
010006002514 — field element, transaction auth number (field 38)
- 01 — field type

- 0006	field length
- 002514	auth number
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
030006081110	field element, transaction date (field 13)
- 03	field type
- 0006	field length
- 081110	transaction date
1Ch	field separator
040006091326	field element, transaction time (field 12)
- 04	field type
- 0006	field length
- 091326	transaction time
1Ch	field separator
16000892913391	field element, terminal id
- 16	field type
- 0008	field length
- 92913391	terminal id
1Ch	field separator
~~20LLLLXXX…~~	~~field element, receipt data~~
~~- 20~~	~~field type~~
~~- LLLL~~	~~field length~~
~~- XXX…~~	~~receipt data~~
~~1Ch~~	~~field separator~~
300016455703658250192 3	field element, card number
- 30	field type
- 0016	length
- 4557036582501923	card number
1Ch	field separator
3100041210	field element, expiry date
- 31	field type
- 0004	field length
- 1210	expiry date
1Ch	field separator
40000512500	field element, transaction amount
- 40	field type
- 0005	field length
- 12500	amount ($125.00)
1Ch	field separator
~~410012000000000000~~	~~field element, transaction tip amount~~
~~- 41~~	~~field type~~
~~- 0012~~	~~field length~~

~~- 000000000000 amount ($00.00)~~
~~1Ch field separator~~
650006000311 field element, invoice number
- 65 field type
- 0006 field length
- 000311 invoice number
1Ch field separator
790012000000000148 field element, transaction RRN (field 37)
- 79 field type
- 0012 field length
- 000000000148 RRN
1Ch field separator
ETX End of text character ‘03h’
LRC LRC generated for message

10.2.10 Void request message from PC/ECR

The request message from the PC/ECR system will have the layout described below.

Earlier version/s of this document indicates that Field 40 (Amount, transaction) should be sent with the request message. Field 40 was removed since the terminal will not make use of the Transaction Amount (as of the current specifications).

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
65	Invoice number	C	If present, the terminal will attempt to Void the transaction bearing the supplied Invoice Number. Otherwise, the terminal will Void the 'Last Transaction'.	

Sample Message Layout (Void Specific Invoice Number)

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
1042000	Presentation header
- 1	format version
- 0	request message requiring a response
- 42	transaction code 'Void'
- 00	response code
- 0	more indicator
1Ch	field separator
650006000311	**field element, invoice number**
- 65	**field type**
- 0006	**field length**
- 000311	**invoice number**
1Ch	**field separator**
ETX	End of text character '03h'
LRC	LRC generated for message

10.2.11 Void response message to PC/ECR

The response message to the PC/ECR system will have the layout as described below if a host response was received by the terminal.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
01	Auth number	M		
02	Response text	M		
03	Transaction date	M		
04	Transaction time	M		
16	Terminal Id	M		
~~20~~	~~Receipt data~~	~~M~~		
30	Primary Account Number*	M		Masked
31	Expiration Date in the format 'MMYY'*	M		Masked
40	Amount, transaction	M		
~~41~~	~~Amount, Tip~~	~~C~~		
42	Amount, cash	M		
65	Invoice number	M		
79	RRN	M		

* Masked as per VeriCentre settings

Sample Message Layout

STX — Start of text character '02h'
LLLL — Message length
6000000000 — Transport header –
- 60 — application message
- 0000 — transport destination
- 0000 — transport source

1142XX1 — Presentation header
- 1 — format version
- 1 — response message
- 42 — transaction code 'Void'
- XX — response code, see par. 1.9 above
- 1 — more indicator

1Ch — field separator
00000200 — field element, transaction response code (field 39)
- 00 — filed type
- 0002 — field length
- 00 — response code

1Ch — field separator
010006002516 — field element, transaction auth number(field 38)
- 01 — field type
- 0006 — field length
- 002516 — auth number

1Ch — field separator
020040XXX… — field element, response text message

- 02 field type
- 0040 field length
- XXX… response text message

1Ch field separator

030006081110 field element, transaction date(field 13)
- 03 field type
- 0006 field length
- 081110 transaction date

1Ch field separator

040006092000 field element, transaction time(field 12)
- 04 field type
- 0006 field length
- 092000 transaction time

1Ch field separator

16000892913391 field element, terminal id
- 16 field type
- 0008 field length
- 92913391 terminal id

1Ch field separator

~~20LLLLXXX… field element, receipt data~~
- ~~20 field type~~
- ~~LLLL field length~~
- ~~XXX… receipt data~~

~~1Ch field separator~~

3000164557036582501923 field element, card number
- 30 field type
- 0016 length
- 4557036582501923 card number

1Ch field separator

3100041210 field element, expiry date
- 31 field type
- 0004 field length
- 1210 expiry date

1Ch field separator

4000041000 field element, transaction amount
- 40 field type
- 0004 field length
- 1000 amount ($10.00)

1Ch field separator

~~410012000000000000 field element, transaction tip amount~~
- ~~41 field type~~
- ~~0012 field length~~
- ~~000000000000 amount ($00.00)~~

~~1Ch field separator~~

420003100 field element, transaction cash amount
- 42 field type

- 0003	field length
- 100	amount ($1.00)
1Ch	field separator
650006000311	field element, invoice number
- 65	field type
- 0006	field length
- 000311	invoice number
1Ch	field separator
790012000000000150	field element, transaction RRN(field 37)
- 79	field type
- 0012	field length
- 000000000150	RRN
1Ch	field separator
ETX	End of text character ‘03h’
LRC	LRC generated for message

10.2.12 Logon request message from PC/ECR

The request message from the PC/ECR system will have the following layout.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
DD	Acquirer ID	M		00 = 'All Acquirers' 0x = specific Acquirer (index)

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
10G9000	Presentation header
- 1	format version
- 0	Request message requiring a response
- G9	transaction code 'Logon'
- 00	response code
- 0	more indicator
1Ch	field separator
DD000201	field element, acquirer id
- DD	field type
- 0002	field length
- 01	acquirer id*
1Ch	field separator
ETX	End of text character '03h'
LRC	LRC generated for message

*00 indicates all acquirers, 0x selects specific acquirer

10.2.13 Logon response message to PC/ECR

The request message from the PC/ECR system will have the following layout –

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
02	Response text	M		

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
11G9000	Presentation header
- 1	format version
- 1	response message
- G9	transaction code 'Logon'
- 00	response code
- 0	more indicator
1Ch	field separator
00000200	field element, transaction response code (field 39)
- 00	filed type
- 0002	field length
- 00	response code
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
ETX	End of text character '03h'
LRC	LRC generated for message

10.2.14 Settlement request message from PC/ECR

The request message from the PC/ECR system will have the following layout.

