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Document Title: Post Office Ltd to Fujitsu Services EMV Retail PIN Pad Reference Data Interface Specification

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Abstract: **This document is the interface specification between Post Office Limited and Fujitsu Services for delivery of PIN Pad Reference Data for EMV Retail**

Document Status: Approved

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0.0 Document Control

0.1 Document History

Version No.	Date	Reason for Issue	Associated CP/PinICL
0.1	02/03/04	Initial Version	
0.2	11/03/04	Amended in response to comments	
0.3	18/03/04	Amended in response to further information from Hypercom	
0.4	14/04/04	Amended in response to formal review comments	
1.0	22/04/04	For Approval	

0.2 Review Details

Review Comments by:	
Review Comments to:	Duncan MacDonald

Mandatory Review Authority	Name
Post Office Limited	Bob.Booth GRO Ian.Senior GRO Keith.Fowler GRO
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Fujitsu Services – Application Design	David Johns, Chris Bailey, Trevor Leahy
Fujitsu Services – Customer Service	David Wilcox; Aileen Davis; Jez Murray; John Shepherd
Fujitsu Services – System Support Centre	Mik Peach
Optional Review / Issued for Information	
Fujitsu Services – Design	Tony Heath; Peter Lucas
Fujitsu Services – Development	Nick Lawman; David P Harrison; Roger York

(*) = Reviewers that returned comments

0.3 Associated Documents

Ref	Reference	Version	Title	Source
1.	AS/DPR/009		S70 Design Proposal (EMV, TDES, NBE	Fujitsu

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			Replacement)	Services
2.	BD/CDE/001		EMV – Banking and Retail Conceptual Design	Post Office Ltd
3.	CS/IFS/001		Reference Data Change Catalogue	Fujitsu Services
4.	CS/IFS/010		Reference Data Change Catalogue – Network Banking Appendix	Fujitsu Services
5.	BP/IFS/010		Application Interface Specification Reference Data to Pathway for CSR+ (including Network Banking changes)	Post Office Ltd
6.	BP/IFS/011		AIS Data to Pathway Type B Reference Data for CSR+	Post Office Ltd
7.	RD/CSD/002		Reference Data Rules and Values	Post Office Ltd
8.	NB/SPE/009		Network Banking RDS Rules and Values	Post Office Ltd
9.	NB/REQ/003		EMV Retail – User Interface Design Proposal	Fujitsu Services

Unless a specific version is referred to above, reference should be made to the current approved versions of the documents.

0.4 Abbreviations/Definitions

Abbreviation	Definition
AID	Application Identifier
AIS	Application Interface Specification
CVM	Cardholder Verification Method
DDOL	Dynamic Data Authentication Object List
EMV	Europay MasterCard Visa Standard for Financial Smart Cards
EPOSS	Electronic Point of Sale Service
FI	Financial Institution
FS	Fujitsu Services
HFT	Hypercom Financial Terminal (PIN Pad)
ICC	Integrated Chip Card

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IS	Interface Specification
IIN	Issuer Identification Number
MSR	Magnetic Stripe Read
MID	Merchant Identifier
OBC	Operational Business Change achieved via reference data
PAN	Primary Account Number
PIN	Personal Identity Number
PIX	Proprietary Application Identifier Extension
POL	Post Office Ltd
RASD	Requirements, Architecture & Strategy Development
RDS	Reference Data System (POL)
RDDS	Reference Data Distribution Service (Fujitsu Services)
RDMC	Reference Data Management Centre (Fujitsu Services)
RDT	Reference Data Team (Fujitsu Services)
RID	Registered Application Provider Identifier
TID	Terminal Identifier
TDOL	Transaction Certificate Data Object List
Type A	Reference Data delivered by Post Office Ltd through the main reference data interface [Ref 5]
Type C	Reference Data prepared in attribute grammar format by Fujitsu Services - normally consisting of software parameters, transaction scripting parameters etc but sometimes containing some business content supplied by Post Office Ltd, for example in Desktop buttons and, at S70, PIN Pad reference data

0.5 Changes in this Version

Version	Changes
0.1	Initial Version
0.2	Amended in response to comments
0.3	Amended in response to further information from Hypercom

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0.4	Amended in response to formal review comments
1.0	For Approval

0.6 Changes Expected

None

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0.7 Table of Contents

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1. Introduction

This document is the interface specification (IS) between Post Office Limited and Fujitsu Services for the delivery of EMV PIN Pad reference data for Retail.

