INTERNATIONAL STANDARD

ISO 16410-1

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Electronic fee collection — Evaluation of equipment for conformity to ISO 17575-3 —

Part 1:
Test suite structure and test purposes

Perception du télépéage — Évaluation de la conformité de l'équipement à l'ISO 17575-3 —

Partie 1: Structure de la suite d'essais et objectifs des essais

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

This first edition of ISO 16410-1 cancels and replaces the first edition of ISO/TS 16410-1:2011, which has been technically revised.

The following changes have been made:

— this document has been converted from a Technical Specification to an International Standard;

— amendments have been made to reflect changes to the underlying base standards, especially ISO 17575 (all parts);

— major changes have been made regarding:

  — data element changes introduced by ISO 17575-1 and ISO 17575-3;

  — new test purposes related to:

    — protocol version handling;

    — toll context partitions;

    — fee calculation algorithm;

    — rounding rules;

    — alternative currency;

  — test purposes related to the following have been removed:

    — communications services;

— rules with respect to support of context data which are no longer required by ISO 17575-3;

— the terms and definitions have been revised;

— editorial and formal corrections, as well as changes to improve readability, have been made.

Introduction

This document is part of a series of standards that supports interoperability of autonomous EFC-systems. Autonomous systems use satellite positioning, often combined with additional sensor technologies such as gyroscopes, odometers and accelerometers, to localize the vehicle and to find its position on a map containing the charged geographic objects, such as charged roads or charged areas. From the charged objects, the vehicle characteristics, the time of day and other data that are relevant for describing road use, the tariff and ultimately, the road usage fee is determined.

Autonomous on-board equipment (OBE) operates without relying on dedicated road-side infrastructure by employing wide-area technologies such as global navigation satellite systems (GNSS) and cellular communications networks (CN). Therefore, autonomous systems may also be referred to as GNSS/CN systems.

Within the series of EFC standards, this document defines tests for conformity evaluation of Front End and Back End that comply with the requirements towards the context data specified in ISO 17575-3.

This document is based on

— ISO 17575-3, and

— the ISO 9646 series on conformance test methodology.

Electronic fee collection — Evaluation of equipment for conformity to ISO 17575-3 —

Part 1:
Test suite structure and test purposes

1 Scope

The ISO 16410 series provides a suite of tests in order to assess compliance of the Front End and Back End behaviours in relation to the requirements in ISO 17575-3. This document contains the definition of such tests in the form of test purposes, listing the required initial conditions, references and individual steps in a structured textual manner. ISO 16410-2 contains the identical tests written in testing and test control notation version 3 (TTCN v3).

The test purposes defined in this document reflect the structural and semantic requirements stated in ISO 17575-3.

— Presence/absence of particular data elements (see ISO 17575-3:2016, 8.5.5);

— Semantics related to various data elements, e.g.:

  — Activation of context data and handling multiple contexts (see ISO 17575-3:2016, 8.3);

  — Handling the precedence and priority levels (see ISO 17575-3:2016, 8.5.2 to 8.5.4);

  — Uniqueness of relevant data elements (see ISO 17575-3:2016, 8.5.2 to 8.5.4);

  — Correct definition of the charge objects (see ISO 17575-3:2016, 8.5.4);

— Fee calculation algorithm (see ISO 17575-3:2016, 8.5.3.7);

— Security (see ISO 17575-3:2016, 7.2).

With regard to the individual data sets and EFC attributes defined in ISO 17575-3, the test purposes have been organized into the test suite groups, designated for the Front End and Back End respectively.

In addition to the test purposes, this document also provides proforma conformance test report templates for both the Front End and Back End test purposes and an informative statement on the usage of this document for the European electronic toll service (EETS).

For more information regarding the requirements against which the conformance is evaluated in this document, refer to ISO 17575-3.

Testing of the following behaviours and functionalities is outside the scope of this document:

— dynamic behaviour, i.e. sequence of messages and triggering events that must be exchanged/happen to fulfil certain charging scenarios;

— profiles and business logic built on top of particular pricing schemas;

— behaviour invalid of Front End and Back End, BI test purposes are not applicable for any test purpose group (as ISO 17575-3 does not specify behaviour invalid).

2   Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 17575-1, *Electronic fee collection — Application interface definition for autonomous systems — Part 1: Charging*

ISO 17575-3:2016, *Electronic fee collection — Application interface definition for autonomous systems — Part 3: Context data*

3   Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
area charging
charging based on road usage within a given area

[SOURCE: ISO 17575-1:2016, 3.1]

3.2
attribute
addressable package of data consisting of a single data element or structured sequences of *data elements* (3.9)

[SOURCE: ISO 17575-1:2016, 3.2]

3.3
authenticator
data, possibly encrypted, that is used for authentication

[SOURCE: EN 15509:2014, 3.3]

3.4
Back End
part of a back office system interfacing to one or more *Front Ends* (3.11)

[SOURCE: ISO 17575-1:2016, 3.4]

3.5
charge object
geographic or road-related object for the use of which a charge is applied

[SOURCE: ISO 17575-1:2016, 3.5]

3.6
charge report
information containing road usage and related information originated at the *Front End* (3.11)

[SOURCE: ISO 17575-1:2016, 3.6]

3.7
cordon
border line of an area

[SOURCE: ISO 17575-1:2016, 3.7]

3.8
cordon charging
charging for the crossing of a *cordon* (3.7)

[SOURCE: ISO 17575-1:2016, 3.8]

3.9
data element
coded information, which might itself consist of lower level information structures

[SOURCE: ISO 17575-1:2016, 3.9]

3.10
data set
logical set of *data elements* (3.9) with a semantic relation

[SOURCE: ISO 17575-3:2016, 3.10]

3.11
Front End
part of a tolling system consisting of an *OBE* (3.13) and possibly, a *proxy* (3.14) where road tolling information and usage data are collected and processed for delivery to the *Back End* (3.4)

[SOURCE: ISO/TS 19299:2015, 3.17]

Note 1 to entry: The Front End comprises the OBE and an optional proxy.

3.12
layout
technical description of the location of tolled objects including their borders

[SOURCE: ISO 17575-3:2016, 3.12]

3.13
on-board equipment
OBE
all required equipment on-board a vehicle for performing required EFC functions and communication services

[SOURCE: ISO 17575-3:2016, 3.13]

3.14
proxy
optional part of a *Front End* (3.11) that communicates with external equipment and processes the data received into an agreed format to be delivered to the *Back End* (3.4)

[SOURCE: ISO 17575-1:2016, 3.13]

3.15
road section charging
tolling principle where the fee is due if predefined sections of roads are used

[SOURCE: ISO 17575-1:2016, 3.14]

3.16
toll
charge, tax or duty levied in connection to using a vehicle in a *toll domain* (3.20)

[SOURCE: ISO/TS 19299:2015, 3.42]

Note 1 to entry: The definition is the generalization of the classic definition of a toll as a charge, a tax or a duty for permission to pass a barrier or to proceed along a road, over a bridge, etc. The definition also includes fees regarded as an (administrative) obligation, e.g. a tax or a duty.

3.17
tolled area
geographic area where a *toll* (3.16) is charged for road usage

[SOURCE: ISO 17575-3:2016, 3.17]

3.18
toll context
logical view as defined by *attributes* (3.2) and functions of the basic elements of a *toll scheme* (3.22) consisting of a single basic tolling principle, a spatial distribution of the *charge objects* (3.5) and a single behaviour of the related *Front End* (3.11)

[SOURCE: ISO 17575-1:2016, 3.17]

3.19
toll context data
information defined by the responsible toll charger necessary to establish the *toll* (3.16) due for using a vehicle on a particular *toll context* (3.18) and to conclude the toll transaction

[SOURCE: ISO 12855:2015, 3.15]

3.20
toll domain
area or part of a road network where a certain *toll regime* (3.21) is applied

[SOURCE: ISO 17573:2010, 3.18]

3.21
toll regime
set of rules, including enforcement rules, governing the collection of *toll* (3.16) in a *toll domain* (3.20)

[SOURCE: ISO 17573:2010, 3.20]

3.22
toll scheme
organizational view of a *toll regime* (3.21), including the actors and their relationships

[SOURCE: ISO 17575-3:2016, 3.22]

4   Abbreviated terms

ADU   Application data unit

ASN.1   Abstract syntax notation one

ATS   Abstract test suite

BI   Behaviour invalid

BV   Behaviour valid (EN 15876-1)

CCC   Compliance check communication

CN   Cellular network

DUT   Device under test

EFC   Electronic fee collection

GNSS   Global navigation satellite systems

HMI   Human machine interface

ID   Identifier

IUT   Implementation under test

OBE   On-board equipment

PCTR   Proforma conformance test report

PICS   Protocol implementation conformance statements

TP   Test purposes

TSS   Test suite structure

TTCN   Testing and test control notation

VAT   Value added tax

5   Test suite structure

5.1   Structure

Table 1 shows the test suite structure (TSS).

Table 1 — Test suite structure

Group	Type of IUT	Behaviour
Procedural	Back End	Behaviour Valid
		Behaviour Invalid not applicable
ADU Header	Back End	Behaviour Valid
		Behaviour Invalid not applicable
ADU Body – Attribute general	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Toll Context Overview and Toll Context Partition Overview	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Tariff Table and Currency Conversion Table	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Tariff Class Definition	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Local Vehicle Class Definition	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Time Class Definition	Back End	Behaviour Valid
		Behaviour Invalid not applicable

Table 1 *(continued)*

Group	Type of IUT	Behaviour
User Class Definition	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Toll Context Layout	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Toll Context Layout for Section Pricing	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Toll Context Layout for Area Pricing	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Toll Context Layout for Cordon Pricing	Back End	Behaviour Valid
		Behaviour Invalid not applicable
Context Handling	Front End	Behaviour Valid
		Behaviour Invalid not applicable
Charge Report	Front End	Behaviour Valid
		Behaviour Invalid not applicable

Front End related test purposes uses Charge Report message for validation which is specified in ISO 17575-1. As a precondition to run those test purposes, compliance to ISO 17575-1 shall be validated.

