

DIN CEN/TS 16702-1:2020-04 (E)

Electronic fee collection - Secure monitoring for auto nomous toll systems - Part 1: Compliance checking; English version CEN/TS 16702- 1:2020

| Contents | Page |
|---|-------------|
| European foreword..... | 4 |
| Introduction | 5 |
| 1 Scope..... | 7 |
| 2 Normative references..... | 7 |
| 3 Terms and definitions | 9 |
| 4 Abbreviations | 12 |
| 5 Processes..... | 13 |
| 5.1 Overview | 13 |
| 5.2 Profiles..... | 15 |
| 5.3 Itinerary Freezing..... | 20 |
| 5.3.1 Introduction..... | 20 |
| 5.3.2 Generate Itinerary | 21 |
| 5.3.3 Real-time freezing..... | 22 |
| 5.3.4 Freezing per declaration | 23 |
| 5.4 Checking of Itinerary Freezing..... | 23 |
| 5.4.1 Introduction..... | 23 |
| 5.4.2 Observing a vehicle | 24 |
| 5.4.3 Retrieving Proof of Itinerary Freezing (PIF)..... | 24 |
| 5.4.4 Checking PIF against Observation..... | 25 |
| 5.5 Checking of Toll Declaration | 26 |
| 5.5.1 Introduction..... | 26 |
| 5.5.2 Retrieve Itinerary Data | 26 |
| 5.5.3 Check Itinerary Consistency..... | 26 |
| 5.5.4 Checking Toll Declaration against Itinerary | 27 |
| 5.6 Inconsistency report..... | 27 |
| 5.7 Providing EFC Context Data..... | 27 |
| 5.8 Key Management..... | 28 |
| 5.8.1 Introduction..... | 28 |
| 5.8.2 Requirements..... | 28 |
| 6 Transactions | 29 |
| 6.1 Introduction..... | 29 |
| 6.2 Description of Itinerary Data..... | 31 |
| 6.2.1 Introduction..... | 31 |
| 6.2.2 Itinerary Leaf..... | 32 |
| 6.2.3 Itinerary Record Data Elements | 33 |
| 6.3 Retrieving PIF in real-time (DSRC Transaction)..... | 35 |
| 6.3.1 Transactional Model | 35 |
| 6.3.2 Syntax and Semantics | 36 |
| 6.3.3 Security | 38 |
| 6.4 Toll Declaration | 38 |
| 6.4.1 Transactional Model | 38 |
| 6.4.2 Syntax and semantics..... | 39 |

| | | |
|-------|--|----|
| 6.4.3 | Itinerary Trunk | 39 |
| 6.4.4 | Security..... | 41 |
| 6.5 | Back end data checking | 41 |
| 6.5.1 | Introduction | 41 |
| 6.5.2 | Transactional model..... | 41 |
| 6.5.3 | Checks of the Itinerary..... | 43 |
| 6.5.4 | Syntax and semantics | 44 |
| 6.5.5 | Security..... | 44 |
| 6.6 | Inconsistency Report..... | 44 |
| 6.6.1 | Transactional model..... | 44 |
| 6.6.2 | Syntax and semantics | 45 |
| 6.6.3 | Security..... | 46 |
| 6.7 | Providing EFC Context Data | 46 |
| 6.7.1 | Transactional model..... | 46 |
| 6.7.2 | Syntax and semantics | 47 |
| 6.7.3 | Security..... | 47 |
| 7 | Security..... | 47 |
| 7.1 | Security functions and elements..... | 47 |
| 7.1.1 | Hash functions | 47 |
| 7.1.2 | MAC | 47 |
| 7.1.3 | Digital signatures..... | 48 |
| 7.1.4 | Public Keys, Certificates and CRL..... | 48 |
| 7.2 | Key Management..... | 48 |
| 7.2.1 | Key Exchange between Stakeholders..... | 48 |
| 7.2.2 | Key generation and certification | 49 |
| 7.3 | Trusted Recorder and SM_CC Verification SAM characteristics | 49 |
| 7.3.1 | Introduction | 49 |
| 7.3.2 | Trusted Recorder..... | 50 |
| 7.3.3 | SM_CC Verification SAM | 51 |
| | Annex A (normative) Data type specification..... | 52 |
| | Annex B (normative) Protocol Implementation Conformance Statement Proforma | 53 |
| | Annex C (informative) Example transactions..... | 62 |
| | Annex D (informative) Relationships to other standards..... | 69 |
| | Annex E (informative) Essentials of the SM_CC concept | 71 |
| | Annex F (informative) Use of this document for the EETS..... | 85 |
| | Bibliography | 87 |