The document production has been authorised under Change Work Package 172. Other related change documents are

- CR00113 – Provision of support from FS in the Development of an 'AIS' for Type C reference data for Banking II
- CP3657 – Development of 'AIS' for Type C reference data for EMV

Retail PIN Pad reference data is divided into two parts for the purposes of change management: -

- Reference data that is agreed as part of the EMV implementation at S70 and that is not considered to be subject to subsequent business change. It may be changed only through a change request.
- Reference data that is subject to regular business change and, therefore, changes to it must be supported under the operational business change (OBC) process.

This document is concerned primarily with defining the scope, format and delivery process for the reference data changes that are supported by OBC.

For completeness, Appendix A of the document defines the PIN Pad reference data that is outside the scope of OBC.

2. Scope

The document defines the reference data that is to be supplied by Post office Limited to support the Hypercom Financial Terminal (HFT) for Retail.

The document consists of

- Section 3 provides an overview of Hypercom PIN Pad reference data.
- Section 4 identifies the new OBC events and provides estimates of volumes for each event.
- Section 5 defines the PIN Pad reference data to be supplied by Post Office Ltd under OBC.
- Appendix A defines the PIN pad reference data that is out of scope for OBC.

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3. Hypercom PIN Pad Reference Data

3.1 Data Tables

Hypercom PIN Pad reference data consists of a number of data tables. The full set of tables is as follows: -

Table Name	Description
General	This table contains only one entry that defines data applicable to the Retail application. This consists of attributes such as country code, currency terminal capabilities, floor and ceiling limits
Acquirer	This table contains an entry for each acquirer. It defines attributes such as acquirer identifier, acquirer facilities, acquirer floor and ceiling limits
Card Scheme	This table contains an entry for each card scheme. It defines attributes such as issuer identifier and name, card element positions, scheme floor limit and terminal action codes.
IIN	This table contains an entry for each IIN range. It defines low and high range value, PAN length and whether the IIN is for debit or credit cards
AID	This table contains an entry for each ICC application that is supported. It defines the application identifier, application versions supported and application controls. It contains the key to each of the application data object tables – TDOL, DDOL, Additional Data
TDOL	This is the Application Transaction Certificate Data Object List. It contains an entry for each ICC application that uses TDOLs.
DDOL	This is the Application Dynamic Data Authentication Object List It contains an entry for each ICC application that uses DDOLs.
Additional Data	This table contains lists of additional data tags that are to be applied to card schemes for the associated application. It contains an entry for each ICC application that uses Additional Data.
Public Key	This table contains public keys for each registered application provider (RID)
Public Key Revocation	This table contains public key revocations for registered application provider (RID)

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Hot card	This table contains a list of hot cards **– not used**
PIN Bypass	This table contains a list of countries for which cards can opt out of PIN entry
EPOS Messages	This table contains screen message definitions and PIN Pad message definitions **– not used**
PED Messages	This table contains PIN entry screen message definitions.

3.2 Data Table Relationships

3.2.1 Overview

The following data tables are stand-alone with no data relationship to other tables: -

General
PIN Bypass
PED Messages

The Acquirer, Card Scheme and IIN tables are a hierarchy with an Acquirer having one or more Card Schemes and each Card Scheme having one or more IIN.