5.2 Reference to conformance test specifications

This document takes into account already defined test purposes for conformance to the base standards by referencing them, so that

a) for test purposes that are **identical** to those defined in this document or the base standards conformance test cases, a direct reference is reported; for the reader's convenience, the title or a verbal description of the referenced test purpose is given, together with the reference,

b) for test purposes that are **derived** from those defined in the base standards conformance test cases, a direct reference is reported, plus an indication on how the referred test purpose has to be modified for the profile conformance testing,

c) for test purposes that are **specific** to ISO 17575-3, a complete description is given, and

d) an indication on whether a test purpose is **identical**, **derived** or **specific** is given in each test purpose.

5.3 Test purposes (TP)

5.3.1 TP definition conventions

The TPs are defined following the rules shown in Table 2. All test purposes are defined in Annex A and Annex B, including the special notation and symbol conventions that shall be used. The data structures that shall be used are specified in Annex C and defined in ISO 17575-1 and ISO 17575-3.

Table 2 — TP definition rules

TP ID according to the TP naming conventions	Title
	Reference
	TP origin
	Initial condition
	Stimulus and expected behaviour

Table 2 *(continued)*

TP ID	The TP ID is a unique identifier. It shall be specified according to the TP naming conventions defined in 5.3.2.
Title	Short description of test purpose objective.
Reference	The reference should contain the references of the subject to be validated by the actual TP (specification reference, clause, paragraph) or the reference to the standard document defining the TP.
TP origin	Indicates if the TP is **identical** to a TP defined in another test standard, **derived** from a TP defined in another test standard or **specific** for this standard profile.
Initial condition	The condition defined in which initial state the IUT has to be to apply the actual TP.
Stimulus and expected behaviour	Definition of the events the tester performs and the events that are expected from the IUT to conform to the base specification.

5.3.2   TP naming conventions

Each TP is given a unique identification. This unique identification is built up to contain the following string of information:

TP_<group>_<iut>_<x>_<nn>

TP   : to indicate that it is a test purpose;

<group>   : which group the TP belongs to;

<iut>   : type of IUT (i.e. FE or BE);

X   : type of testing (i.e. Behaviour Valid tests – BV or Behaviour Invalid tests – BI);

<nn>   : sequential TP number (01-99).

The naming conventions are as described in Table 3.

Table 3 — TP naming convention

Identifier: TP/<group>/<iut>/ <x>-<nn>		
<group>		
applicable for BE	PRO	Procedural
applicable for BE	ADUH	ADU Header
applicable for BE	ADUB	ADU Body – EFC Attribute general
applicable for BE	TC	Toll Context Overview and Toll Context Partition Overview
applicable for BE	TT	Tariff Table and Currency Conversion Table
applicable for BE	TACD	Tariff Class Definition
applicable for BE	LVCD	Local Vehicle Class Definition
applicable for BE	TICD	Time Class Definition
applicable for BE	USCD	User Class Definition
applicable for BE	TCL	Toll Context Layout
applicable for BE	TCL-S	Toll Context Layout for Section Pricing
applicable for BE	TCL-A	Toll Context Layout for Area Pricing
applicable for BE	TCL-C	Toll Context Layout for Cordon Pricing
applicable for FE	CH	Context Handling
applicable for FE	CR	Charge Report
<iut> = type of IUT	FE	Front End
	BE	Back End
x = type of testing	BV	Behaviour Valid Tests
	BI	Behaviour Invalid Tests
<nn> = sequential number (01–99)		Test Purpose Number

5.4 Conformance test report

The supplier of the Front End and Back End, respectively, is responsible for providing a conformance test report.

The supplier of the Front End shall complete the proforma conformance test report (PCTR) for Front End as defined in Annex D (notably Tables D.1 to D.4).

The supplier of the Back End shall complete the proforma conformance test report (PCTR) for Back End as defined in Annex E (notably Tables E.1 to E.4).

Annex A
(normative)

Test purposes (TP) for Front End

A.1 General

This annex contains the test purposes (TP), Tables A.2 to A.61, for the conformity evaluation of the Front End to ISO 17575-3.

A.2 TP symbols conventions

A special notation and symbol convention shall be used, as defined in what follows.

Symbols are used in the description of the TPs, with meanings according to Table A.1.

Table A.1 — Description of TP symbols

SYMBOL	DESCRIPTION
XXX.rq ⇒	The Tester sends the XXX.rq to the IUT.
⇐ YYY.rs	The IUT sends the YYY.rs to the Tester.
⇐ YYY.rs = {attribute1, attribute2, attribute3}	The IUT sends the YYY.rs to the Tester. The YYY.rs shall not consist of any attributes different than attribute1, attribute2, attribute3. If any of attributes in the list is optional, it may be missing in YYY.rs.
⇐ YYY.rs = {attribute1 = value1}	The IUT sends the YYY.rs to the Tester with attribute1. The value of attribute1, i.e. value1 shall be stored by the tester and will be utilized in further TP steps.
A ≡ B	A "is equal to" B.
A → B	A "is transformed" into B.
Ø	Means "empty" or "not set".

A.3 Context handling test purposes

A.3.1 General

These test purposes apply to ISO 17575-3Adu according to ISO 17575-3:2016, Table B.6/1, EFC Attributes according to ISO 17575-3:2016, Table B.8.

NOTE 1   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Front End.

NOTE 2   No dynamic behaviour is covered by this document. Dynamic behaviour is e.g. selection of applicable Tariff Class by the Front End depending on vehicle, time, user, location criteria.

NOTE 3   A Charge Report sent by the IUT may or may not include all data elements listed in the structure as almost all of them are optional.

A.3.2 BV test purposes

The test subgroup objectives are:

— to test the behaviour of the IUT in relation to the context activation;

— to test the behaviour of the IUT in relation to handling of multiple contexts.

Table A.2 — TP_CH_FE_BV_01

TP_CH_FE_BV_01	Verify that DUT updates its Context Data		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	ContextData1	⇒	
2	ContextData13	⇒	
3	Event defined in ContextData1 occurred		
4		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
	IF (ChargeReport content according to ContextData13) THEN TP passed ELSE TP failed ENDIF		

A.3.3   BI test purposes

No BI test purposes are applicable for this TP group.

A.4   Charge Report test purposes

A.4.1   General

These test purposes apply to:

— Charge Report Configuration according to ISO 17575-3:2016, Table B.8/11;

— Precedence Level according to ISO 17575-3:2016, Table B.11/9;

— Send Charge Report If Entering according to ISO 17575-3:2016, Table B.11/8;

— Tariffs according to ISO 17575-3:2016, Table B.16;

— Rounding Rules for fees according to ISO 17575-3:2016, Table B.19/1-3;

— Supported Charge Units according to ISO 17575-3:2016, Table B.17;

— Currency Conversion Table according to ISO 17575-3:2016, Table B.23.

NOTE 1   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Front End

NOTE 2   No dynamic behaviour is covered by this document. Dynamic behaviour is, for example, selection of applicable Tariff Class by the Front End depending on vehicle, time, user and location criteria.

NOTE 3   A Charge Report sent by the IUT may or may not include all data elements listed in the structure, as almost all of them are optional.

A.4.2   BV test purposes

A.4.3   General

The test subgroup objectives are:

— to test the presence of particular data elements in the Charge Report sent by IUT in relation to the Charge Report Configuration;

— to test the absence of particular data elements in the Charge Report sent by IUT in relation to the Charge Report Configuration;

— to test the handling of the precedence level for overlapping partitions;

— to test the correctness of implementation of a fee calculation including rounding rules;

— to test the usage of the Authenticated Charge Report

by means of the syntactically and contextual correct ADU.

Table A.3 — TP_CR_FE_BV_01

TP_CR_FE_BV_01	Verify the presence of obeId data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		

Table A.3 *(continued)*

	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = T, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (obeId present) THEN TP passed ELSE TP failed ENDIF		

Table A.4 — TP_CR_FE_BV_02

TP_CR_FE_BV_02	Verify the absence of obeId data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		

Table A.4 *(continued)*

	(tariffTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = F, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any},
	
	usageStatementContent = any,
	
	chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (obeId NOT present) THEN TP passed ELSE TP failed ENDIF		

Table A.5 — TP_CR_FE_BV_03

TP_CR_FE_BV_03	Verify the presence of vehicleLPNr data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = T, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		

Table A.5 *(continued)*

| 3 | | ⇐ | **ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes} |
| 4 | IF (vehicleLPNr present) THEN TP passed ELSE TP failed ENDIF | | |

Table A.6 — TP_CR_FE_BV_04

TP_CR_FE_BV_04	Verify the absence of vehicleLPNr data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1), (chargeReportingEvents = value as in ContextData1), (chargeReportConfiguration = v1) } }where: v1 = { chargeReportContent = {	⇒	

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Table A.6 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = F, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any} usageStatementContent = any, chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (vehicleLPNr not present) THEN TP passed ELSE TP failed ENDIF		

Table A.7 — TP_CR_FE_BV_05

TP_CR_FE_BV_05	Verify the presence of paymentMeans data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1),	⇒	

Table A.7 *(continued)*

	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = T, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any,		
	chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (paymentMeans present) THEN TP passed ELSE TP failed ENDIF		

Table A.8 — TP_CR_FE_BV_06

TP_CR_FE_BV_06	Verify the absence of paymentMeans data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1), (chargeReportingEvents = value as in ContextData1), (chargeReportConfiguration = v1) } }where: v1 = { chargeReportContent = { useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = F, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any} usageStatementContent = any, chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }	⇒	
2	Event defined in ChargeReportingEvents occurred		

Table A.8 *(continued)*

3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (paymentMeans not present) THEN TP passed ELSE TP failed ENDIF		

Table A.9 — TP_CR_FE_BV_07

TP_CR_FE_BV_07	Verify the presence of tollContext data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		**IUT**

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
		⇒	

Table A.9 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = T, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	{
	
	usageStatementContent = any, chargeReportConfigurationVersion =
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (tollContext present) THEN TP passed ELSE TP failed ENDIF		

Table A.10 — TP_CR_FE_BV_08

TP_CR_FE_BV_08	Verify the absence of tollContext data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1),	⇒	

Table A.10 *(continued)*

	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = F, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (tollContext not present) THEN TP passed ELSE TP failed ENDIF		

