

# DRAFT TECHNICAL SPECIFICATION FOR THE PRODUCTION OF CONCESSIONARY TRAVEL PASSES IN ENGLAND

## 1. Introduction

- 1.1 This is a draft technical specification which local authorities may wish to use as a basis for their own procurement for the production of English Concessionary Travel Passes.
- 1.2 On 1 April 2008 free off-peak local bus travel anywhere in England was introduced for people living in England who are aged 60 and over or eligible disabled people. Previously, they could travel for free only in their local area.
- 1.3 As part of the changes, a new England-wide pass design was introduced so that bus drivers throughout England could recognise at a glance that a pass holder was eligible for free travel.
- 1.4 The Department for Transport has specified the design of the passes and that they must be ITSO compliant smartcards. The pass specifications are set out in the *Concessionary Bus Travel (Permits)(England) Regulations 2008* (SI No 417, 2008). These have subsequently been amended by the *Concessionary Bus Travel (Permits)(England) (Amendment) Regulations 2008* (SI No 2091, 2008).
- 1.5 All concessionary travel passes issued from April 2008 onwards, outside London, must meet the specifications set out in these Regulations. In London, Freedom Passes are initially being re-stickered with the rose logo. However, all London passes will need to comply with the England-wide specification by 1 April 2010.
- 1.6 Travel Concession Authorities (TCAs) are responsible for administering concessionary travel schemes in their area, and are responsible for producing passes. Many TCAs have joined together to form "schemes". In such cases, the responsibility to issue passes may have been delegated to a single lead TCA or an agent working on the scheme's behalf.
- 1.7 Whilst all TCAs are responsible for producing ITSO compliant passes, very few are ITSO members or have access to their own HOPS. To allow these "non-ITSO smart" TCAs to produce passes, the Department is funding a company called ITSO Services Ltd (ISL) to carry out most ITSO functions on their behalf.

- 1.8 In 2006, the Department put in place a number of Framework Agreements which TCAs could use to produce their passes. These helped to ensure that TCAs could issue new passes to all concessionaires before the start of the England-wide concession. These Framework Agreements will come to an end in September 2009 and no new call-off contracts will then be possible.
- 1.9 Following the end of the Framework Agreements, TCAs will need to make their own arrangements for pass production. **They may wish to use this technical specification as the basis for their own procurement, though we would recommend that they should adapt it to meet their particular circumstances.**

### ITSO Services Ltd (ISL)

- 1.10 In order to produce ITSO compliant smartcards a TCA would normally need to become an ITSO Member and obtain a back office system (known as an AMS-HOPS) to deal with all electronic transaction data and smartcard product keys etc. However, in order to remove from TCAs the burdens associated with this, the Department is funding a company called ITSO Services Ltd (ISL) to carry out these and other functions on behalf of non-ITSO smart<sup>1</sup> TCAs.
- 1.11 ISL is a not for profit company wholly separate from ITSO Ltd. Its purpose is to provide services to TCAs who need to produce ITSO compliant concessionary travel passes but who are not currently ITSO smart, which is most TCAs at present.
- 1.12 ISL is providing the following services to TCAs who “sign up” with ISL:
- ITSO Membership – ISL will secure and maintain ITSO membership on behalf of the TCAs.
  - Licensed Operator – ISL will obtain and maintain ITSO licensed operator status on behalf of the TCAs.
  - User Support and Guidance - ISL will provide a comprehensive range of Support and Guidance to the TCAs.
  - ISAM Provision - ISL will source, personalise and distribute ISAMs to each TCA’s selected pass service bureau(s) (see section on Provision of ISAMs starting at paragraph **Error! Reference source not found.**).

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<sup>1</sup> In this Specification, "ITSO smart" means a TCA which is a member of ITSO and has the necessary HOPS provision to be able to deal with ITSO data transactions (either on its own or in a scheme with other TCAs).

- Asset Management Service – ISL will provide an overlay of security through the direct management of distributed assets (e.g. ISAMs) so that the environment within which the TCAs work is protected.
- Concessionary Transaction Collection and Depository – ISL will store transaction data for each TCA for a maximum of seven years and will migrate this data to the TCA once the TCA has established its own smart scheme.
- Hot List Processing - ISL will implement the agreed hot-listing strategy for the England-wide concession, for both smart and non-smart TCAs (see section on Stoplisting/Hotlisting starting at paragraph **Error! Reference source not found.**).
- Customer Help Desk - ISL will operate a helpdesk within the hours of 9am to 5pm Monday to Friday (excluding English bank holidays) providing support to TCAs who have queries about ITSO and ITSO processes.