Message is very similar to Logon except for the transaction code.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
DD	Acquirer ID	M		00 = 'All Acquirers' 0x = specific Acquirer (index)

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
1061000	Presentation header
- 1	format version
- 0	request message requiring a response
- 61	transaction code 'Settlement'
- 00	response code
- 0	more indicator
1Ch	field separator
DD000201	field element, acquirer id
- DD	field type
- 0002	field length
- 01	acquirer id**
1Ch	field separator
ETX	End of text character '03h'
LRC	LRC generated for message

**00 indicates all acquirers, 0x selects specific acquirer

10.2.15 Settlement response message to PC/ECR

The request message from the PC/ECR system will have the following layout.

Message is very similar to Logon except for the transaction code.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
02	Response text	M		

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
1161000	Presentation header
- 1	format version
- 1	response message
- 61	transaction code 'Settlement'
- 00	response code
- 0	more indicator
1Ch	field separator
00000297	field element, transaction response code (field 39)
- 00	filed type
- 0002	field length
- 97	response code
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
ETX	End of text character '03h'
LRC	LRC generated for message

10.2.16 Reprint receipt request message from PC/ECR

The request message from the PC/ECR system will have the following layout.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
65	Invoice number	C	If present, the terminal will attempt to Reprint the Receipt of the transaction bearing the supplied Invoice Number. Otherwise, the terminal will Reprint the Receipt of the 'Last Transaction'.	

Sample Message Layout (Reprint Specific Invoice Number)

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
10A0000	Presentation header
- 1	format version
- 0	request message requiring a response
- A0	transaction code 'Reprint receipt'
- 00	response code
- 0	more indicator
1Ch	field separator
650006000311	field element, invoice number
- 65	field type
- 0006	field length
- 000311	invoice number
1Ch	field separator
ETX	End of text character '03h'
LRC	LRC generated for message

10.2.17 Reprint receipt response message to PC/ECR

The request message from the PC/ECR system will have the following layout.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		
02	Response text	M		

Sample Message Layout

STX	Start of text character ‘02h’
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
11A0000	Presentation header
- 1	format version
- 1	response message
- A0	transaction code ‘Reprint receipt’
- 00	response code
- 1	more indicator
1Ch	field separator
00000208	field element, transaction response code (field 39)
- 00	filed type
- 0002	field length
- 00	response code
1Ch	field separator
020040XXX…	field element, response text message
- 02	field type
- 0040	field length
- XXX…	response text message
1Ch	field separator
~~20LLLLXXX…~~	~~field element, receipt data~~
~~- 20~~	~~field type~~
~~- LLLL~~	~~field length~~
~~- XXX…~~	~~receipt data~~
~~1Ch~~	~~field separator~~
ETX	End of text character ‘03h’
LRC	LRC generated for message

10.2.18 Communication Test request message from PC/ECR

The request message from the PC/ECR system will have the following layout.

Fields
Message will not have any fields.

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
10D0000	Presentation header
- 1	format version
- 0	request message requiring a response
- D0	transaction code 'Communications test'
- 00	response code
- 0	more indicator
1Ch	field separator
ETX	End of text character '03h'
LRC	LRC generated for message

10.2.19 Communication Test response message to PC/ECR

The response message to the PC/ECR system will have the following layout.

Fields

Field Type	Field Data	Mandatory M = Mandator C = Conditional	Condition	Remarks
00	Response code	M		Always "00"

Sample Message Layout

STX	Start of text character '02h'
LLLL	Message length
6000000000	Transport header –
- 60	application message
- 0000	transport destination
- 0000	transport source
11D0XX0	Presentation header
- 1	format version
- 1	response message
- D0	transaction code 'Communications test'
- XX	response code, see par. 1.9 above

- 0	more indicator
1Ch	field separator
00000208	field element, transaction response code (field 39)
- 00	filed type
- 0002	field length
- 08	response code
1Ch	field separator
ETX	End of text character ‘03h’
LRC	LRC generated for message

10.3 NOT SUPPORTED IN THIS IMPLEMENTATION

Earlier versions of this document included Message Layout for Reversal, Software Download, etc. That section is omitted to simplify this document. Said section can be retrieved from document version 2.08/2.09.

11.0 TRANSACTION BEHAVIOURS

11.1 SALE, SALE + CASH OUT AND CASHOUT

Section 10.2.1 describes the terminal behaviour regarding Mandatory Fields. The table below elaborates the behaviour for Sale, Sale + Cash and Cashout transactions.

Transaction Code	Txn Amount field (40) sent from PC/ECR?	Cash Amount field (42) sent from PC/ECR?	Merchant page cashback flag setting	Error after ECR message sent to terminal (Response Code)	Issuer page setting Cashback allowed for the card and account selected	Errors after card swipe and account selection or result (Response Code)	Resulting behaviour
Sale (20)	No	No	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Sale (20)	No	Yes	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Sale (20)	Yes	No	n/a	None	n/a	None	Sale
Sale (20)	Yes	Yes	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Sale + Cash (E8)	No	No	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Sale + Cash (E8)	No	Yes	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Sale + Cash (E8)	Yes	No	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Sale + Cash (E8)	Yes	Yes	Yes	None	Yes	None	Sale + Cash
Sale + Cash (E8)	Yes	Yes	Yes	None	No	NA (Transaction Type not Available)	Error
Sale + Cash (E8)	Yes	Yes	No	NA (Transaction Type not Available)	n/a	None	Error

Transaction Code	Txn Amount field (40) sent from PC/ECR?	Cash Amount field (42) sent from PC/ECR?	Merchant page cashback flag setting	Error after ECR message sent to terminal (Response Code)	Issuer page setting Cashback allowed for the card and account selected	Errors after card swipe and account selection or result (Response Code)	Resulting behaviour
Cashout (E7)	No	No	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Cashout (E7)	No	Yes	Yes	None	n/a	n/a	Cashout
Cashout (E7)	No	Yes	Yes	None	No	NA (Transaction Type not Available)	Error
Cashout (E7)	No	Yes	No	NA (Transaction Type not Available)	n/a	n/a	Error
Cashout (E7)	Yes	No	n/a	IE (Invalid ECR Message)	n/a	n/a	Error
Cashout (E7)	Yes	Yes	n/a	IE (Invalid ECR Message)	n/a	n/a	

Summary:

- If PC/ECR wants to perform a Sale (20)
  - PC/ECR should send Field 40 (Amount, transaction)
  - PC/ECR should NOT send Field 42, (Amount, cash)
- If PC/ECR wants to perform a Sale + Cash (E8)
  - PC/ECR should send Field 40 (Amount, transaction)
  - PC/ECR should send Field 42, (Amount, cash)
- If PC/ECR wants to perform a Cashout (E7)
  - PC/ECR should NOT send Field 40 (Amount, transaction)
  - PC/ECR should send Field 42, (Amount, cash)
- Terminal will not prompt for Cash Amount entry

11.2 VOID

The terminal may show the invoice number and total amount to be voided with the question if this is correct.