Table A.11 — TP_CR_FE_BV_09

TP_CR_FE_BV_09	Verify the presence of chargeReportFinalRecipient data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.
Stimulus and expected behaviour			

	Tester		IUT

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = T, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}
		⇒	

Table A.11 *(continued)*

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (chargeReportFinalRecipient present) THEN TP passed ELSE TP failed ENDIF		

Table A.12 — TP_CR_FE_BV_10

TP_CR_FE_BV_10	Verify the absence of chargeReportFinalRecipient data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
		⇒	

Table A.12 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = F, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any} usageStatementContent = any, chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (chargeReportFinalRecipient not present) THEN TP passed ELSE TP failed ENDIF		

Table A.13 — TP_CR_FE_BV_11

TP_CR_FE_BV_11	Verify the presence of timeofReport data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1),	⇒	

Table A.13 *(continued)*

	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = T, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1}
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (timeOfReport present) THEN TP passed ELSE TP failed ENDIF		

Table A.14 — TP_CR_FE_BV_12

TP_CR_FE_BV_12	Verify the absence of timeOfReport data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = F, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}
		⇒	

Table A.14 *(continued)*

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (timeOfReport not present) THEN TP passed ELSE TP failed ENDIF		

Table A.15 — TP_CR_FE_BV_13

TP_CR_FE_BV_13		Verify the presence of reportPeriod data element in the Charge Report	
TP origin		Specific	
Reference		ISO 17575-3:2016, 8.5.5.3.2	
Initial condition		Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.	
Stimulus and expected behaviour			
	Tester		IUT

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
		⇒	

Table A.15 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = T, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any} usageStatementContent = any, chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (reportPeriod present) THEN TP passed ELSE TP failed ENDIF		

Table A.16 — TP_CR_FE_BV_14

TP_CR_FE_BV_14	Verify the absence of reportPeriod data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1),	⇒	

Table A.16 *(continued)*

	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = F, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (reportPeriod not present) THEN TP passed ELSE TP failed ENDIF		

Table A.17 — TP_CR_FE_BV_15

TP_CR_FE_BV_15	Verify the presence of versionInfo data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Table A.17 *(continued)*

Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = T, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		

Table A.17 *(continued)*

| 3 | | ⇐ | **ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes} |
| 4 | IF (versionInfo present) THEN TP passed ELSE TP failed ENDIF | | |

Table A.18 — TP_CR_FE_BV_16

TP_CR_FE_BV_16	Verify the absence of versionInfo data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.
Stimulus and expected behaviour			

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1), (chargeReportingEvents = value as in ContextData1), (chargeReportConfiguration = v1) } }where: v1 = { chargeReportContent = {	⇒	

Table A.18 (continued)

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = F, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	 usageStatementContent = any, chargeReportConfigurationVersion = {
	
	 version = as in ContextData1,
	
	 validFrom = as in ContextData1 }
	
	 }		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (versionInfo not present) THEN TP passed ELSE TP failed ENDIF		

Table A.19 — TP_CR_FE_BV_17

TP_CR_FE_BV_17	Verify the presence of sumVatForThisSession data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1),	⇒	

Table A.19 *(continued)*

	(localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1), (chargeReportingEvents = value as in ContextData1), (chargeReportConfiguration = v1) } }where: v1 = { chargeReportContent = { useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = T, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any} usageStatementContent = any, chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (sumVatForThisSession present) THEN TP passed ELSE TP failed ENDIF		

Table A.20 — TP_CR_FE_BV_18

TP_CR_FE_BV_18		Verify the absence of sumVatForThisSession data element in the Charge Report
TP origin		Specific
Reference		ISO 17575-3:2016, 8.5.5.3.2
Initial condition		Front End is initialized and can accept Context Data.
		OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
		Authentication is not used.
Stimulus and expected behaviour		
	Tester		**IUT**

	Tester		IUT
1	**Iso17575-**3Adu = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = F, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		

Table A.20 *(continued)*

| 3 | | ⇐ | **ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes} |
| 4 | IF (sumVatForThisSession not present) THEN TP passed

ELSE TP failed ENDIF | | |

Table A.21 — TP_CR_FE_BV_19

TP_CR_FE_BV_19	Verify the presence of accountStatus data element in the Charge Report	
TP 0rigin	Specific	
Reference	ISO 17575-3:2016, 8.5.5.3.2	
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.	
Stimulus and expected behaviour		
	Tester		**IUT**

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
		⇒	

Table A.21 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = T, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any} usageStatementContent = any, chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (accountStatus present) THEN TP passed ELSE TP failed ENDIF		

Table A.22 — TP_CR_FE_BV_20

TP_CR_FE_BV_20	Verify the absence of accountStatus data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1),	⇒	

Table A.22 *(continued)*

	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = F, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any,
	
	chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (accountStatus not present) THEN TP passed ELSE TP failed ENDIF		

Table A.23 — TP_CR_FE_BV_21

TP_CR_FE_BV_21	Verify the presence of chargeReportCounter data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.

Table A.23 *(continued)*

Stimulus and expected behaviour			
	Tester		**IUT**

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = T, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}
		⇒	

2	Event defined in ChargeReportingEvents occurred		

Table A.23 *(continued)*

| 3 | | ⇐ | **ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes} |
| 4 | IF (chargeReportCounter present) THEN TP passed

ELSE TP failed ENDIF | | |

Table A.24 — TP_CR_FE_BV_22

TP_CR_FE_BV_22	Verify the absence of chargeReportCounter data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	
	v1 = { chargeReportContent = {
		⇒	

Table A.24 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = F, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (chargeReportCounter not present) THEN TP passed ELSE TP failed ENDIF		

Table A.25 — TP_CR_FE_BV_23

TP_CR_FE_BV_23	Verify the presence of mileage data element in the Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1),	⇒	

Table A.25 *(continued)*

	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = T, listOfCCCAttributes = any}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (mileage present) THEN TP passed ELSE TP failed ENDIF		

Table A.26 — TP_CR_FE_BV_24

TP_CR_FE_BV_24	Verify the absence of mileage data element in the Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Table A.26 *(continued)*

Stimulus and expected behaviour			
	Tester		**IUT**

1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = F, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}
		⇒	

2	Event defined in ChargeReportingEvents occurred		

Table A.26 *(continued)*

3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (mileage not present) THEN TP passed ELSE TP failed ENDIF		

Table A.27 — TP_CR_FE_BV_25

TP_CR_FE_BV_25		Verify the presence of listOfCCCAttributes data element in the Charge Report		
TP origin		Specific		
Reference		ISO 17575-3:2016, 8.5.5.3.2		
Initial condition		Front End is initialized and can accept Context Data.		
		OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
		Authentication is not used.		
Stimulus and expected behaviour				
	Tester			**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1), (chargeReportingEvents = value as in ContextData1), (chargeReportConfiguration = v1) } }where:		⇒	

Table A.27 *(continued)*

	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = T}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (listOfCCCAttributes present) THEN TP passed ELSE TP failed ENDIF		

Table A.28 — TP_CR_FE_BV_26

TP_CR_FE_BV_26		Verify the absence of listOfCCCAttributes data element in the Charge Report	
TP origin		Specific	
Reference		ISO 17575-3:2016, 8.5.5.3.2	
Initial condition		Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.	
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1),	⇒	

Table A.28 *(continued)*

	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}where:		
	v1 = { chargeReportContent = {		
	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = F}		
	usageStatementContent = any, chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (listOfCCCAttributes not present) THEN TP passed ELSE TP failed ENDIF		

Table A.29 — TP_CR_FE_BV_27

TP_CR_FE_BV_27	Verify the usage of authenticated Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		

Table A.29 *(continued)*

	useOfUsageStatementAuthenticator = T,
	
	usageStatementId = any,
	tollContext = any,
	chargeReportFinalRecipient = any,
	aggregatedFee = any,
	sumVat = any,
	aggregatedSingleTariffClassSession = any,
	listOfChargeObjects = any,
	listOfDSRCUsageData = any, listOf-RawUsageData = any,
	noUsage = any,
	additionalUsageInformation = any
	
	}
	chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList contains only data elements of AuthenticatedUsageStatement data type) THEN TP passed ELSE TP failed ENDIF		

Table A.30 — TP_CR_FE_BV_28

TP_CR_FE_BV_28	Verify the usage of non-authenticated Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any, tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		
	any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any, noUsage = any, additionalUsageInformation = any		

Table A.30 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList contains only data elements of UsageStatement data type) THEN TP passed ELSE TP failed ENDIF		

Table A.31 — TP_CR_FE_BV_29

TP_CR_FE_BV_29	Verify the presence of usageStatementId data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1),	⇒	

Table A.31 *(continued)*

	(chargeReportingEvents = value as in ContextData1),
	
	 (chargeReportConfiguration = v1) }
	
	 }
	
	 where:
	
	 v1 = {
	 applicablePartitions – any,
	
	 chargeReportContent = any,
	 usageStatementContent = {
	
	 useOfUsageStatementAuthenticator = F,
	
	 usageStatementId = T,
	 tollContext = any,
	 chargeReportFinalRecipient = any,
	 aggregatedFee = any,
	 sumVat = any,
	 aggregatedSingleTariffClassSession =
	
	 any,
	 listOfChargeObjects = any,
	 listOfDSRCUsageData = any,
	 listOfRawUsageData = any,
	 noUsage = any,
	 additionalUsageInformation = any
	
	 }
	 chargeReportConfigurationVersion = {
	
	 version = as in ContextData1,
	
	 validFrom = as in ContextData1 }
	
	 }		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	 IF (usageStatementId present in each UsageStatement data element of usageStatementList)
	
	 THEN TP passed ELSE TP failed
	
	 ENDIF
	
	 ELSE TP failed ENDIF		

Table A.32 — TP_CR_FE_BV_30

TP_CR_FE_BV_30	Verify the absence of usageStatementId data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any,		
	usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = F,		
	tollContext = any,		
	chargeReportFinalRecipient = any,		
	aggregatedFee = any,		
	sumVat = any,		
	aggregatedSingleTariffClassSession = any,		
	listOfChargeObjects = any,		
	listOfDSRCUsageData = any,		
	listOfRawUsageData = any,		
	noUsage = any,		
	additionalUsageInformation = any		