## 2. Fundamental requirements

### Pass design

- 2.1 Passes must comply in all aspects with the Department's published design specification as set out in the *Concessionary Bus Travel (Permits)(England) Regulations 2008 (SI No 417, 2008)* as amended by the *Concessionary Bus Travel (Permits)(England) (Amendment) Regulations 2008 (SI No 2091, 2008)* and any further legislation relevant at the time at which the passes are produced.
- 2.2 The Regulations set out the position and format of the standard elements of the pass - the holder's photograph, their name, the expiry date, the hologram, the unique identifying number, the ITSO logo, the rose logo, and the ribbon background. They also require passes to be ITSO compliant smartcards.
- 2.3 All concessionary travel passes issued from April 2008 onwards, outside London, must meet the specifications set out in these Regulations. In London, Freedom Passes are initially being re-stickered with the rose logo. However, all London passes will need to comply with the England-wide specification by 1 April 2010.

### ITSO Specification

- 2.4 Passes shall have a contactless smart card interface and be manufactured and issued in accordance with the ITSO Specification to ensure interoperability of the passes across England when used 'electronically'.
- 2.5 This Technical Specification does not go into detail with regard to the ITSO specification, other than to give an overview of the requirements. Details of the ITSO specification can be found at [www.itso.org.uk](http://www.itso.org.uk) along with information about how ITSO operates, including the Certification and Licensing procedures.
- 2.6 Version 2.1.3 of the ITSO specification is the minimum for supporting English National Concessionary reimbursement messaging, so 2.1.3 or later should be used.
- 2.7 As well as encoding passes to the ITSO specification and the Department's standard design, the passes shall also conform in all respects to the ITSO specification requirements. All supplied cards shall be of a type approved and

certified by ITSO and all supplied equipment shall be fully compliant with the ITSO specification and also be fully certified by ITSO.

### **3. SERVICES**

#### **Overall Requirements**

- 3.1 All passes shall be manufactured and issued in accordance with the ITSO Specification.
- 3.2 Each pass will be coded with the ITSO Shell and as many ITSO Products (IPEs) as are required to deliver both the England-wide entitlement (age-related/disability-related as appropriate) as well as any concessionary enhancement offered locally by a TCA (eg for additional peak or evening periods or additional modes besides buses).
- 3.3 In addition, passes shall be issued with the 'National STR' placeholder IPE. If requested by the TCA they shall also be issued with a local TYP2 STR and, where relevant, TYP0 IPE to facilitate future multi-application.
- 3.4 Any pass producer that does not comply, or only partially complies with the requirements of the ITSO specification, shall be deemed non compliant. All relevant equipment and software shall be fully compliant with the requirements of the latest Version of the ITSO specification, plus any specific ISADs approved by the ITSO Board after publication, or any current later versions of the ITSO Specification.

#### **Unique Identifying Numbers (OIDs and CPICCs)**

- 3.5 In order to allow TCAs the freedom to implement their concessionary travel services either independently or by grouping with other TCAs into schemes, unique OIDS have been allocated to each TCA or TCA-group 'Scheme' for use in identifying shell and product ownership.
- 3.6 Also, the ITSO data element "Concessionary Pass Issuer Cost Centre", referred to as CPICC throughout this Technical Specification, has been used to allocate a unique cost centre reference number to each TCA (including each individual TCA within a group).
- 3.7 For the England-wide concession:

- each TCA has its own CPICC
- each TCA or Scheme has its own Product OID
- each ITSO smart TCA or Scheme has its own unique Shell OID
- each TCA which is not ITSO smart and which uses the services of ISL has a standard Shell OID, number 0100 or 0110.

3.8 The list of OIDs and CPICCs is owned by ITSO Ltd and they are responsible for controlling the list. An up to date list is available on the ITSO web-site at [www.itso.org.uk](http://www.itso.org.uk)

3.9 These OIDs and CPICCS will need to be encoded on the chip inside all concessionary travel passes. Passes must not be issued with OIDs/CPICCs that are not on the authorised list. We recommended that all pass producers should cross reference the information supplied by TCAs against the list of OIDs and CPICC published on the ITSO web-site at [www.itso.org.uk](http://www.itso.org.uk) as part of their QA process.

3.10 It should also be noted that PTYP, Entitlement Code (controlling acceptance periods) and Concessionary Class are also critical items of coding to be followed carefully by reference to the list. We strongly recommend that passes with additional entitlements have these encoded electronically to allow smart readers to be able to differentiate them and to prevent the need for passes to be replaced in the event of a scheme becoming smart.