RID (**R**egistered Application Provider **Id**entifier) is the ICC application provider and the owner of all Public Keys for the application. RID is not a data table in its own right - the RID is the first part of the AID (Application identifier)

Public Keys may be revoked by Public Key Revocations. An AID may have a supporting TDOL, DDOL and Additional Data

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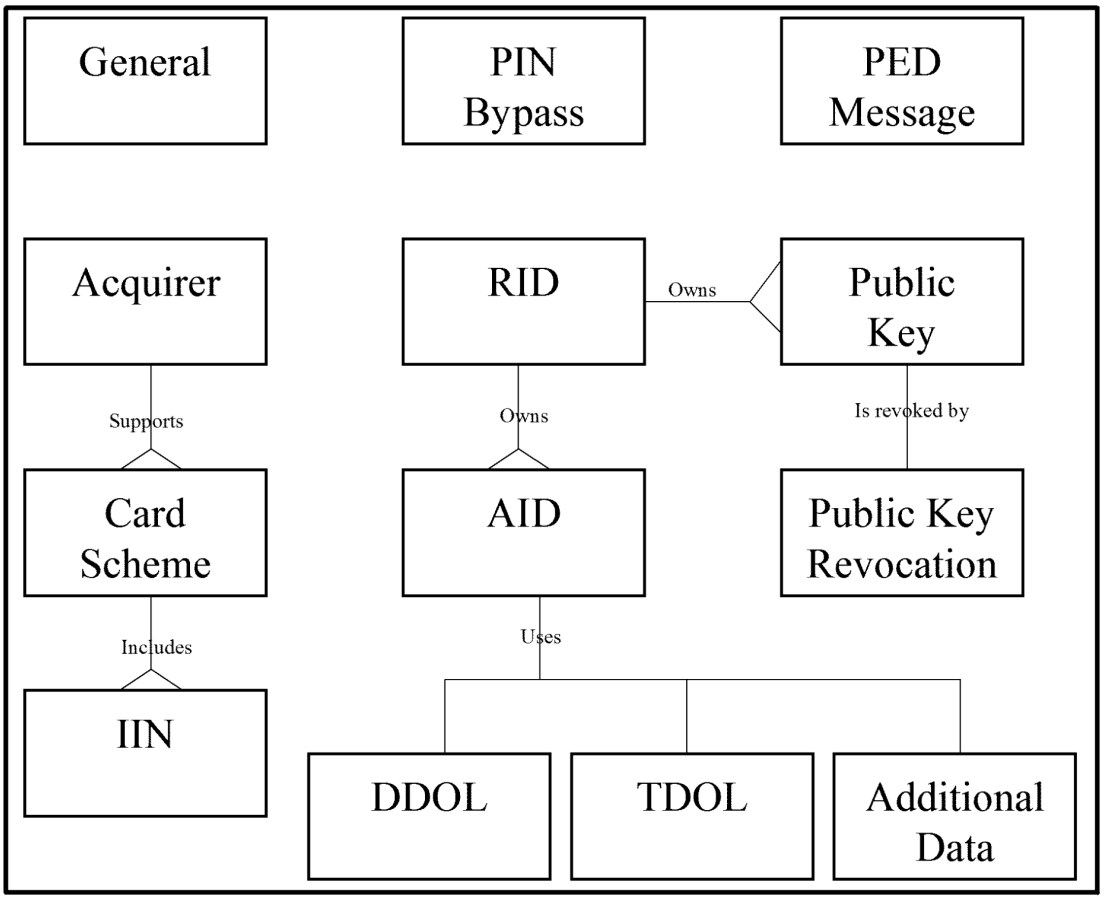
3.2.2 Table Relationship Model



3.3 Change Control

The following tables are subject to OBC: -

Card Scheme
IIN
AID
TDOL
DDOL
Additional Data
Public Key

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Public Key Revocation
PIN Bypass

The following tables are outside the scope of OBC: -

General
Acquirer
PED Messages

Any changes to these tables must be supported by a change request.

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4. OBC Events

The following table identifies OBC events that will involve a change to the PIN Pad reference data and identifies the PIN pad data tables that are potentially impacted: -