Table A.32 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (usageStatementId NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed ELSE TP failed
	
	ENDIF
	
	ELSE TP failed ENDIF		

Table A.33 — TP_CR_FE_BV_31

TP_CR_FE_BV_31	Verify the presence of tollContext data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1),	⇒	

Table A.33 *(continued)*

	(tollContextLayout = value as in ContextData1),
	
	 (chargeReportingEvents = value as in ContextData1),
	
	 (chargeReportConfiguration = v1) }
	
	 }
	
	 where:
	
	 v1 = {
	
	 applicablePartitions – any,
	
	 chargeReportContent = any, usageStatementContent = {
	
	 useOfUsageStatementAuthenticator = F,
	
	 usageStatementId = any
	 tollContext = T,
	 chargeReportFinalRecipient = any,
	 aggregatedFee = any,
	 sumVat = any,
	 aggregatedSingleTariffClassSession =
	
	 any,
	 listOfChargeObjects = any,
	 listOfDSRCUsageData = any,
	 listOfRawUsageData = any,
	 noUsage = any, additionalUsageInformation = any
	
	 }
	 chargeReportConfigurationVersion = {
	
	 version = as in ContextData1,
	
	 validFrom = as in ContextData1 }
	
	 }			

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	 IF (tollContext present in each UsageStatement data element of usageStatementList)
	
	 THEN TP passed ELSE TP failed
	
	 ENDIF
	
	 ELSE TP failed ENDIF		

Table A.34 — TP_CR_FE_BV_32

TP_CR_FE_BV_32	Verify the absence of tollContext data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any		
	tollContext = T,		
	chargeReportFinalRecipient = any,		
	aggregatedFee = any,		
	sumVat = any, aggregatedSingleTariff-ClassSession =		
	any,		
	listOfChargeObjects = any,		
	listOfDSRCUsageData = any,		
	listOfRawUsageData = any,		
	noUsage = any,		
	additionalUsageInformation = any		
	}		
	chargeReportConfigurationVersion = {		
	version = as in ContextData1,		

Table A.34 *(continued)*

	validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (tollContext NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed ELSE TP failed
	
	ENDIF
	
	ELSE TP failed ENDIF		

Table A.35 — TP_CR_FE_BV_33

TP_CR_FE_BV_33	Verify the presence of chargeReportFinalRecipient data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1), (tollContextLayout = value as in ContextData1),	⇒	

Table A.35 *(continued)*

	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = T,		
	aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		
	any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any, noUsage = any, additionalUsageInformation = any		
	} chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList present) THEN		
	IF (chargeReportFinalRecipient present in each UsageStatement data element of usageStatementList)		
	THEN TP passed ELSE TP failed		
	ENDIF		
	ELSE TP failed ENDIF		

Table A.36 — TP_CR_FE_BV_34

TP_CR_FE_BV_34	Verify the absence of chargeReportFinalRecipient data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any,		
	usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any		
	tollContext = any,		
	chargeReportFinalRecipient = F,		
	aggregatedFee = any,		
	sumVat = any,		
	aggregatedSingleTariffClassSession = any,		
	listOfChargeObjects = any,		
	listOfDSRCUsageData = any,		
	listOfRawUsageData = any,		
	noUsage = any,		
	additionalUsageInformation = any		

Table A.36 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (chargeReportFinalRecipient NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed ELSE TP failed
	
	ENDIF
	
	ELSE TP failed ENDIF		

Table A.37 — TP_CR_FE_BV_35

TP_CR_FE_BV_35	Verify the presence of aggregatedFee data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1), (userClassDefinition = value as in ContextData1),	⇒	

Table A.37 *(continued)*

	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = T, sumVat = any, aggregatedSingleTariffClassSession =		
	any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any, noUsage = any, additionalUsageInformation = any		
	} chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList present) THEN		
	IF (aggregatedFee present in each UsageStatement data element of usageStatementList)		
	THEN TP passed		
	ELSE TP failed		
	ENDIF		
	ELSE		
	TP failed		
	ENDIF		

Table A.38 — TP_CR_FE_BV_36

TP_CR_FE_BV_36	Verify the absence of aggregatedFee data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = F, sumVat = any, aggregatedSingleTariffClassSession =		
	any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any, noUsage = any, additionalUsageInformation = any		

Table A.38 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	IF (aggregatedFee NOT present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.39 — TP_CR_FE_BV_37

TP_CR_FE_BV_37	Verify the presence of sumVat data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1), (timeClassDefinition = value as in ContextData1),	⇒	

Table A.39 *(continued)*

	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}
	where:
	v1 = {
	applicablePartitions – any,
	chargeReportContent = any,
	usageStatementContent = {
	useOfUsageStatementAuthenticator = F,
	usageStatementId = any
	tollContext = any,
	chargeReportFinalRecipient = any,
	aggregatedFee = any,
	sumVat = T,
	aggregatedSingleTariffClassSession = any,
	listOfChargeObjects = any,
	listOfDSRCUsageData = any,
	listOfRawUsageData = any,
	noUsage = any,
	additionalUsageInformation = any
	
	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	IF (sumVat present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.40 — TP_CR_FE_BV_38

TP_CR_FE_BV_38	Verify the absence of sumVat data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any,		
	usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any		
	tollContext = any,		
	chargeReportFinalRecipient = any,		
	aggregatedFee = any,		
	sumVat = F,		
	aggregatedSingleTariffClassSession =		
	any,		
	listOfChargeObjects = any,		
	listOfDSRCUsageData = any,		
	listOfRawUsageData = any,		
	noUsage = any,		
	additionalUsageInformation = any		

Table A.40 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (sumVat NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed
	
	ELSE TP failed
	
	ENDIF
	
	ELSE
	
	TP failed
	
	ENDIF		

Table A.41 — TP_CR_FE_BV_39

TP_CR_FE_BV_39	Verify the presence of aggregatedSingleTariffClassSession data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1),	⇒	

Table A.41 *(continued)*

	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession = T, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any, noUsage = any, additionalUsageInformation = any } chargeReportConfigurationVersion = { version = as in ContextData1, validFrom = as in ContextData1 } }		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList present) THEN IF (aggregatedSingleTariffClassSession present in each UsageStatement data element of usageStatementList) THEN TP passed ELSE TP failed ENDIF		

Table A.41 *(continued)*

ELSE		
TP failed		
ENDIF		

Table A.42 — TP_CR_FE_BV_40

TP_CR_FE_BV_40	Verify the absence of aggregatedSingleTariffClassSession data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.
Stimulus and expected behaviour	

	Tester		HUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		

Table A.42 *(continued)*

	F,
	listOfChargeObjects = any,
	listOfDSRCUsageData = any,
	listOfRawUsageData = any,
	noUsage = any,
	additionalUsageInformation = any
	
	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCAttributes}

4	IF (usageStatementList present) THEN
	IF (aggregatedSingleTariffClassSession NOT present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.43 — TP_CR_FE_BV_41

TP_CR_FE_BV_41		Verify the presence of listOfChargeObjects data element in the Usage Statement	
TP origin		Specific	
Reference		ISO 17575-3:2016, 8.5.5.3.3	
Initial condition		Front End is initialized and can accept Context Data.	
		OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.	
		Authentication is not used.	
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		

Table A.43 *(continued)*

	any,
	listOfChargeObjects = T,
	listOfDSRCUsageData = any,
	listOfRawUsageData = any,
	noUsage = any,
	additionalUsageInformation = any
	
	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

	IF (usageStatementList present) THEN
	IF (listOfChargeObjects present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.44 — TP_CR_FE_BV_42

TP_CR_FE_BV_42	Verify the absence of listOfChargeObjects data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		

Table A.44 *(continued)*

	any,
	listOfChargeObjects = F,
	listOfDSRCUsageData = any,
	listOfRawUsageData = any,
	noUsage = any, additionalUsageInformation = any
	
	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (listOfChargeObjects NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed
	
	ELSE TP failed
	
	ENDIF
	
	ELSE
	
	TP failed
	
	ENDIF		

Table A.45 — TP_CR_FE_BV_43

TP_CR_FE_BV_43	Verify the presence of listOfDsrcUsageData data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any,		
	usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any		
	tollContext = any,		
	chargeReportFinalRecipient = any,		
	aggregatedFee = any,		
	sumVat = any,		
	aggregatedSingleTariffClassSession = any,		
	listOfChargeObjects = any,		
	listOfDSRCUsageData = T,		
	listOfRawUsageData = any,		
	noUsage = any,		
	additionalUsageInformation = any		

Table A.45 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	IF (listOfDSRCUsageData present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.46 — TP_CR_FE_BV_44

TP_CR_FE_BV_44	Verify the absence of listOfDsrcUsageData data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
Tester			**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1),	⇒	

Table A.46 *(continued)*

	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}
	
	where:
	
	v1 = {
	
	applicablePartitions – any,
	
	chargeReportContent = any,
	usageStatementContent = {
	
	useOfUsageStatementAuthenticator = F,
	
	usageStatementId = any
	tollContext = any,
	chargeReportFinalRecipient = any,
	aggregatedFee = any,
	sumVat = any,
	aggregatedSingleTariffClassSession = any,
	listOfChargeObjects = any,
	listOfDSRCUsageData = F,
	listOfRawUsageData = any,
	noUsage = any,
	additionalUsageInformation = any
	
	}
	chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (listOfDSRCUsageData NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed
	
	ELSE TP failed		

Table A.46 *(continued)*

	ENDIF		
	ELSE		
	TP failed		
	ENDIF		

Table A.47 — TP_CR_FE_BV_45

TP_CR_FE_BV_45	Verify the presence of listOfRawUsageData data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		

Table A.47 *(continued)*

	usageStatementId = any
	tollContext = any,
	chargeReportFinalRecipient = any,
	aggregatedFee = any,
	sumVat = any,
	aggregatedSingleTariffClassSession =
	any,
	listOfChargeObjects = any,
	listOfDSRCUsageData = any,
	listOfRawUsageData = T
	noUsage = any,
	additionalUsageInformation = any
	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	IF (listOfRawUsageData present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.48 — TP_CR_FE_BV_46

TP_CR_FE_BV_46	Verify the absence of listOfRawUsageData data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any,		
	usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any		
	tollContext = any,		
	chargeReportFinalRecipient = any,		
	aggregatedFee = any,		
	sumVat = any,		
	aggregatedSingleTariffClassSession = any,		
	listOfChargeObjects = any,		
	listOfDSRCUsageData = any,		
	listOfRawUsageData = T		
	noUsage = any,		
	additionalUsageInformation = any		

Table A.48 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	IF (listOfRawUsageData NOT present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.49 — TP_CR_FE_BV_47

TP_CR_FE_BV_47	Verify the presence of noUsage data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is not used.