### **Provision of data between TCAs and pass producers**

3.11 The pass production service is required to deliver end to end production of passes from a range of input data from a number of sources, including, but not limited to:

- Electronic Data from TCAs in the Department recommended format (see Annex A)
- Electronic Data from TCAs in proprietary format containing as a minimum the data elements specified by the Department as the basic requirement
- Paper based forms with applicant's photo attached provided by TCAs
- A combination of the above paper and electronic solutions.

- 3.12 Alternatively, TCAs may require pass producers to gather data on concessionaires.
- 3.13 Any specific pass issued must be traceable to the batch and data-record of origin via the log of records supporting the manufacturing process, together with evidence of passes subject to quality control failure measures (eg re-print, re-code, pass destroyed etc).
- 3.14 An electronic data record shall be provided back to the TCA suitably updated to show which pass has been issued to which applicant in terms of linking electronic and printed serial numbers and meeting the ITSO specification as to data-encoding and data-messages.
- 3.15 It is a requirement, as a minimum, to hand over passholder data to the TCA (and it is not deemed to have been handed over until acknowledged as received) once every pass-production working day in the minimum XML or CSV data-requirement format as specified by the TCA. This is in addition to fulfilling the ITSO-messaging requirements where pending transmission of messages, all data-records shall be stored on the Perso POST SAMs and not deleted until safely acknowledged by the designated HOPS. Data covered by the requirements of the ITSO specification shall be transferred via the POST/HOPS interface, and not separately via any other (proprietary) link.
- 3.16 There is no obligation to provide the XML/CSV copies of the data where the pass production system automatically populates a passholder database of the TCAs own choosing procured separately by the TCA or provided by the pass producer. However it is a requirement when providing such data as an extract (rather than directly populating a database) to provide it in the specified interchange format (or in a format as otherwise agreed between the pass provider and the TCA) as long as the solution is endorsed by the relevant TCA and at no extra charge.
- 3.17 These requirements are stipulated to ensure that a TCA handling their own queries, perhaps including replacement of lost/stolen passes from their own hardware, are able to do so using a synchronised, contemporaneous passholder database even while the bulk pass production service is ongoing.
- 3.18 This minimum data-interfacing requirement associated with pass production and described in the above paragraphs is separate from, and additional to, any full ongoing database management service contracted by TCAs.

## Card Media Types to be Supported

3.19 The ITSO specification includes the following card media types:

- Generic Microprocessor (including JCOP31 and JCOP41)
- Mifare Ultralight
- Innovision Jewel
- Oyster
- Mifare DESfire
- Calypso

3.20 For the purpose of this Technical Specification, the following ITSO card (CMD) types are valid choices for TCAs:-

- Generic Microprocessor (CMD2 including JCOP31 and JCOP41 variants thereof, for example)
- Mifare DESfire (CMD7)
- Calypso (CMD8)

## ITSO Products to be Supported

3.21 The ITSO specification includes the following product types:

- TYP0 Private IPE
- TYP2 Stored Travel Rights for national & local use
- TYP3, TYP17 Loyalty
- TYP4, TYP5 Charge To Account
- TYP14, TYP16 Entitlement & ID
- TYP22, TYP23, TYP24 Travel Tickets (full size media)
- TYP25 Travel related voucher
- TYP26 Open System Tolling

- TYP27, TYP28, TYP29 Travel Tickets (small memory media)

### Minimum IPEs to be Supported

3.22 Of the IPEs listed above, the following IPEs shall be included at pass production:

- TYP0: A private IPE may be required by some TCAs in order to support non transport or legacy smartcard applications. The details of any such products will require the pass providers to agree technical details directly with any TCAs that have such a requirement;
- TYP2: ITSO mandate that all full sized (ie not small memory) passes shall contain the National Stored Travel Rights (STR) product as a 'placeholder' to reserve pass-space. A local TYP2 may also be required in addition to the national placeholder by TCAs and in this case this will be provided by the pass provider as required;
- TYP14: This IPE will be included where the pass holder has qualified for an extra local 'companion' concession so that it can work in the 'home' area for the additional companion but NOT elsewhere, or where the TCA requires an additional local concession to be provided explicitly in the form of an additional product, rather than relying on differentiating the concession by means of the CPICCs in the TYP16;
- TYP16: This IPE will be included on all passes and contains the English National Concession Product and should be coded according to the OID/CPICC list.

### ITSO Log Requirements

3.23 Passes shall be encoded such that that the pass's last directory entry is reserved for use as an ITSO Log and that 2 sectors are reserved for the cyclic or so-called 'normal log' use.

### Perso ITSO Secure Access Module [ISAM] Requirements

3.24 For TCAs using ISL services, the pass provider will not be responsible for the provision of Perso ISAMs for the purposes of enabling smart card issue.