No	Event	Tables Impacted Y = Impact, P = Potential Impact
1	New Card Scheme	Card Scheme (Y) IIN (Y) AID (P) TDOL (P) DDOL (P) Additional Data (P) Pubic Key (P) Public Key Revocation (P) PIN Bypass (P)
2	Change of Card Scheme Limits / Processing Rules	Card Scheme (Y)
3	Termination of Card Scheme	Card Scheme (Y) IIN (Y) AID (P) TDOL (P) DDOL (P) Additional Data (P) Pubic Key (P) Public Key Revocation (P) PIN Bypass (P)
4	New IIN Range	IIN (Y)
5	Change to Existing IIN Range	IIN (Y)
6	Change of Issuer for an IIN Range	IIN (Y)
7	Termination of an IIN Range	IIN (Y)
8	New Application	AID (Y) TDOL (P) DDOL (P) Additional Data (P) Pubic Key (P) Public Key Revocation (P)
9	Change to Application Controls	AID (Y)
10	Introduction of Additional Data for an Application	AID (Y) Additional Data (Y)
11	Change to Existing Additional Data for an Application	Additional Data (Y)
12	Removal of Additional Data for an	AID (Y)

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	Application	Additional Data (Y)
13	Introduction of TDOL for an Application	AID (Y) TDOL (Y)
14	Change to Existing TDOL for an Application	TDOL (Y)
15	Removal of TDOL for an Application	AID (Y) TDOL (Y)
16	Introduction of DDOL for an Application	AID (Y) DDOL (Y)
17	Change to Existing DDOL for an Application	DDOL (Y)
18	Removal of DDOL for an Application	AID (Y) DDOL (Y)
19	New Application Version	AID (Y)
20	Removal of Application Version	AID (Y)
21	Removal of Application	AID (Y)
22	New Public Key	Pubic Key (Y)
23	Removal of Public Key	Pubic Key (Y)
24	Revocation of Public Key	Public Key Revocation (Y)
25	Removal of Public Key Revocation	Public Key Revocation (Y)
26	Addition of PIN Bypass Country	PIN Bypass (Y)
27	Removal of PIN Bypass Country	PIN Bypass (Y)

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The annual volume of change is estimated as follow: -

Event		Annual Volume
1	New Card Scheme	1
2	Change of Card Scheme Limits / Processing Rules	1
3	Termination of Card Scheme	1
4	New IIN Range	4
5	Change to Existing IIN Range	2
6	Change of Issuer for an IIN Range	2
7	Termination of an IIN Range	2
8	New Application	1
9	Change to Application Controls	0.5
10	Introduction of Additional Data for an Application	0.5
11	Change to Existing Additional Data for an Application	0.5
12	Removal of Additional Data for an Application	0.5
13	Introduction of TDOL for an Application	0.5
14	Change to Existing TDOL for an Application	0.5
15	Removal of TDOL for an Application	0.5
16	Introduction of DDOL for an Application	0.5
17	Change to Existing DDOL for an Application	0.5
18	Removal of DDOL for an Application	0.5
19	New Application Version	0.5
20	Removal of Application Version	0.5
21	New Public Keys	2
22	Removal of Public Keys	2
23	Revocation of Public Keys	2
24	Addition of PIN Bypass Country	1
25	Removal of PIN Bypass Country	1

The new OBC events are to be added to the OBC catalogue **Ref [3] and [4]**

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5. PIN Pad Reference Data Delivery under OBC

5.1 Delivery Process

Based on the estimated low volume of change the cost of developing an automated interface between Post Office Ltd and Fujitsu services is not considered justified. Instead, Post Office Ltd will provide details of PIN Pad reference data changes to Fujitsu Services in document form.

Post Office Ltd will provide Fujitsu Services with advance notification of an OBC - meeting the appropriate lead times as required for the actual OBC event. Post Office Ltd will liaise with the Financial Institution(s) (FI) to obtain documentation of the required reference data changes. Post Office Ltd will then supplement the FI documentation with documentation of any further data definition that is required to provide the complete set of PIN Pad reference data to support the OBC. The documentation will specify the OBC reference that the reference data change applies to and will provide complete details, as defined in this interface specification, of all reference data table entries that are new, changed or are to be deleted.

The full change documentation will then be delivered to the Fujitsu Services Reference Data Team (RDT). The document will be emailed to RDT.

5.2 Definition of Data Types

The following table defines the data types used within the Hypercom PIN Pad reference data for field format definitions: -

Data Type	Description
AN	Alphanumeric ASCII characters including space
N	Numeric ASCII characters.
HEX	Hexadecimal – some PIN Pad reference data (e.g. Public Keys) is in Binary. However, it is to be delivered in HEX and then converted to Binary prior to loading to the PIN Pad. Character set is 0-9, A - F
DATE	Date and time in format DD/MON/CCYY HH24:MI:SS

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5.3 Data Definition

5.3.1 OBC Definition

An OBC header document identifies the OBC change, specifies the effective date of the change and identifies the PIN Pad data tables that are affected by the change.