Stimulus and expected behaviour

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any,		
	usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		
	any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any noUsage = T, additionalUsageInformation = any		

Table A.49 *(continued)*

	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	IF (noUsage present in each UsageStatement data element of usageStatementList)
	THEN TP passed
	ELSE TP failed
	ENDIF
	ELSE
	TP failed
	ENDIF		

Table A.50 — TP_CR_FE_BV_48

TP_CR_FE_BV_48	Verify the absence of noUsage data element in the Usage Statement
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.3
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.
Stimulus and expected behaviour	

	Tester		IUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1), (currencyConversionTable = value as in ContextData1), (tariffClassDefinition = value as in ContextData1), (localVehicleClassDefinition = value as in ContextData1),	⇒	

Table A.50 *(continued)*

	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession = any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any noUsage = F, additionalUsageInformation = any		
	} chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList present) THEN		
	IF (noUsage NOT present in each UsageStatement data element of usageStatementList)		
	THEN TP passed		
	ELSE TP failed		
	ENDIF		

Table A.50 (continued)

	ELSE		
	TP failed		
	ENDIF		

Table A.51 — TP_CR_FE_BV_49

TP_CR_FE_BV_49	Verify the presence of additionalUsageInformation data element in the Usage Statement		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.3		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		HUT
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	$\Rightarrow$	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in Context-tData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession =		

Table A.51 *(continued)*

	any,
	listOfChargeObjects = any,
	listOfDSRCUsageData = any,
	listOfRawUsageData = any
	noUsage = any,
	additionalUsageInformation = T
	
	}
	chargeReportConfigurationVersion = {
	version = as in ContextData1,
	validFrom = as in ContextData1 }
	
	}			

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}

4	IF (usageStatementList present) THEN
	
	IF (additionalUsageInformation present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed
	
	ELSE TP failed
	
	ENDIF
	
	ELSE
	
	TP failed
	
	ENDIF		

Table A.52 — TP_CR_FE_BV_50

TP_CR_FE_BV_50		Verify the absence of additionalUsageInformation data element in the Usage Statement	
TP origin		Specific	
Reference		ISO 17575-3:2016, 8.5.5.3.3	
Initial condition		Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.	
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = { (tollContextOverview = value as in ContextData1), (tollContextPartitionOverview = value as in ContextData1), (tariffTable = value as in ContextData1),	⇒	

Table A.52 *(continued)*

	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) }		
	}		
	where:		
	v1 = {		
	applicablePartitions – any,		
	chargeReportContent = any, usageStatementContent = {		
	useOfUsageStatementAuthenticator = F,		
	usageStatementId = any tollContext = any, chargeReportFinalRecipient = any, aggregatedFee = any, sumVat = any, aggregatedSingleTariffClassSession = any, listOfChargeObjects = any, listOfDSRCUsageData = any, listOfRawUsageData = any noUsage = any, additionalUsageInformation = F		
	} chargeReportConfigurationVersion = {		
	version = as in ContextData1,		
	validFrom = as in ContextData1 }		
	}		
2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (usageStatementList present) THEN		

Table A.52 *(continued)*

	IF (additionalUsageInformation NOT present in each UsageStatement data element of usageStatementList)
	
	THEN TP passed
	
	ELSE TP failed
	
	ENDIF
	
	ELSE
	
	TP failed
	
	ENDIF		

Table A.53 — TP_CR_FE_BV_51

TP_CR_FE_BV_51	Charge Report is sent separately upon the same precedenceLevel for overlapping Partitions		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.2.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	ContextData20	⇒	
2	Event defined for Partition1 and Partition2 occurred		
3		⇐	**ChargeReport1** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes}
4		⇐	**ChargeReport2** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes}
5	Verify that tollContext in Context Data message equals to tollContext in ChargeReport1 and ChargeReport2		
6	IF verify NOT "OK" THEN TP failed		
7	Verify that obeId is present only in one charge report (i.e. ChargeReport1 EXOR ChargeReport2)		

Table A.53 *(continued)*

	NOTE For Partition1, obeID without vehicleLPNr should be reported and for Partition2, the combination should be opposite.		
8	IF verify NOT "OK" THEN TP failed		
9	Verify that vehicleLPNr is present only in one charge report (i.e. ChargeReport1 EXOR ChargeReport2)		
10	IF verify NOT "OK" THEN TP failed		
11	Verify that obeId and vehicleLPNr are reported in different charge reports		

12	IF verify NOT OK
	        THEN TP failed
	        ELSE TP passed
	
	ENDIF		

Table A.54 — TP_CR_FE_BV_52

TP_CR_FE_BV_52	Charge Report is sent once upon the different precedenceLevel for overlapping Partitions		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.2.3		
Initial condition	Front End is initialized and can accept Context Data. OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	ContextData21	⇒	
2	Event defined for Partition1 and Partition2 occurred		
3		⇐	**ChargeReport1** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes}
4	Verify that tollContext in Context Data message equals to tollContext in ChargeReport1		
5	IF verify NOT "OK" THEN TP failed		
6	Verify that obeId is present in ChargeReport1 AND vehicleLPNr is absent		
7	IF verify NOT "OK" THEN TP failed		
8	Verify that no other ChargeReport message is received where vehicleLPNr is present		

Table A.54 *(continued)*

9	IF verify NOT "OK"
	            THEN TP failed
	            ELSE TP passed
	
	ENDIF		

Table A.55 — TP_CR_FE_BV_53

TP_CR_FE_BV_53	Front End sends a charge report entering the toll context partition		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.2.3		
Initial condition	Front End received a context data for toll context and toll context partition and is requested to send a charge report when entering toll context polygon. OBE belonging to the Front End is located outside geographic borders defined in Context Data. Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1			Front End enters a toll context partition area
2		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes}
3	Verify that ChargeReport for toll context is received		

4	IF verify NOT "OK"
	            THEN TP failed
	            ELSE TP passed
	
	ENDIF		

Table A.56 — TP_CR_FE_BV_54

TP_CR_FE_BV_54	Verify fee calculation algorithm — no rounding rules
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.3.7
Initial condition	Front End received a context data for toll context (TC1) and toll context partition (TCP1), including toll context partition layout. Front End received a context data defining tariff class AND local vehicle class/ time class / user class (or any combination). While operating in the toll context partition TCP1, the Front End is able to assign a specific tariff class (Tariff1). There is no unreported usage. InternalScaleFactor equals to 1. Authentication is not used.

Table A.56 *(continued)*

Stimulus and expected behaviour			
	Tester		**IUT**
1	ContextData22	⇒	
	NOTE For the meaning of U1, Time1 and BFPCU1, see ContextData22.		
2			Front End uses N U1-units until Time1 is reached
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes} NOTE ASTC[i] = usageStatementList[i]. aggregatedSingleTariffClassSession i = 1..length of usageStatementList. ASTC is used in subsequent steps.
4	Verify that tollContext equals to TC1 AND Verify that usageStatementList[i].tollContext equals to TC1		
5	IF verify NOT "OK" then TP failed		
6	Verify that (for each i, ASTC[i].currentTariffClass equals to Tariff1 AND sum of all ASTC[i].feeExclVat equals to NxBFPCU1 AND all ASTC[i].feeExclVat are expressed in Currency1) OR (sum of all usageStatementList[i].aggregatedFee = NxBFP-CU1 AND usageStatementList[i].aggregatedFee is expressed in Currency1) where ASTC[i] = usageStatementList[i]. aggregatedSingleTariffClassSession i = 1..length of usageStatementList		

7	IF verify NOT "OK"
	          THEN TP failed
	          ELSE TP passed
	
	ENDIF		

Table A.57 — TP_CR_FE_BV_55

TP_CR_FE_BV_55			Verify fee calculation algorithm with rounding up rule for charge units
TP origin			Specific
Reference			ISO 17575-3:2016, 8.5.3.7
Initial condition			Front End received a context data for toll context (TC1) and toll context partition (TCP1), including toll context partition layout.
			Front End received a context data defining tariff class AND local vehicle class/ time class / user class (or any combination).
			While operating in the toll context partition TCP1, the Front End is able to assign a specific tariff class (Tariff1).
			There is no unreported usage.
			InternalScaleFactor equals to 1.
			Authentication is not used.
Stimulus and expected behaviour			
	Tester		**IUT**
1	ContextData23 NOTE For the meaning of U1, Time1 and BFPCU1, see ContextData23.	⇒	
2			Front End uses N U1-units until Time1 is reached
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes} NOTE ASTC[i] = usageStatementList[i].aggregatedSingleTariffClassSession i = 1..length of usageStatementList. ASTC is used in subsequent steps.
4	Verify that tollContext equals to TC1 AND Verify that usageStatementList[i].tollContext equals to TC1		
5	IF verify NOT "OK" then TP failed		
6	Verify that (for each i, ASTC[i].currentTariffClass equals to Tariff1 AND sum of all ASTC[i].feeExclVat equals to RoundUp(N)xBFPCU1 AND all ASTC[i].feeExclVat are expressed in Currency1) OR		

Table A.57 *(continued)*

	(sum of all usageStatementList[i].aggregatedFee = RoundUp(N)xBFPCU1 AND usageStatementList[i].aggregatedFee is expressed in Currency1)		
	where ASTC[i] = usageStatementList[i].aggregatedSingleTariffClassSession i = 1..length of usageStatementList		

7	IF verify NOT "OK"
	    THEN TP failed
	    ELSE TP passed
	ENDIF		

Table A.58 — TP_CR_FE_BV_56

TP_CR_FE_BV_56	Verify fee calculation algorithm with rounding down rule for charge units
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.3.7
Initial condition	Front End received a context data for toll context (TC1) and toll context partition (TCP1), including toll context partition layout.
	Front End received a context data defining tariff class AND local vehicle class/ time class / user class (or any combination).
	While operating in the toll context partition TCP1, the Front End is able to assign a specific tariff class (Tariff1).
	There is no unreported usage.
	InternalScaleFactor equals to 1.
	Authentication is not used.