3.25 Pass providers will require the necessary privileges to be assigned to them by the appropriate TCAs (ie Shell and IPE create capabilities) or their Agent.

## **Data Storage and Forwarding of Shell and Product Creation Records**

3.26 Independent of any proprietary data storage methods that pass providers may utilise, pass providers shall use the ITSO loss-less data storage and transfer method. For guidance the following functions are particularly relevant to this requirement:

- All creation records shall be stored within the Perso ISAM.
- All creation records shall be promptly despatched to the HOPS either using an always-connected link or by at least once hourly polling.
- No creation record is to be deleted until proper acknowledgement is received from the HOPS.
- The Perso ISAMs shall be capable of receiving ITSO update messages and lists (as specified within the ITSO specification) and applying them in situ without special engineering processes. In particular, in the event that not all TCA product variations have been agreed at the time production commences or minor amendments are required to IPE embodiments, it shall be possible to apply the resulting ITSO update frames without disruption to the pass production process and at no additional cost.
- The pass production equipment shall, in conjunction with the Perso ISAM, be able to generate messages detailing passes that have failed at some point during the production process. These messages are required to be transmitted to the HOPS for the purpose of marking the appropriate HOPS database entries and, where necessary, adding the pass details to the HOPS maintained hot-list.

## **Supply Of Test Passes & Pre-production Audit Process**

3.27 Prior to the start of bulk pass production it is a requirement that a set of sample passes shall be supplied to the TCA or its agent in order to confirm that the Shell and IPE Embodiments are correctly encoded and the design specifications met. Likewise, throughout production, sample passes may be requested for inspection. All such passes shall:

- Be supplied at the pass provider's cost
- Be produced using live English Concession keys, and any 'local' TCA keys in the event of an extra TYP0, TYP14 local concession or TYP2 local STR being supplied.























00001500 – 00001999

photos1500 etc.

### **Return Of Database From Card Bureau To Local Authority After Pass Issue**

It is intended that each submitted database will be returned with two previously blank columns populated – Pass Issue Date and Printed Pass Number, as well as the originally submitted data. These will be presented in XML or CSV format upon request.

## ANNEX C – GLOSSARY AND DEFINITIONS

Batch	A collective sequence of events – usually referring to a series of pass applications grouped under an identity ‘header’ where each pass application or data-item is a pass ‘detail’. Also refers to a group of passes to be issued together, because they are of similar type or were requested together; important for tallying output counts to original input request
Passholder	The person in possession of the pass, who may be a concessionaire
CHD	Check Digit
CMD/Card	Smart Card ‘Customer Media Definition’. A Card is the physical media on to which the Pass is added.
CPICC	Concessionary Pass Issuing Cost Centre
Cyclic Log	The normal log on a smart card used to store transient tickets, when details of a journey need to be recorded on the card
HOPS	Host Operator Processing System, colloquially known as the back office for the ITSO specification
HSAM	HOPS Security Access Module
IPE	ITSO Product Entity, a template definition of a ticketing product to be stored in the ITSO Shell
ISAD	ITSO Specification Amendment as approved by the ITSO Board and the Department
ISAM	ITSO Security Application Module (usually as used in a POST if not referred to as a Perso ISAM or HSAM) used to hold keys and encrypt/process/store messages e.g. pending transmission to the HOPS or on receipt from it
ISMS	ITSO Security Management Service where products are registered and secure keys produced for routeing via a schemes AMS-HOPS to POSTs
ISSN	International banking standard card numbering master

ITSO	ITSO Ltd, formerly Integrated Transport Smart Card Organisation
Key	Cryptography to secure smart card products and messages, usually diversified with the card number to guarantee uniqueness
Media	Usually the CMD or smart card
Mifare	Proprietary smart card type [Philips]
OID	Operator Identity/Identifier
Pass	The England Concessionary Travel Pass, which will reside on the Card.
Perso ISAM	ITSO Security Application Module capable of Personalisation (i.e. creating ITSO Shells on CMDs)
POST	Point of Service [or Sale] Terminal e.g. a Bus Electronic Ticket Machine (ETM), vending device, point of sale
Scheme	The single or multiple groupings of TCAs to form a local scheme. A Scheme may also be the TCA.
Shell	Special term for the ITSO application containing the directory entries and ITSO products etc
STR	Stored Travel Rights – ITSO’s definition of stored value [IPE TYP2]
TCA	Travel Concession Authority – the local government authority responsible for administrating Concessionary Travel. A TCA may also be the TCA.
The Department	Department for Transport
TYP	The ticket template type defined by ITSO (e.g. Identity, Travelcard, Carnet)

## **ANNEX D – SUPPLIER INFORMATION PACK**

Attached as Excel File