In case the Last Transaction or the Transaction bearing the supplied Invoice Number is already voided or not found (e.g. does not exist on the current batch), Response Code from the terminal shall be “VN” and fields returned by the terminal may have invalid values e.g. Field 01, Approval Code may contain all spaces (0x20) or all zero (0x00), either way the ECR/POS shall not use said values.

11.3 COMMUNICATION TEST

Communication Test is used to check the connection between the ECR/POS and the terminal. A response from the terminal means the connection is established. Additionally, response code from the terminal shall be “00”.

In future implementations, a Communication Test can be enhanced to additionally check the connection between the terminal and host. Terminal can ping the host or perform a test transaction to the host.

11.4 PASSWORDS

Some terminal functions are protected by a password. The password prompts shall display on the terminal as they do on standalone mode.

11.5 RETURN TO POS TIMEOUT

Screens will have a timeout that is the same as Standalone Mode. Integrated Mode shall also make use of the “Return to Idle timeout” that is used in Standalone Mode. It is not necessary to implement a separate configurable timeout value for Integrated Mode. Once the timeout expires, the terminal will return to the Integrated Idle screen.

Note: Certain screens like PIN Entry and Card Entry do not follow the timeout indicated in “Return to Idle timeout” – same as Standalone Mode.

For example:

6. Access Utilities via the Function Code (* + 38620003)
7. Do not provide any user input (no touches, no keypresses)
8. Terminal returns to the Integrated Idle screen in x seconds, where x is the value set in ‘Return to Idle timeout’ option in Vericentre

For example:

1. Initiate a sale transaction from the ECR

2. On the Card Entry screen, do not provide any user input (no card swipe, tap or insert, no touches, no keypresses)
3. Terminal returns to the Integrated Idle screen in x seconds, where x is a preconfigured value (other than the 'Return to Idle timeout' option in VeriCentre)

12.0 APPENDIX A – EXAMPLES

12.1 COMMUNICATIONS TEST

Comms test

31/07/2012 08:28:26 COM1 Capture Started
31/07/2012 08:28:28 Write 23 Bytes:

02 00 18 36 30 30 30 30 30 30 30 30 30 31 30 44 ; ...600000000010D
30 30 30 30 1C 03 44 ; 0000..D

31/07/2012 08:28:28 Read 1 Bytes:

06 ; .

31/07/2012 08:28:28 CTS Signal = False
31/07/2012 08:28:28 DSR Signal = False
31/07/2012 08:28:28 Read 67 Bytes:

02 00 62 36 30 30 30 30 30 30 30 30 30 31 31 44 ; ..b600000000011D
30 30 30 30 1C 30 32 00 40 45 43 52 20 43 4F 4D ; 0000.02.@ECR COM
4D 53 20 2D 20 4F 4B 20 20 20 20 20 20 20 20 20 ; MS - OK
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 03 7F ; .

31/07/2012 08:28:28 CTS Signal = True
31/07/2012 08:28:28 DSR Signal = True
31/07/2012 08:28:28 Write 1 Bytes:

06 ; .

31/07/2012 08:28:30 Capture Stopped

12.2 SALE

Sale 1000 (10.00) accepted with 00 no cash out

31/07/2012 08:31:37 COM1 Capture Started
31/07/2012 08:31:44 Write 32 Bytes:

02 00 27 36 30 30 30 30 30 30 30 30 30 31 30 32 ; ..'6000000000102
30 30 30 30 1C 34 30 00 04 31 30 30 30 1C 03 10 ; 0000.40..1000...

31/07/2012 08:31:44 Read 1 Bytes:

06 ; .

31/07/2012 08:31:44 CTS Signal = False
31/07/2012 08:31:44 DSR Signal = False
31/07/2012 08:31:44 CTS Signal = True
31/07/2012 08:31:44 DSR Signal = True
31/07/2012 08:35:33 COM1 Capture Started
31/07/2012 08:35:34 CTS Signal = True
31/07/2012 08:35:34 DSR Signal = True
31/07/2012 08:35:44 Write 32 Bytes:

02 00 27 36 30 30 30 30 30 30 30 30 30 31 30 32 ; ..'6000000000102
30 30 30 30 1C 34 30 00 04 31 30 30 30 1C 03 10 ; 0000.40..1000...

31/07/2012 08:35:44 Read 1 Bytes:

06 ; .

31/07/2012 08:35:44 CTS Signal = False
31/07/2012 08:35:44 DSR Signal = False
31/07/2012 08:35:44 CTS Signal = True
31/07/2012 08:35:44 DSR Signal = True

31/07/2012 08:36:02 Read 100 Bytes:

02 08 04 36 30 30 30 30 30 30 30 30 30 31 31 32 ; ...6000000000112
30 30 30 31 1C 32 30 07 82 0F 32 34 47 20 42 52 ; 0001.20...24G BR
41 4E 43 48 20 50 52 4F 46 49 4C 45 20 3A 29 0A ; ANCH PROFILE :).
0F 20 47 45 4E 45 52 49 43 20 50 52 4F 46 49 4C ; . GENERIC PROFIL
45 20 41 30 31 0A 0F 58 58 58 58 58 58 58 58 58 ; E A01..XXXXXXXXX
58 58 58 58 58 58 58 58 58 58 58 58 58 0A 0F 59 ; XXXXXXXXXXXXX..Y
59 59 59 59 ; YYYY

```
31/07/2012 08:36:02 Read 100 Bytes:

 59 59 59 59 59 59 59 59 59 59 59 59 59 59 59 59 ; YYYYYYYYYYYYYYYY
 59 0A 0F 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A ; Y..ZZZZZZZZZZZZZZ
 5A 5A 5A 5A 5A 5A 5A 5A 5A 0A 0F 20 2A 2A 4D 45 ; ZZZZZZZZZ.. **ME
 52 43 48 41 4E 54 20 52 45 43 45 49 50 54 2A 2A ; RCHANT RECEIPT**
 0A 1B 68 02 1B 68 02 54 45 52 4D 49 4E 41 4C 20 ; ..h..h.TERMINAL
 49 44 3A 20 20 20 20 20 20 20 20 20 20 20 20 20 ; ID:
 20 20 20 20                                     ;

31/07/2012 08:36:02 Read 100 Bytes:

 20 20 20 20 20 31 32 33 34 31 30 30 31 0A 4D 45 ;      12341001.ME
 52 43 48 41 4E 54 20 49 44 3A 20 20 20 20 20 20 ; RCHANT ID:
 20 20 20 20 20 20 20 20 20 30 30 30 30 30 30 30 ;         0000000
 31 32 33 34 31 30 30 31 0A 1B 68 02 44 45 42 49 ; 12341001..h.DEBI
 54 20 20 20 20 20 0A 34 35 35 37 30 32 2A 2A 2A ; T     .455702***
 2A 2A 2A 39 30 35 32 20 45 58 50 3A 2A 2A 2F 2A ; ***9052 EXP:**/*
 2A 20 20 20                                     ; *

31/07/2012 08:36:02 Read 4 Bytes:

 20 20 20 20                                     ;

31/07/2012 08:36:02 Read 100 Bytes:

 20 20 20 53 57 49 50 45 44 0A 42 41 54 43 48 3A ;    SWIPED.BATCH:
 20 30 30 30 30 32 36 20 20 20 20 20 20 20 20 20 ;  000026
 20 20 20 20 20 20 20 20 20 49 4E 56 3A 20 30 30 ;         INV: 00
 30 33 34 36 0A 0A 20 20 20 20 20 20 20 20 20 20 ; 0346..
 20 20 20 20 20 20 20 0E 53 41 4C 45 14 0A 0A 02 ;       .SALE....
 41 75 74 68 20 49 44 3A 20 20 20 20 20 20 20 20 ; Auth ID:
 20 20 20 20                                     ;

31/07/2012 08:36:02 Read 100 Bytes:

 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 34 ;               4
 35 36 37 38 39 0A 02 52 52 4E 3A 20 30 30 30 30 ; 56789..RRN: 0000
 30 30 36 35 34 33 32 31 20 20 20 20 20 20 20 20 ; 00654321
 20 20 20 20 53 54 41 4E 3A 20 30 30 30 30 36 36 ;     STAN: 000066
 0A 02 4A 75 6C 20 33 31 2C 20 31 32 20 20 30 38 ; ..Jul 31, 12  08
 3A 33 35 20 20 20 20 20 20 20 20 20 20 20 20 20 ; :35
```

```
20 20 20 20                         ;

31/07/2012 08:36:02 Read 100 Bytes:

20 53 41 56 49 4E 47 0A 02 53 41 4C 45 20 20 20 ;  SAVING..SALE
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 20 20 20 20 20 20 20 20 4B 31 30 2E ;            K10.
30 30 0A 0F 54 4F 54 41 4C 20 50 47 4B 20 20 20 ; 00..TOTAL PGK
20 20 20 20 4B 31 30 2E 30 30 0A 0F 20 20 20 20 ;     K10.00..
20 41 50 50 52 4F 56 45 44 20 30 30 0A 02 55 43 ;  APPROVED 00..UC
57 56 4B 5A                         ; WVKZ

31/07/2012 08:36:02 Read 4 Bytes:

5A 43 53 53                         ; ZCSS

31/07/2012 08:36:02 Read 100 Bytes:

45 0A 1B 56 02 20 50 4C 45 41 53 45 20 52 45 54 ; E..V. PLEASE RET
41 49 4E 20 52 45 43 45 49 50 54 20 46 4F 52 20 ; AIN RECEIPT FOR
59 4F 55 52 20 52 45 43 4F 52 44 53 0A 0F 20 20 ; YOUR RECORDS..
20 20 42 41 50 20 59 4F 55 52 20 42 41 4E 4B 0A ;   BAP YOUR BANK.
02 20 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D ; . ----------
2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D ; ----------
2D 2D 2D 2D                         ; ----

31/07/2012 08:36:02 Read 4 Bytes:

2D 2D 2D 2D                         ; ----

31/07/2012 08:36:03 Read 97 Bytes:

2D 0A 0F 32 34 47 20 42 52 41 4E 43 48 20 50 52 ; -..24G BRANCH PR
4F 46 49 4C 45 20 3A 29 0A 0F 20 47 45 4E 45 52 ; OFILE :).. GENER
49 43 20 50 52 4F 46 49 4C 45 20 41 30 31 0A 0F ; IC PROFILE A01..
58 58 58 58 58 58 58 58 58 58 58 58 58 58 58 58 ; XXXXXXXXXXXXXXXX
58 58 58 58 58 58 0A 0F 59 59 59 59 59 59 59 59 ; XXXXXX..YYYYYYYY
59 59 59 59 59 59 59 59 59 59 59 59 59 59 0A 03 ; YYYYYYYYYYYYYY..
8B                                  ; .

31/07/2012 08:36:03 Write 1 Bytes:

06                                  ; .
```

31/07/2012 08:36:05 Read 100 Bytes:

02 07 64 36 30 30 30 30 30 30 30 30 31 31 32 ; ..d6000000000112
30 30 30 30 1C 30 30 00 02 30 30 1C 30 31 00 06 ; 0000.00..00.01..
34 35 36 37 38 39 1C 30 32 00 40 41 50 50 52 4F ; 456789.02.@APPRO
56 41 4C 20 20 20 20 20 20 34 35 36 37 38 39 20 ; VAL   456789
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 1C 30 33 00 06 31 32 30 37 33 31 1C 30 ;   .03..120731.0
34 00 06 30 ; 4..0

31/07/2012 08:36:05 Read 100 Bytes:

38 33 35 35 37 1C 32 30 05 54 0F 5A 5A 5A 5A 5A ; 83557.20.T.ZZZZZ
5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A ; ZZZZZZZZZZZZZZZZ
5A 0A 0F 20 2A 2A 43 55 53 54 4F 4D 45 52 20 52 ; Z.. **CUSTOMER R
45 43 45 49 50 54 2A 2A 0A 1B 68 02 1B 68 02 54 ; ECEIPT**..h..h.T
45 52 4D 49 4E 41 4C 20 49 44 3A 20 20 20 20 20 ; ERMINAL ID:
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 31 32 33 ; 123

31/07/2012 08:36:05 Read 100 Bytes:

34 31 30 30 31 0A 4D 45 52 43 48 41 4E 54 20 49 ; 41001.MERCHANT I
44 3A 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ; D:
20 30 30 30 30 30 30 30 31 32 33 34 31 30 30 31 ; 000000012341001
0A 1B 68 02 44 45 42 49 54 20 20 20 20 20 0A 34 ; ..h.DEBIT   .4
35 35 37 30 32 2A 2A 2A 2A 2A 39 30 35 32 20 ; 55702******9052
45 58 50 3A 2A 2A 2F 2A 2A 20 20 20 20 20 20 20 ; EXP:**/**
20 20 20 53 ;   S

31/07/2012 08:36:05 Read 100 Bytes:

57 49 50 45 44 0A 42 41 54 43 48 3A 20 30 30 30 ; WIPED.BATCH: 000
30 32 36 20 20 20 20 20 20 20 20 20 20 20 20 20 ; 026
20 20 20 20 20 49 4E 56 3A 20 30 30 30 33 34 36 ;   INV: 000346
0A 0A 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ; ..
20 20 20 0E 53 41 4C 45 14 0A 0A 02 41 75 74 68 ;   .SALE....Auth
20 49 44 3A 20 20 20 20 20 20 20 20 20 20 20 20 ; ID:
20 20 20 20 ;

31/07/2012 08:36:05 Read 100 Bytes:

```
20 20 20 20 20 20 20 20 20 20 20 34 35 36 37 38 ;          45678
39 0A 02 52 52 4E 3A 20 30 30 30 30 30 30 36 35 ; 9..RRN: 00000065
34 33 32 31 20 20 20 20 20 20 20 20 20 20 20 20 ; 4321
53 54 41 4E 3A 20 30 30 30 30 36 36 0A 02 4A 75 ; STAN: 000066..Ju
6C 20 33 31 2C 20 31 32 20 20 30 38 3A 33 35 20 ; l 31, 12  08:35
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 53 41 56                                     ;  SAV

31/07/2012 08:36:05 Read 4 Bytes:

49 4E 47 0A                                     ; ING.

31/07/2012 08:36:05 Read 100 Bytes:

02 53 41 4C 45 20 20 20 20 20 20 20 20 20 20 20 ; .SALE
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 4B 31 30 2E 30 30 0A 0F 54 4F 54 41 ;     K10.00..TOTA
4C 20 50 47 4B 20 20 20 20 20 20 20 4B 31 30 2E ; L PGK       K10.
30 30 0A 0F 20 20 20 20 20 41 50 50 52 4F 56 45 ; 00..     APPROVE
44 20 30 30 0A 02 55 43 57 56 4B 5A 5A 43 53 53 ; D 00..UCWVKZZCSS
45 0A 1B 56                                     ; E..V

31/07/2012 08:36:05 Read 4 Bytes:

02 20 50 4C                                     ; . PL

31/07/2012 08:36:05 Read 100 Bytes:

45 41 53 45 20 52 45 54 41 49 4E 20 52 45 43 45 ; EASE RETAIN RECE
49 50 54 20 46 4F 52 20 59 4F 55 52 20 52 45 43 ; IPT FOR YOUR REC
4F 52 44 53 0A 0F 20 20 20 20 42 41 50 20 59 4F ; ORDS..    BAP YO
55 52 20 42 41 4E 4B 0A 1C 33 30 00 10 34 35 35 ; UR BANK..30..455
37 30 32 20 30 35 32 1C 33 31 00 04 31 35 30 33 ; 702 052.31..1503
1C 34 30 00 12 30 30 30 30 30 30 30 30 31 30 30 ; .40..00000000100
30 1C 34 31                                     ; 0.41

31/07/2012 08:36:05 Read 4 Bytes:

00 12 30 30                                     ; ..00

31/07/2012 08:36:05 Read 57 Bytes:

30 30 30 30 30 30 30 30 30 30 1C 34 32 00 12 30 ; 0000000000.42..0
```

```
30 30 30 30 30 30 30 30 30 30 1C 36 35 00 06 ; 00000000000.65..
30 30 30 33 34 36 1C 37 39 00 12 30 30 30 30 30 ; 000346.79..00000
30 36 35 34 33 32 31 03 78                      ; 0654321.x

31/07/2012 08:36:05 Write 1 Bytes:

06                                              ; .

31/07/2012 08:36:13 Capture Stopped
```

12.3 SALE WITH CASH

Sale 1000 (10.00) + cash out 1500(15.00) accepted with 00

31/07/2012 08:43:57 COM1 Capture Started
31/07/2012 08:43:59 Write 41 Bytes:

02 00 36 36 30 30 30 30 30 30 30 30 31 30 45 ; ..6600000000010E
38 30 30 30 1C 34 30 00 04 31 30 30 30 1C 34 32 ; 8000.40..1000.42
00 04 31 35 30 30 1C 03 64 ; ..1500..d

31/07/2012 08:43:59 Read 1 Bytes:

06 ; .

31/07/2012 08:43:59 CTS Signal = False
31/07/2012 08:43:59 DSR Signal = False
31/07/2012 08:44:00 CTS Signal = True
31/07/2012 08:44:00 DSR Signal = True
31/07/2012 08:44:13 Read 100 Bytes:

02 08 20 36 30 30 30 30 30 30 30 30 31 31 45 ; .. 600000000011E
38 30 30 31 1C 32 30 07 98 0F 32 34 47 20 42 52 ; 8001.20...24G BR
41 4E 43 48 20 50 52 4F 46 49 4C 45 20 3A 29 0A ; ANCH PROFILE :).
0F 20 47 45 4E 45 52 49 43 20 50 52 4F 46 49 4C ; . GENERIC PROFIL
45 20 41 30 31 0A 0F 58 58 58 58 58 58 58 58 58 ; E A01..XXXXXXXXX
58 58 58 58 58 58 58 58 58 58 58 58 58 0A 0F 59 ; XXXXXXXXXXXXX..Y
59 59 59 59 ; YYYY

31/07/2012 08:44:13 Read 4 Bytes:

59 59 59 59 ; YYYY

31/07/2012 08:44:13 Read 100 Bytes:

59 59 59 59 59 59 59 59 59 59 59 59 59 0A 0F 5A ; YYYYYYYYYYYYY..Z
5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A ; ZZZZZZZZZZZZZZZ
5A 5A 5A 5A 5A 0A 0F 20 2A 2A 4D 45 52 43 48 41 ; ZZZZZ.. **MERCHA
4E 54 20 52 45 43 45 49 50 54 2A 2A 0A 1B 68 02 ; NT RECEIPT**..h.
1B 68 02 54 45 52 4D 49 4E 41 4C 20 49 44 3A 20 ; .h.TERMINAL ID:
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 ;