Stimulus and expected behaviour			
	Tester		**IUT**
1	ContextData24 NOTE For the meaning of U1, Time1 and BFPCU1, see ContextData24.	⇒	
2			Front End uses N U1-units until Time1 is reached
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes}

Table A.58 *(continued)*

			NOTE ASTC[i] = usageStatementList[i]. aggregatedSingleTariffClassSession i = 1..length of usageStatementList. ASTC is used in subsequent steps.
4	Verify that tollContext equals to TC1 AND Verify that usageStatementList[i].tollContext equals to TC1		
5	IF verify NOT "OK" then TP failed		
6	Verify that (for each i, ASTC[i].currentTariffClass equals to Tariff1 AND sum of all ASTC[i].feeExclVat equals to RoundDown(N)xBFPCU1 AND all ASTC[i].feeExclVat are expressed in Currency1) OR (sum of all usageStatementList[i].aggregatedFee = RoundDown(N)xBFPCU1 AND usageStatementList[i].aggregatedFee is expressed in Currency1) where ASTC[i] = usageStatementList[i]. aggregatedSingleTariffClassSession i = 1..length of usageStatementList		

7	IF verify NOT "OK"
	        THEN TP failed
	        ELSE TP passed
	ENDIF		

Table A.59 — TP_CR_FE_BV_57

TP_CR_FE_BV_57	Verify fee calculation algorithm in alternative currency
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.3.7, 8.5.3.2.3
Initial condition	Front End received a context data for toll context (TC1) and toll context partition (TCP1), including toll context partition layout.
	Front End received a context data defining tariff class AND local vehicle class/ time class / user class (or any combination).
	While operating in the toll context partition TCP1, the Front End is able to assign a specific tariff class (Tariff1).
	There is no unreported usage.
	InternalScaleFactor equals to 1.
	Authentication is not used.

Table A.59 *(continued)*

	Stimulus and expected behaviour			
	Tester			**IUT**
1	ContextData25 NOTE For the meaning of U1, Time1 and BFPCU1, Currency1, Currency2, conversionRate1, see ContextData25.	⇒		
2				Front End uses N U1-units until Time1 is reached
3		⇐		**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCccAttributes}
				NOTE ASTC[i] = usageStatementList[i]. aggregatedSingleTariffClassSession
				i = 1..length of usageStatementList. ASTC is used in subsequent steps.
4	Verify that tollContext equals to TC1 AND Verify that usageStatementList[i].tollContext equals to TC1			
5	IF verify NOT "OK" then TP failed			
6	Verify that (for each i, ASTC[i].currentTariffClass equals to Tariff1 AND sum of all ASTC[i].feeExclVat equals to NxconversionRate1xBFPCU1 AND all ASTC[i].feeExclVat are expressed in Currency2)			
	OR (sum of all usageStatementList[i].aggregatedFee = Nx conversionRate1xBFPCU1 AND usageStatementList[i].aggregatedFee is expressed in Currency2) where ASTC[i] = usageStatementList[i]. aggregatedSingleTariffClassSession i = 1..length of usageStatementList			

7	IF verify NOT "OK"
	          THEN TP failed
	          ELSE TP passed
	
	ENDIF			

Table A.60 — TP_CR_FE_BV_58

TP_CR_FE_BV_58	Verify the usage of authenticated Charge Report
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.5.3.2
Initial condition	Front End is initialized and can accept Context Data.
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.
	Authentication is used.

Stimulus and expected behaviour

	Tester		IUT

1	Iso17575–3Adu = {Iso17575–3aduHeader, Iso17575–3aduBody = {
	
	(tollContextOverview = value as in ContextData1),
	
	(tollContextPartitionOverview = value as in ContextData1),
	
	(tariffTable = value as in ContextData1),
	
	(currencyConversionTable = value as in ContextData1),
	
	(tariffClassDefinition = value as in ContextData1),
	
	(localVehicleClassDefinition = value as in ContextData1),
	
	(timeClassDefinition = value as in ContextData1),
	
	(userClassDefinition = value as in ContextData1),
	
	(tollContextLayout = value as in ContextData1),
	
	(chargeReportingEvents = value as in ContextData1),
	
	(chargeReportConfiguration = v1) }
	
	}where:
	v1 = { chargeReportContent = {
	
	useOfCrAuthenticator = T, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any,
	chargeReportFinalRecipient = any,
	timeOfReport = any, reportPeriod = any, versionInfo = any,
	sumVatForThisSession = any,
	accountStatus = any,
	chargeReportCounter = any,
	mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any,
	chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}
		⇒	

2	Event defined in ChargeReportingEvents occurred		

Table A.60 *(continued)*

3		⇐	**AuthenticatedChargeReport** = { chargeReportPer = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}, messageAuthenticator}
4	IF (AuthenticatedChargeReport used) THEN TP passed ELSE TP failed ENDIF		

Table A.61 — TP_CR_FE_BV_59

TP_CR_FE_BV_59	Verify the usage of non-authenticated Charge Report		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.5.3.2		
Initial condition	Front End is initialized and can accept Context Data.		
	OBE belonging to the Front End is located within geographic borders defined in both Context Data ADUs.		
	Authentication is not used.		
Stimulus and expected behaviour			
	Tester		**IUT**
1	**Iso17575–3Adu** = {Iso17575–3aduHeader, Iso17575–3aduBody = {	⇒	
	(tollContextOverview = value as in ContextData1),		
	(tollContextPartitionOverview = value as in ContextData1),		
	(tariffTable = value as in ContextData1),		
	(currencyConversionTable = value as in ContextData1),		
	(tariffClassDefinition = value as in ContextData1),		
	(localVehicleClassDefinition = value as in ContextData1),		
	(timeClassDefinition = value as in ContextData1),		
	(userClassDefinition = value as in ContextData1),		
	(tollContextLayout = value as in ContextData1),		
	(chargeReportingEvents = value as in ContextData1),		
	(chargeReportConfiguration = v1) } }where: v1 = { chargeReportContent = {		

Table A.61 *(continued)*

	useOfCrAuthenticator = F, obeId = any, vehicleLPNr = any, paymentMeans = any, tollContext = any, chargeReportFinalRecipient = any, timeOfReport = any, reportPeriod = any, versionInfo = any, sumVatForThisSession = any, accountStatus = any, chargeReportCounter = any, mileage = any, listOfCCCAttributes = any}
	
	usageStatementContent = any, chargeReportConfigurationVersion = {
	
	version = as in ContextData1,
	
	validFrom = as in ContextData1 }
	
	}		

2	Event defined in ChargeReportingEvents occurred		
3		⇐	**ChargeReport** = {protocolVersion, obeId, vehicleLPNr, paymentMeans, serviceProviderContract, tollContext, chargeReportFinalRecipient, timeOfReport, reportPeriod, versionInfo, usageStatementList, sumVatForThisSession, accountStatus, chargeReportCounter, mileage, listOfCCCAttributes}
4	IF (AuthenticatedChargeReport not used) THEN TP passed ELSE TP failed ENDIF		

A.4.4 BI test purposes

No BI test purposes are applicable for this TP group.

Annex B
(normative)

Test purposes (TP) for Back End

B.1 General

This annex contains the test suite structure (TSS) and test purposes (TP) for the conformity evaluation of Back End to ISO 17575-3.

B.2 TP symbols conventions

A special notation and symbol convention is used, as defined in what follows.

Symbols are used in the description of the TPs, with meanings according to Table B.1.

Table B.1 — Description of TP symbols

Symbol	Description
XXX.rq ⇒	The IUT sends the XXX.rq PDU to the Tester.
	If **ContextDataX** notation is used, the data element **ContextDataX** which is defined in Annex C is sent to IUT.
XXX.rq = {attribute1, attribute2, attribute3} ⇒	The IUT sends the XXX.rq to the Tester. The XXX.rq shall not consist of any attributes different than attribute1, attribute2, attribute3. If any of attributes in the list is optional, it may be missing in XXX.rq.
XXX.rq = {attribute1 = value1} ⇒	The IUT sends the XXX.rq to the Tester with attribute1. The value of attribute1, i.e. value1 shall be stored by the tester and will be utilized in further TP steps.
⇐ YYY.rs	The Tester sends the YYY.rs PDU to the IUT.
A ≡ B	A "is equal to" B.
A → B	A "is transformed" into B.
Ø	Means "empty" or "not set".

In addition, the sequence of ADUs issued by a Back End is not constrained by ISO 17575-3. This means that the ADU cannot in general be forced to be generated by the IUT. To execute the test purposes, filtering out some ADUs may be necessary, as they might be applicable for TP, e.g. some ADUs are applicable for different toll contexts. This situation is illustrated in Figure B.1.
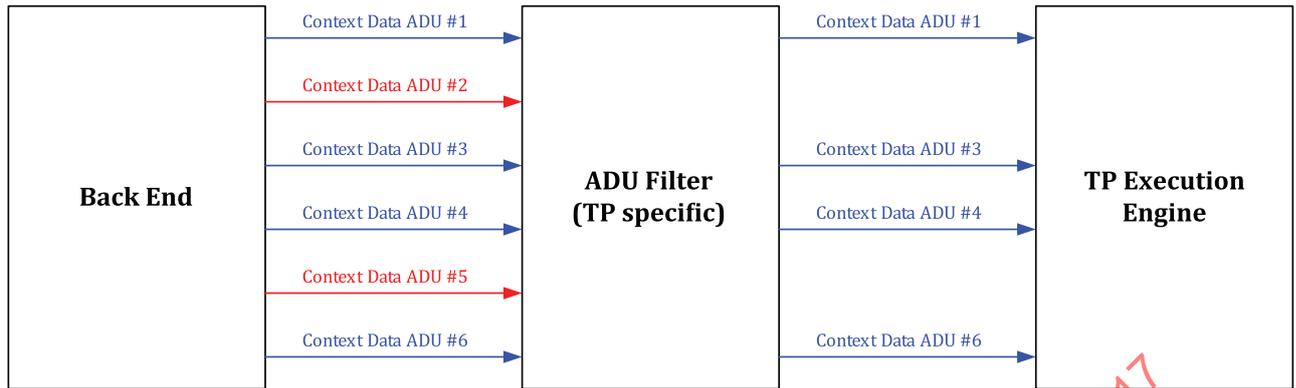
Figure B.1 — Handling of ADUs applicable for a particular TP

B.3 Procedural test purposes

B.3.1 General

These test purposes apply to the protocol version according to ISO 17575-3:2016, Table B.88/4 and AuthenticatedISO-3ADU according to ISO 17575-3:2016, Table B.88/2.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.3.2 BV test purposes

The test subgroup objectives are:

— to test the behaviour of the IUT in relation to protocol version handling;

— to test the behaviour of the IUT in relation to authenticated ISO 17575-3Adu.

