DIN CEN/TS 16331:2012-05 (E)

Electronic fee collection - Interoperable application profiles for autonomous systems; English version CEN/TS 16331:2012

Contents

Page

Foreword 5

Introduction 6

1 Scope 8

2 Normative references 9

3 Terms and definitions 10

4 Abbreviations 11

5 General profile independent IAP requirements 11
5.1 The principle defining EFC cluster supported regime characteristics using profiles 11
5.2 Toll Charger requirements 12
5.2.1 General 12
5.2.2 Toll Charge Back End requirements 13
5.3 Toll Charger RSE requirements 13
5.4 Service Provider requirements 13
5.4.1 General 13
5.4.2 Service Provider Back End Requirements 14
5.4.3 Front End specific requirements 14

6 The use of conditional requirements 16

7 Standardised profiles 16
7.1 General 16
7.2 How to use standardised profiles 21
7.2.1 General 21
7.2.2 SR (Sectioned Roads tolling) 21
7.2.3 SD (Sectioned Roads tolling or Distance based Area pricing) 21
7.2.4 OSD (Overlapping Sectioned Roads tolling or Distance based Area pricing) 22
7.2.5 OSDT (Overlapping Sectioned Roads tolling or Distance or Time based Area pricing) 22
7.2.6 OSDTC (Overlapping Sectioned Roads tolling or Distance or Time based Area or Cordon pricing) 22
7.3 Front End classes selection 22

Annex A (normative) Conditional profile requirements 23

A.1 General 23
A.2 Conditional requirements to be observed by the Toll Charger 23
A.2.1 When using contextInterrelations 23
A.2.2 When using roadSectionPricing 23
A.2.3 When using arePricingDistance 23
A.2.4 When using roadNetworks 23
A.2.5 When using arePricingTime 23
A.2.6 When using cordonPricing 23
A.2.7 When using agnssGDFLayout or tollContextLayout 24
A.2.8 When using tariffTable 24
A.2.9 When using tariffClassDefinition 24
A.2.10 When using localVehicleClassDefinition 24

A.2.11 When using timeClassDefinition ... 24
A.2.12 When using relativeTimePeriods ... 24
A.2.13 When using classesSetExternally ... 25
A.2.14 When using userClassdefinition ... 25
A.2.15 When using actualNumberOfPassengers ... 25
A.2.16 When using SectionLayout ... 25
A.2.17 When using AreaLayout ... 25
A.2.18 When using roadNetwork ... 25
A.2.19 When using chargeReportingEvents ... 25
A.2.20 When using chargeReportConfiguration ... 25
A.3 Conditional requirements to be observed by the Service Provider ... 27
A.3.1 When using tollDeclarationADU ... 27
A.3.2 When using combinedChargeReportContexts ... 28
A.3.3 When using precedenceLevel ... 28
A.3.4 When using roadSectionPricing ... 28
A.3.5 When using areaPricingDistance ... 29
A.3.6 When using areaPricingDistance.roadNetworks ... 29
A.3.7 When using areaPricingTime ... 29
A.3.8 When using cordonPricing ... 29
A.3.9 When using tariffTable ... 29
A.3.10 When using tariffClassDefinition ... 29
A.3.11 When using localVehiceClasses ... 29
A.3.12 When using timeClasses ... 29
A.3.13 When using timeClasses.ordinalElements.relativeTimeClasses ... 30
A.3.14 When using timeClasses.nominalElements.classesSetEexternally ... 30
A.3.15 When using userClasses ... 30
A.3.16 When using tollContextLayout ... 30
A.3.17 When using chargeReportingEvents ... 30
A.3.18 When using chargeReportConfiguration ... 30
A.4 Conditional requirements to be observed by the Front End ... 30
A.4.1 When using in the ChargeReport all other elements than usageStatement ... 30
A.4.2 When using in the ChargeReport the usageStatementList ... 31
A.4.3 When using aggregatedFee ... 31
A.4.4 When using aggregatedSingleTariffClassSession ... 31
A.4.5 When using listOfChargeObjects ... 31
A.4.6 When using listOfRawUsageData ... 31

Annex B (normative) The use of identifiers ... 32

B.1 General ... 32
B.2 Identifiers specified in CEN ISO/TS 13141 ... 36
B.3 Identifiers specified in CEN ISO/TS 17575-1 ... 36
B.4 Identifiers specified in CEN ISO/TS 17575-3 ... 38
B.5 Identifiers specified in CEN ISO/TS 17575-4 ... 39
B.6 Identifiers specified in CEN ISO/TS 12813 ... 39
B.7 Identifiers specified in EN ISO 12855 ... 39

Annex C (normative) Protocol Implementation Conformance Statement ... 40

C.1 Guidance for completing the PICS proforma ... 40
C.1.1 Purposes and structure ... 40
C.1.2 Abbreviations and conventions ... 40
C.1.3 Instructions for completing the PICS proforma ... 42
C.2 PICS proforma for the Toll Charger's Back-end ... 42
C.2.1 Identification of the implementation ... 42
C.2.2 Identification of the protocol ... 45
C.2.3 Global statement of conformance ... 45
C.2.4 Profiles ... 45
C.2.5 EN ISO 12855 ... 45
C.3 PICS proforma for the Toll Charger RSE ... 49
C.3.1 Identification of the implementation ... 49
C.3.2 Identification of the protocol ... 51

C.3.3 Global statement of conformance 51
C.3.4 Support for CCC and LAC Applications 51
C.4 PICS proforma for the Service Provider Back-end 53
C.4.1 Identification of the implementation 53
C.4.2 Identification of the protocol 55
C.4.3 Global statement of conformance 55
C.4.4 Profiles 56
C.4.5 EN ISO 12855 56
C.5 PICS proforma for the Service Provider Front End 60
C.5.1 Identification of the implementation 60
C.5.2 Identification of the protocol 62
C.5.3 Global statement of conformance 62
C.5.4 Front End Class 63
C.5.5 CEN ISO/TS 17575-1 Charge Report - Usage Statement 63
C.5.6 CEN ISO/TS 17575-3 -Charge Report Configuration 63
C.5.7 Support for CCC and LAC Applications 64

Annex D (informative) IAP taxonomy and numbering 65

D.1 General 65
D.2 Taxonomy of Interoperable Application Profiles (IAP) 65
D.2.1 Specified profiles 65
D.2.2 Future new profiles 66
D.3 IAP numbering and referencing 66
D.3.1 IAP numbering 66
D.3.2 IAP referencing 66

Annex E (informative) How to define new profiles - the profile creation principle 67

Bibliography 68