31/07/2012 08:44:13 Read 4 Bytes:

```
 20 31 32 33                         ;  123

31/07/2012 08:44:13 Read 100 Bytes:

 34 31 30 30 31 0A 4D 45 52 43 48 41 4E 54 20 49 ; 41001.MERCHANT I
 44 3A 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ; D:
 20 30 30 30 30 30 30 30 31 32 33 34 31 30 30 31 ;  0000000012341001
 0A 1B 68 02 44 45 42 49 54 20 20 20 20 20 0A 34 ; ..h.DEBIT     .4
 35 35 37 30 32 2A 2A 2A 2A 2A 2A 39 30 35 32 20 ; 55702******9052
 45 58 50 3A 2A 2A 2F 2A 2A 20 20 20 20 20 20 20 ; EXP:**/**
 20 20 20 53                         ;    S

31/07/2012 08:44:13 Read 4 Bytes:

 57 49 50 45                         ; WIPE

31/07/2012 08:44:13 Read 100 Bytes:

 44 0A 42 41 54 43 48 3A 20 30 30 30 30 32 36 20 ; D.BATCH: 000026
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
 20 49 4E 56 3A 20 30 30 30 33 34 39 0A 0A 20 20 ;  INV: 000349..
 20 20 20 20 20 20 20 20 20 20 20 20 0E 53 41 4C ;             .SAL
 2B 43 53 48 14 0A 0A 02 41 75 74 68 20 49 44 3A ; +CSH....Auth ID:
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
 20 20 20 20                         ;

31/07/2012 08:44:13 Read 4 Bytes:

 20 20 20 20                         ;

31/07/2012 08:44:13 Read 100 Bytes:

 20 20 20 34 35 36 37 38 39 0A 02 52 52 4E 3A 20 ;    456789..RRN:
 30 30 30 30 30 30 36 35 34 33 32 31 20 20 20 20 ; 000000654321
 20 20 20 20 20 20 20 20 53 54 41 4E 3A 20 30 30 ;         STAN: 00
 30 30 36 39 0A 02 4A 75 6C 20 33 31 2C 20 31 32 ; 0069..Jul 31, 12
 20 20 30 38 3A 34 34 20 20 20 20 20 20 20 20 20 ;   08:44
 20 20 20 20 20 20 20 20 20 53 41 56 49 4E 47 0A ;         SAVING.
 02 53 41 4C                         ; .SAL

31/07/2012 08:44:13 Read 4 Bytes:
```

```
45 20 20 20                         ; E

31/07/2012 08:44:13 Read 100 Bytes:

20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 20 20 20 20 20 20 20 4B 31 30 2E ;           K10.
30 30 0A 02 43 41 53 48 20 4F 55 54 20 20 20 20 ; 00..CASH OUT
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 20 20 20 4B 31 35 2E 30 30 0A 02 20 ;       K15.00..
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20                         ;

31/07/2012 08:44:13 Read 4 Bytes:

20 20 20 20                         ;

31/07/2012 08:44:14 Read 100 Bytes:

20 20 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D ;   ----------
0A 0F 54 4F 54 41 4C 20 50 47 4B 20 20 20 20 20 ; ..TOTAL PGK
20 20 4B 32 35 2E 30 30 0A 0F 20 20 20 20 20 41 ;   K25.00..     A
50 50 52 4F 56 45 44 20 30 30 0A 02 55 43 57 56 ; PPROVED 00..UCWV
4B 5A 5A 43 53 53 45 0A 1B 56 02 20 50 4C 45 41 ; KZZCSSE..V. PLEA
53 45 20 52 45 54 41 49 4E 20 52 45 43 45 49 50 ; SE RETAIN RECEIP
54 20 46 4F                         ; T FO

31/07/2012 08:44:14 Read 4 Bytes:

52 20 59 4F                         ; R YO

31/07/2012 08:44:14 Read 97 Bytes:

55 52 20 52 45 43 4F 52 44 53 0A 0F 20 20 20 20 ; UR RECORDS..
42 41 50 20 59 4F 55 52 20 42 41 4E 4B 0A 02 20 ; BAP YOUR BANK..
2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D ; ----------
2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D ; ----------
2D 2D 2D 2D 2D 2D 2D 0A 0F 32 34 47 20 42 52 41 ; -------..24G BRA
4E 43 48 20 50 52 4F 46 49 4C 45 20 3A 29 0A 03 ; NCH PROFILE :)..
B5                                  ; .

31/07/2012 08:44:14 Write 1 Bytes:

06                                  ; .
```

```
31/07/2012 08:44:16 Read 100 Bytes:

 02 09 20 36 30 30 30 30 30 30 30 30 31 31 45 ; .. 600000000011E
 38 30 30 30 1C 30 30 00 02 30 30 1C 30 31 00 06 ; 8000.00..00.01..
 34 35 36 37 38 39 1C 30 32 00 40 41 50 50 52 4F ; 456789.02.@APPRO
 56 41 4C 20 20 20 20 20 20 34 35 36 37 38 39 20 ; VAL      456789
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
 20 20 20 1C 30 33 00 06 31 32 30 37 33 31 1C 30 ;    .03..120731.0
 34 00 06 30                                     ; 4..0

31/07/2012 08:44:16 Read 100 Bytes:

 38 34 34 30 39 1C 32 30 07 10 0F 20 47 45 4E 45 ; 84409.20... GENE
 52 49 43 20 50 52 4F 46 49 4C 45 20 41 30 31 0A ; RIC PROFILE A01.
 0F 58 58 58 58 58 58 58 58 58 58 58 58 58 58 58 ; .XXXXXXXXXXXXXXX
 58 58 58 58 58 58 58 0A 0F 59 59 59 59 59 59 59 ; XXXXXXX..YYYYYYY
