ISO 12855:2025-04 (E)

Electronic fee collection - Information exchange between service provision and toll charging

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **2**

4 Symbols and abbreviated terms **3**

5 Architectural concepts and information exchanges **4**
5.1 Main roles in the toll charging environment 4
5.2 Information exchange between toll charger and toll service provider 5
5.2.1 General 5
5.2.2 Basic protocol mechanisms 6
5.2.3 Exchange trust objects functionality 7
5.2.4 Originate EFC context data functionality 8
5.2.5 Manage exception list functionality 8
5.2.6 Report abnormal behaviour functionality 9
5.2.7 Report toll declarations functionality 9
5.2.8 Report billing details functionality 9
5.2.9 Report payment claim functionality 10
5.2.10 Exchange quality assurance parameters functionality 11
5.2.11 Report CCC event functionality 11
5.2.12 Provide user details and user list information functionalities 11
5.2.13 Report payment announcement functionality 12
5.2.14 Provide contract issuer information functionality 13
5.2.15 User complaint and response functionality 13
5.2.16 Provide media settlement data functionality 13
5.2.17 Report enforcement status functionality 14
5.3 Use of private values and extensions 14

6 Computational specification **14**
6.1 Overview 14
6.2 Application protocol data units 19
6.2.1 General 19
6.2.2 Application protocol control information 20
6.2.3 Application data units 24
6.2.4 ADU identification 26
6.3 Common data types 27
6.3.1 ADU action codes 27
6.3.2 User identification 28
6.3.3 Version and validity of information 29
6.3.4 Textual descriptions 30
6.3.5 Authentication of data elements 30
6.3.6 Payment amount 33
6.3.7 Geographical points and areas 33
6.3.8 Textual descriptions or attachments 35
6.3.9 Identification of toll events 36
6.3.10 Time 36
6.4 `RequestAdu` data structure 37
6.4.1 Requesting information 37
6.4.2 Generic request 37

6.4.3 Request for an exception list ... 38
6.4.4 Request for trust objects ... 39
6.4.5 Request for toll declarations ... 41
6.4.6 Request for user details ... 42
6.4.7 Request for CCC events ... 45
6.4.8 Request for a list of associated users ... 46
6.4.9 Request for media settlement data ... 47
6.4.10 Request for quality assurance parameters ... 48
6.4.11 Request for an enforcement status ... 49
6.5 `AckAdu` data structure ... 52
6.6 `StatusAdu` data structure ... 78
6.7 `TrustObjectAdu` data structure ... 80
6.7.1 General ... 80
6.7.2 Certificate object ... 83
6.7.3 Public key object ... 84
6.7.4 DSRC key object ... 85
6.7.5 DSRC key reference ... 89
6.7.6 Other trust object ... 90
6.8 `EfcContextDataAdu` data structure ... 90
6.8.1 General ... 90
6.8.2 The `EntityOverview` data structure ... 94
6.8.3 Toll context properties ... 99
6.8.4 General toll context data ... 136
6.8.5 Meshed toll context data ... 157
6.9 `ExceptionListAdu` data structure ... 174
6.10 `ReportAbnormalBehaviourAdu` data structure ... 184
6.11 `TollDeclarationAdu` data structure ... 187
6.12 `BillingDetailsAdu` data structure ... 199
6.12.1 General ... 199
6.12.2 Usage information ... 205
6.12.3 Associated event data ... 225
6.12.4 Discounts ... 236
6.13 `PaymentClaimAdu` data structure ... 236
6.14 `ReportQaAdu` data structure ... 242
6.15 `ProvideUserDetailsAdu` data structure ... 246
6.16 `ReportCccEventAdu` data structure ... 254
6.17 `ProvideUserIdListAdu` data structure ... 255
6.18 `PaymentAnnouncementAdu` data structure ... 256
6.19 `ContractIssuerListAdu` data structure ... 260
6.20 `UserComplaintAdu` data structure ... 263
6.21 `UserComplaintResponseAdu` data structure ... 266
6.22 `MediaSettlementDataAdu` structure ... 268
6.23 `EnforcementStatusAdu` data structure ... 270

7 Transfer mechanisms and supporting functions ... 276
7.1 Transfer mechanisms ... 276
7.2 Secure communication channel ... 277
7.3 Supporting functions ... 277
7.3.1 Communication services ... 277
7.3.2 Authenticators ... 277
7.3.3 Signature and hash algorithms ... 278
7.3.4 Key encryption ... 278

Annex A (normative) **Data type specifications ... 279**

Annex B (informative) **Example enforcement process applyingstandardized APDU exchanges ... 280**

Annex C (informative) **Example of data flows in a toll domain ... 284**

Annex D (informative) **Example of rounding differences ... 287**

Annex E (informative) **Fee calculation using EFC context data ... 291**

Bibliography ... 295