Table B.2 — TP_PRO_BE_BV_01

TP_PRO_BE_BV_01	**Protocol version handling**		
TP origin	Specific		
Reference	ISO 17575-3:2016, 6.3.1		
Initial condition	Back End is initialized and can send a complete set of Context Data. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader = H1, aduBody}	⇒	
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

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Table B.2 *(continued)*

4		Verify that H1.protocolVersion equals to iso17575–3-2010 (0) OR iso17575–3-2016 (1)

5		IF verify "OK"
		  THEN TP passed
		  ELSE TP failed
		
		ENDIF

Table B.3 — TP_PRO_BE_BV_02

TP_PRO_BE_BV_02	Verify that Back End sends authenticated ISO 17575-3Adu		
TP origin	Specific		
Reference	ISO 17575-3:2016, 7.2		
Initial condition	Back End is initialized and can send a complete set of Context Data using authenticated ISO 17575-3Adu. Authentication is used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**authenticatedIso17575–3Adu** = { iso17575–3AduPer, messageAuthenticator}	⇒	
2			Verify the structure of sent **authenticatedIso17575–3Adu**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.2.

3			IF verify NOT "OK" THEN
			  TP failed
			  ELSE TP passed
			
			ENDIF

B.3.3 BI test purposes

No BI test purposes are applicable to this TP group.

B.4 ADU Header test purposes

B.4.1 General

These test purposes apply to Iso17575-3Adu according to ISO 17575-3:2016, Table B.88.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.4.2 BV test purposes

The test subgroup objectives are:

— to test the usage of single tollContext within an ADU;

— to test the behaviour of the IUT in relation to ADU Sequence Number.

Table B.4 — TP_ADUH_BE_BV_01

TP_ADUH_BE_BV_01	Use of single tollContext per ADU		
TP origin	Specific		
Reference	ISO 17575-3:2016, 7.5, 8.2, 8.5.2.2		
Initial condition	Back End is initialized and sends Context Data.		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		Tester
1	**Iso17575–3Adu** = {aduHeader = A1, aduBody = B1} B1 consists of tollContextOverview	⇒	
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF (A1.tollContext) equals to (B1.tollContextOverview.tollContext)
			    THEN TP passed
			    ELSE TP failed
			ENDIF

Table B.5 — TP_ADUH_BE_BV_02

TP_ADUH_BE_BV_02	Verify handling of aduSequenceNumber		
TP origin	Specific		
Reference	ISO 17575-3:2016, 7.4		
Initial condition	Back End is initialized and sends Context Data.		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader = A1, aduBody }	⇒	
2	Iso17575–3Adu = {aduHeader = A2, aduBody }	⇒	
3			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
4			IF verify NOT "OK" THEN TP failed

5			IF (A2.aduSequenceNumber) > (A1.aduSequenceNumber)
			    THEN TP passed
			    ELSE TP failed
			ENDIF

B.4.3 BI test purposes

No BI test purposes are applicable to this TP group.

B.5 EFC attribute general test purposes

B.5.1 General

These test purposes apply to EFC attributes according to ISO 17575-3:2016, Table B.90.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.5.2 BV test purposes

The test subgroup objective is:

— to test the availability of all mandatory attributes.

Table B.6 — TP_ADUB_BE_BV_01

TP_ADUB_BE_BV_01	Verify that each toll context shall be described using one or more EFC attributes		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.3		
Initial condition	Back End is initialized and sends Context Data. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		Tester
1	**Iso17575–3Adu** = {aduHeader = A0, aduBody = B0}	⇒	
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Verify that B0 consists of at least 1 attribute
5			IF verify "OK" THEN TP passed
6	**Iso17575–3Adu** = {aduHeader = A1, aduBody = B1 } ADU for the same tollContext as in step 1, i.e. B1.tollContext = B0.tollContext	⇒	

Table B.6 *(continued)*

7			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
8			IF verify NOT "OK" THEN TP failed
9			Verify that B1 consists of at least 1 attribute

10			IF verify "OK" THEN
			   TP passed
			   ELSE TP failed
			
			ENDIF

...			
Nx5+6	**Iso17575–3Adu** = {aduHeader = An, aduBody = Bn } ADU for the same tollContext as in step 1, i.e. Bn.tollContext = B1.tollContext	⇒	
Nx5+7			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
Nx5+8			IF verify NOT "OK" THEN TP failed
Nx5+9			Verify that Bn consists of at least 1 attribute

Nx5+10			IF verify "OK" THEN
			   TP passed
			   ELSE TP failed
			
			ENDIF

B.5.3 BI test purposes

No BI test purposes are applicable to this TP group.

B.6 Toll Context Overview and Toll Context Partition Overview test purposes

B.6.1 General

These test purposes apply to Toll Context Overview according to ISO 17575-3:2016, Table B.92 and Toll Context Partition Overview according to ISO 17575-3:2016, Table B.93.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.6.2 BV test purposes

The test subgroup objective is:

— to test the behaviour of the IUT in relation to Toll Context Overview and Toll Context Partition Overview attribute.

Table B.7 — TP_TC_BE_BV_01

TP_TC_BE_BV_01	Uniqueness of partition IDs within the Context Data
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.2.2
Initial condition	Back End is initialized and sends Context Data.
	Authentication is not used.

Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader,
	    aduBody = {
	        tollContextOverview = TCO1,
	        tollContextPartitionOverview,
	        tariffTable,
	        currencyConversionTable,
	        tariffClassDefinition,
	        localVehicleClassDefinition,
	        timeClassDefinition,
	        userClassDefinition,
	        tollContextLayout,
	        chargeReportingEvents,
	        chargeReportConfiguration,
	        tollContextVersion
	
	    }
	
	}
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF TCO1. tollContextPartitions is a sequence of unique Toll Context Partition IDs
			    THEN TP passed
			    ELSE TP failed
			
			ENDIF

Table B.8 — TP_TC_BE_BV_02

TP_TC_BE_BV_02	Verify the presence of at least one partition within the Context Data (presence of partitionID)		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.2.2		
Initial condition	Back End is initialized and sends Context Data.		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { tollContextOverview = TCO1, tollContextPartitionOverview, tariffTable, currencyConversionTable, tariffClassDefinition, localVehicleClassDefinition, timeClassDefinition, userClassDefinition, tollContextLayout, chargeReportingEvents, chargeReportConfiguration, tollContextVersion } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.	⇒	
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF (length of TCO1. tollContextPartitions) is > = 1 THEN TP passed ELSE TP failed
			
			ENDIF

Table B.9 — TP_TC_BE_BV_03

TP_TC_BE_BV_03			Verify that polygon points are defined in a way that the connections between the points do not intersect.	
TP origin			Specific	
Reference			ISO 17575-3:2016, 8.5.2.3	
Initial condition			Back End is initialized and can send Context Data consisting of toll context partition overview, including Polygon	
			Authentication is not used.	
Stimulus and expected behaviour				
	IUT		**Tester**	
1	**Iso17575–3Adu** = {aduHeader, aduBody = { tollContextOverview = TCO1, tollContextPartitionOverview, tariffTable, currencyConversionTable, tariffClassDefinition, localVehicleClassDefinition, timeClassDefinition, userClassDefinition, tollContextLayout, chargeReportingEvents, chargeReportConfiguration, tollContextVersion } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.	⇒		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.	
3			IF verify NOT "OK" THEN TP failed	
4			Verify that polygon points (tollContextPartition Overview. tollContextPartitionBoundingPolygon) are defined in a way that the connections between the points do not intersect.	
			IF verify "OK" THEN TP passed ELSE TP failed ENDIF	

B.6.3   BI test purposes

No BI test purposes are applicable to this TP group.

B.7   Tariff Table and Currency Conversion Table test purposes

B.7.1   General

These test purposes apply to:

— the Tariff Table according to ISO 17575-3:2016, Table B.96;

— tariffs according to ISO 17575-3:2016, Table B.98;

— Toll Scheme Types according to ISO 17575-3:2016, B.94;

— the Currency Conversion Table according to ISO 17575-3:2016, Table B.105.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.7.2   BV test purposes

The test subgroup objective is:

— to test the behaviour of the IUT in relation to Tariff Table attribute.

Table B.10 — TP_TT_BE_BV_02

TP_TT_BE_BV_02	Verify that type of Charge Unit is compliant to Toll Context Partition Type		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.3.2.2		
Initial condition	Back End is initialized and can send Context Data.		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO), (tariffTable = TT), (currencyConversionTable = CCT), (tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV) } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.	⇒	
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.