Field Name	Description	Format (Size)
OBC Ref	Operational Business Change Reference	AN(20)
OBC Effective Date	The date on which the OBC change is to become effective	DATE
Card Scheme Impact	Is there a change to the Card Scheme Data ? Y or N	AN(1)
IIN Impact	Is there a change to the IIN Data ? Y or N	AN(1)
AID Impact	Is there a change to the AID Data ? Y or N	AN(1)
TDOL Impact	Is there a change to the TDOL Data ? Y or N	AN(1)
DDOL Impact	Is there a change to the DDOL Data ? Y or N	AN(1)
Additional Data Impact	Is there a change to the Additional Data ? Y or N	AN(1)
Public Key Impact	Is there a change to the Public Key Data ? Y or N	AN(1)
Public Key Revocation Impact	Is there a change to the Public Key Revocation Data ? Y or N	AN(1)
PIN Bypass Impact	Is there a change to the PIN Bypass Data ? Y or N	AN(1)

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5.3.2 PIN Pad Data Definition by Table

5.3.2.1 Card Scheme Table

This table contains an entry for each issuer card scheme for each acquirer. Because the table contains attributes that are at the POL RDS bank card level, the table entries will correspond to Bank Card within the POL RDS system rather than to Issuer Scheme. Initial volume estimate is 5 entries. Maximum volume is 99 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format (Size)	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
Issuer Id	Unique Issuer Identifier	N(3)	Set to POL RDS Bank_card_id for Issuer
Issuer Name	Name of issuer	AN(16)	Set to abbreviated POL RDS Bank_card_name for Issuer
Issue Number Position	Position of start sentinel to Issue Number	N(2)	Not used – set to Zero
Issue Number Length	Length of Issue Number	N(1)	Not used – set to Zero
Start Date Position	Position of start sentinel to Start Date	N(2)	Not used – set to Zero
Start Date Format	Format of Start Date (MMYY or YYMM)	AN(1)	Not used – set to 'M' (MMYY)
Service Code Checking	Service Code checking requirement	N(1)	Not used – set to Zero
Expiry Date Position	Expiry Date checking requirement and Expiry Date position	N(2)	Not used – set to 20 (No Expiry Date)
Facilities Code	APACS Facilities Code	N(3)	Set to 7 (Payment Authorisation, Cheque Guarantee and Cash Advance)
Acquirer ID	Unique Identifier of	N(2)	Set to 1 for Streamline

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	Acquirer		
Floor Limit / Luhn Check	Floor limit and Luhn check requirements	N(1)	Set to 2 (Floor Limit and Luhn Check not operative)
Floor Limit	Floor Limit	N(12)	Set to Zero
Terminal Action Codes – Denial	Specifies the acquirer's conditions that cause the denial of a transaction without attempt to go online	HEX(10)	
Terminal Action Codes – Online	Specifies the acquirer's conditions that cause a transaction to be transmitted online	HEX(10)	
Terminal Action Codes – Default	Specifies the acquirer's conditions that cause a transaction to be rejected if it might have been approved online, but the terminal is unable to process the transaction online	HEX(10)	
Target Percentage	Target percentage used in terminal risk management for random transaction selection	N(2)	Set to Zero
Maximum Target Percentage	Maximum target percentage used in terminal risk management for random transaction selection	N(2)	Set to Zero
Threshold Value	Threshold value used in terminal risk management for random transaction selection	N(12)	Set to Zero
Card Scheme Control Byte	Card Security Check	HEX(2)	Set to '08' for Mastercard and to '00' for all others

