

Certificate No. C – 00189

ITSO Certificate of Compliance

**To: Cubic Transportation Systems Limited
AFC House, Honeycrock Lane, Salfords, Surrey RH1 5LA, UK**

**For: Cubic IDP3B PVAL POST
(TR3 Reader version 2.5.8; Gate version S11)**

**This is to certify that the above product has been tested as required by
ITSO for compliance against ITSO TS 1000 Specification Version: 2.1.4
Corrigendum 9**

Test Report Ref: *TfL PVAL POST Addition of H3 ISAM Support_Final*

**This product supports the functions: POST. It communicates within an
ITSO environment as listed in Schedule A of this Certificate.**

**This product may only be used by ITSO Licenced Members complying
with the conditions and constraints listed in Schedule B.**

Signed for and on behalf of ITSO :



Title: Chief Executive Officer

Dated : 13/02/2019

Certificate Valid until : 12/02/2026

Schedule A

List of all Customer Media, IPE's and functions that were included in the testing procedure.

ITSO Manufacturer Id.: 000121

The Cubic Post v.2.5.8 infrastructure is unchanged since v2.4.8. The PVAL Reader (B-directional) consists of a TR3 and an MM6. The TR3 is where the card is presented by the passenger and this interfaces to the MM6.

The MM6 which interfaces to the Gate Host performs all of the ITSO processing. The Cubic supplied ITSO Certification tool for this GATE Reader is supplied with the appropriate Gate Host and back office (Station Computer and Data Gathering Centre) software.

The Cubic ITSO Passenger Validator follow the same generic architecture for the Reader, however due to the limited external peripherals required (display, input device) it is possible to use the Reader hardware as the sole basis for the Passenger Validator device. This allows the separate Host Device to be removed from the tiered architecture.

The removal of the Host Device in this fashion does not alter the segregation of ITSO functionality between the respective components.

- ITSO Message Server – message processor between the Reader and the HOPS. All ITSO transactions go direct from the Reader to the ITSO Message Server.
- Host – e.g. the PVAL itself; the device that contains and manages the smartcard Reader and communicates with the Station Computer to relay transactions, operational commands, status and operating data (e.g. fare tables)
- Reader – the component of the system that interacts with the card. The reader is intelligent, such that it includes processing application logic as well as the smart card RF interface.

This **POST** communicates with **CMD2 and CMD7**.

The IPEs supported are represented by the following table.

IPE	Create	Modify	Accept	Delete*
TYP 14 – Entitlement			✓	
TYP 16 – ITSO ID and Entitlement			✓	
TYP 22 – Area based ticket (FR 2)	✓		✓	✓
TYP 23 – Journey Ticket (FR 2)	✓		✓	✓
TYP 24 – Pre-Defined Specific Journey Ticket	✓		✓	✓
Transient Ticket (FR 3)			✓	
Transient Ticket (FR 4)	✓		✓	

*Deletion of products is via expiry of old products, not manual deletion.



Action & Hot list support:

- Hot Lists (Block Shell and Block IPE) are supported; and
- Action Lists:
 - create IPE (TYP 22, 23 and 24);
 - Un-hotlist Shell
 - Update IPE: Add stored rides or journeys (TYP 22)
 - Update IPE: Add Stored Rides or Journeys and amend expiry date (TYP 22)
 - Update IPE (TYP 24): Amend JourneysRemaining and TransfersRemaining.



Schedule B

List of the conditions and/or constraints applied by ITS.

This POST achieved the following benchmark timing:

- Transient Ticket Record Creation

	Average over tests
CMD2	398mS
CMD7	354mS

- Value Record Data Group Modification

	Average over tests
CMD2	546mS
CMD7	383mS