 59 59 59 59 59 59 59 59 59 59 59 59 59 59 59 0A ; YYYYYYYYYYYYYYY.
 0F 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A ; .ZZZZZZZZZZZZZZZ
 5A 5A 5A 5A                                     ; ZZZZ

31/07/2012 08:44:16 Read 100 Bytes:

 5A 5A 5A 0A 0F 20 2A 2A 43 55 53 54 4F 4D 45 52 ; ZZZ.. **CUSTOMER
 20 52 45 43 45 49 50 54 2A 2A 0A 1B 68 02 1B 68 ;  RECEIPT**..h..h
 02 54 45 52 4D 49 4E 41 4C 20 49 44 3A 20 20 20 ; .TERMINAL ID:
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
 20 20 20 31 32 33 34 31 30 30 31 0A 4D 45 52 43 ;    12341001.MERC
 48 41 4E 54 20 49 44 3A 20 20 20 20 20 20 20 20 ; HANT ID:
 20 20 20 20                                     ;

31/07/2012 08:44:16 Read 100 Bytes:

 20 20 20 30 30 30 30 30 30 31 32 33 34 31 30 ;    0000000123410
 30 31 0A 1B 68 02 44 45 42 49 54 20 20 20 20 20 ; 01..h.DEBIT
 0A 34 35 35 37 30 32 2A 2A 2A 2A 2A 2A 39 30 35 ; .455702******905
 32 20 45 58 50 3A 2A 2A 2F 2A 2A 20 20 20 20 20 ; 2 EXP:**/**
 20 20 20 20 20 53 57 49 50 45 44 0A 42 41 54 43 ;      SWIPED.BATC
 48 3A 20 30 30 30 30 30 32 36 20 20 20 20 20 20 ; H: 000026
 20 20 20 20                                     ;

31/07/2012 08:44:16 Read 100 Bytes:
```

```
20 20 20 20 20 20 20 49 4E 56 3A 20 30 30 30 33 ;       INV: 0003
34 39 0A 0A 20 20 20 20 20 20 20 20 20 20 20 20 ; 49..
20 20 0E 53 41 4C 2B 43 53 48 14 0A 0A 02 41 75 ;   .SAL+CSH....Au
74 68 20 49 44 3A 20 20 20 20 20 20 20 20 20 20 ; th ID:
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 34 35 36 37 38 39 0A 02 52 52 4E 3A 20 30 30 ;  456789..RRN: 00
30 30 30 30                                     ; 0000

31/07/2012 08:44:16 Read 4 Bytes:

36 35 34 33                                     ; 6543

31/07/2012 08:44:16 Read 100 Bytes:

32 31 20 20 20 20 20 20 20 20 20 20 20 53 54 ; 21           ST
41 4E 3A 20 30 30 30 30 36 39 0A 02 4A 75 6C 20 ; AN: 000069..Jul
33 31 2C 20 31 32 20 20 30 38 3A 34 34 20 20 20 ; 31, 12  08:44
20 20 20 20 20 20 20 20 20 20 20 20 20 20 53 ;              S
41 56 49 4E 47 0A 02 53 41 4C 45 20 20 20 20 20 ; AVING..SALE
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20                                     ;

31/07/2012 08:44:16 Read 4 Bytes:

20 20 20 20                                     ;

31/07/2012 08:44:17 Read 100 Bytes:

20 20 4B 31 30 2E 30 30 0A 02 43 41 53 48 20 4F ;   K10.00..CASH O
55 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ; UT
20 20 20 20 20 20 20 20 20 20 20 20 20 4B 31 35 ;            K15
2E 30 30 0A 02 20 20 20 20 20 20 20 20 20 20 20 ; .00..
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 0A 0F ; --------------..
54 4F 54 41                                     ; TOTA

31/07/2012 08:44:17 Read 4 Bytes:

4C 20 50 47                                     ; L PG

31/07/2012 08:44:17 Read 100 Bytes:

4B 20 20 20 20 20 20 20 4B 32 35 2E 30 30 0A 0F ; K       K25.00..
```

```
20 20 20 20 20 41 50 50 52 4F 56 45 44 20 30 30 ;      APPROVED 00
0A 02 55 43 57 56 4B 5A 5A 43 53 53 45 0A 1B 56 ; ..UCWVKZZCSSE..V
02 20 50 4C 45 41 53 45 20 52 45 54 41 49 4E 20 ; . PLEASE RETAIN
52 45 43 45 49 50 54 20 46 4F 52 20 59 4F 55 52 ; RECEIPT FOR YOUR
20 52 45 43 4F 52 44 53 0A 0F 20 20 20 20 42 41 ;  RECORDS..    BA
50 20 59 4F                                     ; P YO

31/07/2012 08:44:17 Read 4 Bytes:

55 52 20 42                                     ; UR B

31/07/2012 08:44:17 Read 100 Bytes:

41 4E 4B 0A 1C 33 30 00 10 34 35 35 37 30 32 20 ; ANK..30..455702
30 35 32 1C 33 31 00 04 31 35 30 33 1C 34 30 00 ; 052.31..1503.40.
12 30 30 30 30 30 30 30 30 31 30 30 30 1C 34 31 ; .000000001000.41
00 12 30 30 30 30 30 30 30 30 30 30 30 30 1C 34 ; ..000000000000.4
32 00 12 30 30 30 30 30 30 30 30 31 35 30 30 1C ; 2..000000001500.
36 35 00 06 30 30 30 33 34 39 1C 37 39 00 12 30 ; 65..000349.79..0
30 30 30 30                                     ; 0000

31/07/2012 08:44:17 Read 4 Bytes:

30 36 35 34                                     ; 0654

31/07/2012 08:44:17 Read 5 Bytes:

33 32 31 03 72                                   ; 321.r

31/07/2012 08:44:17 Write 1 Bytes:

06                                              ; .
```