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5.3.2.2 IIN Table

This table is a child table of the Card Scheme. It contains an entry for each IIN range for each card scheme – defining low and high range value, PAN length and whether the IIN is for debit or credit cards. The table entry level corresponds to IIN Range within the POL RDS system. Initial volume estimate is 75 entries. Maximum volume is 150 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
IIN Id	Unique identifier for IIN	N(3)	Set to POL RDS IIN_Id
Issuer Id	Unique Issuer Identifier	N(3)	Set to POL RDS Bank_card_id for Issuer. Must exist as an Issuer Id in the Card Scheme table
IIN Low	Lowest IIN Range Prefix	N(10)	Set to POL RDS IIN_start_value
IIN High	Highest IIN Range Prefix	N(10)	Set to POL RDS IIN_END_value
PAN Length	Length of PAN	N(2)	Set to POL RDS Element_length for Bank Card Element PAN
Debit / Credit IIN Range	Whether debit or credit card?	AN(1)	Set to D (Debit)

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5.3.2.3 AID Table

This table defines the ICC applications that are supported. It defines the application versions supported and application controls. Initial volume estimate is 5 entries. Maximum volume is 10 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
AID	Application Identifier. The first 10 characters is the RID	AN(16)	
AID Length	Length of AID	N(2)	
Control	Bitmap indicating optional features supported by the AID	HEX(2)	
Number of Application Versions	Number of versions following (0 to 10)	N(2)	
Application Versions	Application version numbers – up to 10 with each defined in 4 HEX characters	HEX(40)	

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5.3.2.4 TDOL Table

This is the Application Transaction Certificate Data Object List used for card authentication. Initial volume estimate is 5 entries. Maximum volume is 10 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
AID	Application Identifier. The first 10 characters is the RID	AN(16)	
TDOL Length	Length of TDOL data object list in characters (Not HEX) (1 to 252)	N(3)	
TDOL	Data object list	HEX(504)	

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5.3.2.5 DDOL Table

This is the Application Dynamic Data Authentication Object List used for card authentication. Initial volume estimate is 5 entries. Maximum volume is 10 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
AID	Application Identifier. The first 10 characters is the RID	AN(16)	
DDOL Length	Length of DDOL data object list in characters (Not HEX) (1 to 252)	N(3)	
DDOL	Data object list	HEX(504)	

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5.3.2.6 Additional Data Table

This table contains application additional data tags. Initial volume estimate is 1 entry. Maximum volume is 10 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
AID	Application Identifier. The first 10 characters is the RID	AN(16)	
Length	Length of additional data tags in characters (Not HEX) (1 to 128)	N(3)	
Tag Definitions	Additional data tags definitions	HEX(256)	

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5.3.2.7 Public Key Table

This table contains public keys for each registered application provider (RID). Initial volume estimate is 30 entries. Maximum volume is 60 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
Key Index	Index of Public Key	HEX(2)	
Key Length	Length of Public Key (1 to 248)	N(3)	
Key	Certification Authority Public Key	HEX(496)	
RID	Registered Application Provider Identifier	AN(10)	
Exponent	Certification Authority Public Key Exponent value	HEX(2)	
Hash	Calculated Hash Value	HEX(40)	
Expiry Date	Expiry date in format YYMMDD	AN(6)	

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5.3.2.8 Public Key Revocation

This table contains public key revocations for registered application provider (RID). Initial volume estimate is zero. Maximum volume is 60 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
RID	Registered Application Provider Identifier	AN(10)	
Key Index	Index of Public Key	HEX(2)	
Serial Number	Certificate serial number of the issuer public key	HEX(6)	

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5.3.2.9 PIN Bypass by Country Table

This table provides the 'opt out of PIN entry' facility to UK and foreign cards in order to cater for countries that are in the transition phase from magnetic stripe and signature to chip and PIN. Initial volume estimate is 1 entry. Maximum volume is 999 entries.

The OBC documentation will provide details of all table entries that are to be created, amended or deleted.

Field Name	Description	Format	Comments
Action	Create, Amend or Delete	AN(1)	Set to C, A or D
Country Code	Numeric Country Code	N(3)	Set to 826 for UK

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Appendix A

PIN Pad Reference Data outside OBC

General Data

This table contains only one entry that defines data applicable to the Retail application. This consists of attributes such as country code, currency terminal capabilities, floor and ceiling limits

Field Name	Description	Format (Size)	Values
Terminal Identifier	Unique identifier for each merchant device	AN(8)	Set to '1' (static value - not significant)
Application Version Number	OTA application version number	AN(2)	Set to '1' (static value – not significant)
Terminal Country Code	Country location	N(3)	Set to 826 (United Kingdom)
Transaction Currency Code	Currency supported	N(3)	Set to 826 (Sterling)
Transaction Currency Symbol	Currency Symbol	HEX(2)	Set to '9C' (£)
Transaction Currency Exponent	Position of Decimal Place	N(1)	Set to 2
Transaction Currency Placeholder	Decimal Place Character	HEX(2)	Set to "2E" (decimal point)
Merchant Category Code	Merchant type	AN(2)	Set to "01"
Merchant Identity	Unique identifier for merchant location	AN(15)	Set to '1' (static value - not significant)
Terminal Capabilities	Indicates the card data input, CVM, and security capabilities of the terminal	HEX(6)	Specified by EMV Level 2 certification

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Additional Terminal Capabilities	Indicates transaction type, terminal data input, terminal data output capabilities	HEX(10)	Specified by EMV Level 2 certification
Terminal Type	Indicates the environment of the terminal, its communications capability, and its operational control	N(2)	Set to 22 (Offline with Online capabilities)
Additional Hardware Definition	Operator card reader or Customer card reader	HEX(2)	Set to "01" (Customer Card Reader)
Terminal Floor Limit	Terminal floor limit (in lowest denomination)	N(12)	Set to Zero
Terminal Ceiling Limit	Terminal ceiling limit (in lowest denomination)	N(12)	Set to 9999999
Unsolicited Card Read	Action on unsolicited card read	AN(1)	Set to "S" (Store track data in buffer)
EMV Version	Version of EMV application	N(1)	Set to 2 (Version 4.0)
MSR Level	Level of magnetic stripe reader usage	N(1)	Set to 0 (Application in EPOS)
Card Misreads	Number of card insertion attempts allowed before falling back to MSR	N(1)	Set to 3
EMV Level 2 Test	EMV Level 2 Type Approval Test Requirements	HEX(2)	Set to "08" (Stops quick method for checking of pre-valid / expired cards)

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Acquirer

This table contains an entry for each acquirer – defining such as the acquirer name and merchant identity, acquirer floor and ceiling limits, risk check controls and excluded card ranges.

Field Name	Description	Format (Size)	Values
Acquirer Id	Unique Identifier of Acquirer	N(2)	Set to 1 (Streamline)
Acquirer Name	Name of Acquirer	AN(16)	Set to 'Streamline'
Merchant Identity	Unique Merchant Identifier for Acquirer	AN(15)	Set to '1' (static value - not significant)
Facilities Code	APACS Facilities Code	N(3)	Set to 7 (Payment Authorisation, Cheque Guarantee and Cash Advance)
Floor Limit Indicator	Floor limit and Luhn check requirements	N(1)	Set to 2 = Floor Limit and Luhn Check not operative
Pre-Comms Floor Limit	Pre communication floor limit	N(12)	Set to Zero
Post-Comms Floor Limit	Raised floor limit imposed if communications attempt fails	N(12)	Set to Zero
Cash Pre-Comms Floor Limit	Pre communication floor limit on cash component of transaction	N(12)	Set to Zero
Cash Ceiling Limit	Maximum value for cash component of transaction	N(12)	Set to Zero

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Offline Count	Force online authorisation when number of transactions greater than count	N(2)	Set to Zero
Ceiling Limit Check	Ceiling limit check required	N(1)	Set to Zero (Ignore)
Ceiling Limit Value	Maximum value (in pence)	N(12)	Set to Zero
Exclusion Band lower Limit	Lower boundary of exclusion limit	N(12)	Set to Zero
Exclusion Band Upper Limit	Upper boundary of exclusion limit	N(12)	Set to Zero
Excluded Card Ranges	PAN ranges not to be included	AN(20)	Not used
Cash Advance Limit	Maximum amount of cash that can be obtained	N(12)	Set to Zero

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PED Messages

This table contains PIN entry screen message definitions.

The content of this table is defined in **REF [9].**