12.4 SETTLEMENT

```
31/07/2012 08:53:47 COM1 Capture Started
31/07/2012 08:53:47 CTS Signal = True
31/07/2012 08:53:47 DSR Signal = True
31/07/2012 08:53:58 Write 30 Bytes:

 02 00 25 36 30 30 30 30 30 30 30 30 30 31 30 36 ; ..%6000000000106
 31 30 30 30 1C 44 44 00 02 30 31 1C 03 15       ; 1000.DD..01...

31/07/2012 08:53:58 Read 1 Bytes:

 06                                              ; .

31/07/2012 08:53:58 CTS Signal = False
31/07/2012 08:53:58 DSR Signal = False
31/07/2012 08:53:58 CTS Signal = True
31/07/2012 08:53:58 DSR Signal = True
31/07/2012 08:54:08 Read 100 Bytes:

 02 08 18 36 30 30 30 30 30 30 30 30 31 31 36 ; ...6000000000116
 31 30 30 31 1C 32 30 07 96 1B 68 02 0F 32 34 47 ; 1001.20...h..24G
 20 42 52 41 4E 43 48 20 50 52 4F 46 49 4C 45 20 ;  BRANCH PROFILE
 3A 29 20 14 0A 20 20 0F 47 45 4E 45 52 49 43 20 ; :) ..  .GENERIC
 50 52 4F 46 49 4C 45 20 41 30 31 14 0A 0F 58 58 ; PROFILE A01...XX
 58 58 58 58 58 58 58 58 58 58 58 58 58 58 58 58 ; XXXXXXXXXXXXXXXX
 58 58 58 58                                     ; XXXX

31/07/2012 08:54:08 Read 100 Bytes:

 14 0A 0F 59 59 59 59 59 59 59 59 59 59 59 59 59 ; ...YYYYYYYYYYYYY
 59 59 59 59 59 59 59 59 59 14 0A 0A 20 20 20 20 ; YYYYYYYYY...
 20 20 20 20 20 20 20 0E 53 45 54 54 4C 45 4D 45 ;       .SETTLEME
 4E 54 14 0A 0A 4A 75 6C 20 33 31 2C 20 31 32 20 ; NT...Jul 31, 12
 30 38 3A 35 34 0A 4D 45 52 43 48 41 4E 54 20 49 ; 08:54.MERCHANT I
 44 3A 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ; D:
 20 30 30 30                                     ;  000

31/07/2012 08:54:09 Read 100 Bytes:

 30 30 30 30 31 32 33 34 31 30 30 31 0A 54 45 52 ; 000012341001.TER
 4D 49 4E 41 4C 20 49 44 3A 20 20 20 20 20 20 20 ; MINAL ID:
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 31 ;               1
 32 33 34 31 30 30 31 0A 42 41 54 43 48 3A 20 20 ; 2341001.BATCH:
```

```
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 20 20 20 20 20 20 20 30 30 30 30 ;           0000
32 36 0A 41                                  ; 26.A

31/07/2012 08:54:09 Read 100 Bytes:

43 51 55 49 52 45 52 20 4E 41 4D 45 3A 20 20 20 ; CQUIRER NAME:
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 48 59 50 45 52 43 4F 4D 0A 0A 53 41 4C 45 53 ;  HYPERCOM..SALES
20 20 20 20 20 37 20 20 20 20 20 20 20 20 20 20 ;     7
20 20 20 20 20 20 20 20 20 20 20 20 20 4B 32 ;             K2
32 33 2E 30 30 0A 52 45 46 55 4E 44 53 20 20 20 ; 23.00.REFUNDS
30 20 20 20                                  ; 0

31/07/2012 08:54:09 Read 100 Bytes:

20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 20 20 2D 4B 30 2E 30 30 0A 43 41 53 ;      -K0.00.CAS
48 4F 55 54 20 20 20 30 20 20 20 20 20 20 20 20 ; HOUT   0
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 4B 30 2E 30 30 0A 4E 45 54 20 54 4F 54 41 ;   K0.00.NET TOTA
4C 53 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ; LS
20 20 20 20                                  ;

31/07/2012 08:54:09 Read 4 Bytes:

20 20 20 20                                  ;

31/07/2012 08:54:09 Read 100 Bytes:

20 20 20 4B 32 32 33 2E 30 30 0A 0A 0F 20 20 20 ;    K223.00...
20 20 20 41 50 50 52 4F 56 41 4C 0A 0F 49 53 53 ;    APPROVAL..ISS
55 45 52 20 53 55 4D 4D 41 52 59 20 52 45 50 4F ; UER SUMMARY REPO
52 54 0A 1B 56 02 44 45 42 49 54 0A 02 53 41 4C ; RT..V.DEBIT..SAL
45 53 20 20 20 20 20 20 20 20 30 30 30 37 20 20 ; ES        0007
54 4F 54 41 4C 20 20 20 20 20 20 20 20 20 20 4B ; TOTAL         K
31 38 32 2E                                  ; 182.

31/07/2012 08:54:09 Read 4 Bytes:

30 30 0A 02                                  ; 00..

31/07/2012 08:54:09 Read 100 Bytes:
```

```
43 41 53 48 20 20 20 20 20 20 20 20 30 30 30 ; CASH        000
33 20 20 54 4F 54 41 4C 20 20 20 20 20 20 20 ; 3  TOTAL
20 20 20 4B 34 31 2E 30 30 0A 1B 56 02 41 4D 54 ;    K41.00..V.AMT
20 43 4F 55 4E 54 53 20 20 20 30 30 31 30 20 20 ;  COUNTS   0010
54 4F 54 41 4C 20 20 20 20 20 20 20 20 20 20 4B ; TOTAL         K
32 32 33 2E 30 30 0A 1B 56 02 4E 6F 20 6F 66 20 ; 223.00..V.No of
54 78 6E 73                                     ; Txns

31/07/2012 08:54:09 Read 4 Bytes:

20 20 20 30                                     ;    0

31/07/2012 08:54:09 Read 100 Bytes:

30 30 37 0A 0F 20 20 20 20 47 52 41 4E 44 20 54 ; 007..    GRAND T
4F 54 41 4C 53 0A 0A 02 53 41 4C 45 53 20 20 20 ; OTALS...SALES
20 20 20 20 20 30 30 30 37 20 20 54 4F 54 41 4C ;      0007  TOTAL
20 20 20 20 20 20 20 20 20 20 4B 31 38 32 2E 30 ;          K182.0
30 0A 02 43 41 53 48 20 20 20 20 20 20 20 20 20 ; 0..CASH
30 30 30 33 20 20 54 4F 54 41 4C 20 20 20 20 20 ; 0003  TOTAL
20 20 20 20                                     ;

31/07/2012 08:54:09 Read 4 Bytes:

20 20 4B 34                                     ;   K4

31/07/2012 08:54:09 Read 7 Bytes:

31 2E 30 30 0A 03 EC                            ; 1.00...

31/07/2012 08:54:09 Write 1 Bytes:

06                                              ; .

31/07/2012 08:54:10 Read 100 Bytes:

02 01 51 36 30 30 30 30 30 30 30 30 30 31 31 36 ; ..Q6000000000116
31 30 30 30 1C 30 30 00 02 30 30 1C 30 32 00 40 ; 1000.00..00.02.@
41 50 50 52 4F 56 41 4C 20 20 20 20 20 20 20 20 ; APPROVAL
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ;
20 20 20 20 20 20 20 20 1C 32 30 00 66 1B 56 02 ;        .20.f.V.
41 4D 54 20 43 4F 55 4E 54 53 20 20 20 30 30 31 ; AMT COUNTS   001
```

```
 30 20 20 54                         ; 0  T

31/07/2012 08:54:10 Read 56 Bytes:

 4F 54 41 4C 20 20 20 20 20 20 20 20 4B 32 ; OTAL         K2
 32 33 2E 30 30 0A 1B 56 02 4E 6F 20 6F 66 20 54 ; 23.00..V.No of T
 78 6E 73 20 20 20 30 30 30 37 0A 1C 36 35 00 06 ; xns   0007..65..
 30 30 30 33 35 30 03 21                   ; 000350.!

31/07/2012 08:54:10 Write 1 Bytes:

 06                                  ; .

31/07/2012 08:54:23 Capture Stopped
```

13.0 APPENDIX B – FIELD DATA FORMAT VERSION 2

[WPP 03.01.00]
Only Field Data Format Version 1 will be supported. Version 2 details are noted here for historical reasons only.

Format Version 2 allows Field Types using characters 0-9 and A-F and lengths up to theoretical maximum of 255. The fields comprising the Field Element in Format Version 2 are arranged in the following order.

FIELD ELEMENT FORMAT VERSION 2		
Field Type	LLL	Data

FIELD	BYTES	VALUE	USE
Field Type	1		Indicates the type of data that is included in this field element. This is an Binary Coded Decimal field. Characters 0-9 and A-F are available for use. These characters are each packed into a nibble (4-bits) e.g. '00', 'EA' etc.
LLL	1		Indicates the length in bytes of the data to follow. Length can have a value from 0 to 255. **LLL is transmitted in binary form.** For example, a length of 100 will be transmitted as 64h. See 'Field type definitions' for a complete list of available values.
Data	LLL		The data for this field. If no data is in this field (for example when the functionality is indicated by the field type on its own) there will be no data.