Table B.10 *(continued)*

3			IF verify NOT "OK" THEN TP failed

4			IF TCPO.tollContextPartitionType = 0
			  (i.e. roadSectionPricing) THEN
			  IF each TT.tariffs[i].chargeUnit is DISTANCE OR
			    EVENT (where i = 1..number of tariffs)
			    THEN
			      TP passed

			ELSE TP failed
			  ENDIF
			ENDIF
			IF TCPO.tollContextPartitionType = 1
			  (i.e. areaPricingDistance) OR
			  TCPO.tollContextPartitionType = 2
			  (i.e. areaPricingTime) THEN
			    IF each TT.tariffs[i].chargeUnit is
			    DISTANCE OR TIME
			    (where i = 1..number of tariffs) THEN
			      TP passed
			     ELSE TP failed
			   ENDIF
			ENDIF
			IF TCPO.tollContextPartitionType = 3
			  (i.e. cordonpricing) THEN
			    IF each TT.tariffs[i].chargeUnit is EVENT
			    (where i = 1..number of tariffs) THEN
			     TP passed
			     ELSE TP failed
			   ENDIF
			ENDIF

Table B.11 — TP_TT_BE_BV_03

TP_TT_BE_BV_03		Verify that Tariff Class is unique within one toll context	
TP origin		Specific	
Reference		ISO 17575-3:2016, 8.5.3.2.2	
Initial condition		Back End is initialized and can send Context Data. Authentication is not used.	
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO), (tariffTable = TT), (currencyConversionTable = CCT),	⇒	

Table B.11 *(continued)*

	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV) } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			IF each TT.tariffs[i].tariffClass is unique (where i = 1..number of tariffs) THEN TP passed ELSE TP failed ENDIF

Table B.12 — TP_TT_BE_BV_04

TP_TT_BE_BV_04	Verify presence of Currency Conversion Table when alternative currency is valid for a tariff class		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.3.2.3		
Initial condition	Back End is initialized and can send Context Data. Tariff class applicable for the toll context partition is using alternative currency. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO), (tariffTable = TT), (currencyConversionTable = CCT), (tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV)	⇒	

Table B.12 *(continued)*

	} } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Verify that currencyConversionTable and TT.Tariffs[i].alternativeCurrency are present and are defined for the same currency, where i represents a tariff class which requires alternative currency.

5			IF verify NOT "OK"
			    THEN TP failed
			    ELSE TP passed
			ENDIF

B.7.3   BI test purposes

No BI test purposes are applicable to this TP group.

B.8   Tariff Class Definition test purposes

B.8.1   General

These test purposes apply to:

— Tariff Class Definition according to ISO 17575-3:2016, Table B.106;

— Tariff Classes according to ISO 17575-3:2016, Table B.107.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.8.2   BV test purposes

The test subgroup objective is:

— To test the behaviour of the IUT in relation to Tariff Class Definition and Tariff Class attribute.

Table B.13 — TP_TACD_BE_BV_01

TP_TACD_BE_BV_01			Verify that each combination of vehicle, time, location and user class leads to one and only one Tariff Class	
TP origin			Specific	
Reference			ISO 17575-3:2016, 8.5.3.3.1	
Initial condition			Back End is initialized and can send Context Data	
			Authentication is not used.	
Stimulus and expected behaviour				
	IUT		**Tester**	

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	  }
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒		

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.	
3			IF verify NOT "OK" THEN TP failed	
4			Verify whether each combination of time, vehicle, location and user class leads to exactly one Tariff Class in TACD.tariffClasses[i]	

5			IF verify NOT "OK" THEN
			   TP failed
			   ELSE TP passed
			ENDIF	

Table B.14 — TP_TACD_BE_BV_02

TP_TACD_BE_BV_02	Verify that Tariff Class Id is unique within one toll context within TariffClassDefinition attribute		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.3.3.3		
Initial condition	Back End is initialized and can send Context Data		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		Tester

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	}
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			IF each TACD.tariffClasses[i].tariffClassId is unique (where i = 1..number of tariffClasses) THEN TP passed ELSE TP failed ENDIF

B.8.3   BI test purposes

No BI test purposes are applicable to this TP group.

B.9 Local vehicle Class Definition test purposes

B.9.1 General

These test purposes apply to Local Vehicle Class Definition according to ISO 17575-3:2016, Table B.108, and Local Vehicle Classes according to ISO 17575-3:2016, Table B.109.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.9.2 BV test purposes

The test subgroup objective is:

— to test the behaviour of the IUT in relation to Local Vehicle Class Definition attribute.

Table B.15 — TP_LVCD_BE_BV_01

TP_LVCD_BE_BV_01	Verify that Local Vehicle Class Id is unique
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.3.4.2
Initial condition	Back End is initialized and can send Context Data. Local Vehicle Class Definition is present in ADU.
	Authentication is not used.

Stimulus and expected behaviour

	IUT		Tester

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	  }
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF each LVCD.localVehicleClasses[i].localVehicleClassId is unique (where i = 1..number of localVehicleClasses)
			
			THEN
			  TP passed
			  ELSE TP failed
			
			ENDIF

Table B.16 — TP_LVCD_BE_BV_02

TP_LVCD_BE_BV_02	Verify that Priority Value is different for overlapping Vehicle Classes
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.3.4.2
Initial condition	Back End is initialized and can send Context Data. Local Vehicle Class Definition is present in ADU.
	Authentication is not used.

Stimulus and expected behaviour

	IUT		Tester

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	}
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Group localVehicleClasses that overlap at least with one criterion within nominalElements or ordinalElements. Verify that priorityValue is present AND each localVehicleClass gets different priorityValue within each group

5			IF verify "OK" THEN
			    TP passed
			
			    ELSE TP failed
			ENDIF

B.9.3   BI test purposes

No BI test purposes are applicable to this TP group.

B.10 Time Class Definition test purposes

B.10.1 General

These test purposes apply to Time Class Definition according to ISO 17575-3:2016, Table B.114 and Time Classes according to ISO 17575-3:2016, Table B.115.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.10.2 BV test purposes

The test subgroup objective is:

— to test the behaviour of the IUT in relation to Time Class Definition attribute.

Table B.17 — TP_TICD_BE_BV_01

TP_TICD_BE_BV_01	Verify that Time Class Id is unique		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.3.5.2		
Initial condition	Back End is initialized and can send Context Data. Time Class Definition is present in ADU. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		Tester

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	 }
	
	 }
	 Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			IF each TICD.timeClasses[i].timeClassId is unique (where i = 1..number of timeClasses)

Table B.17 *(continued)*

			THEN
			TP passed
			ELSE TP failed
			ENDIF

Table B.18 — TP_TICD_BE_BV_02

TP_TICD_BE_BV_02	Verify that Priority Value is different for overlapping Time Classes
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.3.5.2
Initial condition	Back End is initialized and can send Context Data. Time Class Definition is present in ADU.
	Authentication is not used.

Stimulus and expected behaviour

	IUT		Tester

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	  }
	}
	Back End may send the attributes in several **Iso17575-3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Group timeClasses that overlap at least with one criterion within nominalElements or ordinalElements. Verify that priorityValue is present AND each timeClass gets different priorityValue within each group

5			IF verify "OK" THEN
			  TP passed
			  ELSE TP failed
			ENDIF

B.10.3 BI test purposes

No BI purposes are applicable to this TP group.

B.11 User Class Definition test purposes

B.11.1 General

These test purposes apply to User Class Definition according to ISO 17575-3:2016, Table B.120 and User Classes according to ISO 17575-3:2016, Table B.121.

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.11.2 BV test purposes

The test subgroup objective is:

— to test the behaviour of the IUT in relation to User Class Definition attribute.

Table B.19 — TP_USCD_BE_BV_01

TP_USCD_BE_BV_01			Verify that User Class Id is unique	
TP origin			Specific	
Reference			ISO 17575-3:2016, 8.5.3.6.2	
Initial condition			Back End is initialized and can send Context Data. User Class Definition is present in ADU.	
			Authentication is not used.	
Stimulus and expected behaviour				
	IUT		**Tester**	

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	   }
	
	}
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒		

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.	
3			IF verify NOT "OK" THEN TP failed	
4			IF each USCD.userClasses[i].userClassId is unique (where i = 1..number of userClasses)	

			THEN
			   TP passed
			   ELSE TP failed
			ENDIF	

Table B.20 — TP_USCD_BE_BV_02

TP_USCD_BE_BV_02	Verify that Priority Value is different for overlapping User Classes		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.3.6.2		
Initial condition	Back End is initialized and can send Context Data. User Class Definition is present in ADU.		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	}
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Group userClasses that overlap at least with one criterion within contractTypes or actualNumberOfPassengers. Verify that priorityValue is present AND each userClass gets different priorityValue within each group.

B.11.3 BI test purposes

No BI purposes are applicable to this TP group.

B.12 Toll Context Layout test purposes

B.12.1 General

These test purposes apply to:

— Toll Context Partition Layout according to ISO 17575-3:2016, Table B.122;

— Supported layout types according to ISO 17575-3:2016, Table B.122;

— Section Layout Description according to ISO 17575-3:2016, Table B.124 (TCL-S);

— Area Layout Description according to ISO 17575-3:2016, Table B.138 (TCL-A);

— Road Network object according to ISO 17575-3:2016, Table B.139 (TCL-A);

— Cordon Layout Description according to ISO 17575-3:2016, Table B.142 (TCL-C);

— Cordon Entry Location Description according to ISO 17575-3:2016, Table B.145 (TCL-C);

— Cordon Exit Location Description according to ISO 17575-3:2016, Table B.145 (TCL-C).

NOTE   No test purposes for behaviour invalid (BI) are specified, as ISO 17575-3 does not specify any behaviour invalid of the Back End.

B.12.2 BV test purposes

The test subgroup objective is:

— to test the behaviour of the IUT in relation to Toll Context Layout attribute for section layout description (TCL-S), Section List for section layout description (TCL-S), area layout description (TCL-A) and cordon layout description (TCL-C).

Table B.21 — TP_TCL_BE_BV_01

TP_TCL_BE_BV_01	Verify that Layout Description is compliant to Toll Context Partition Type		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4		
Initial condition	Back End is initialized and can send Context Data.		
	Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	(tollContextOverview = TCO),
	(tollContextPartitionOverview = TCPO),
	(tariffTable = TT),
	(currencyConversionTable = CCT),
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCPL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	(TollContextVersion = TCV)
	    }
		⇒	

Table B.21 *(continued)*

	} Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			FOR each TCPO.tollContextPartitions DO {
			
			    IF TCPO.tollContextPartitionType = 0 (i.e.roadSectionPricing) THEN
			        IF TCL.layoutDescription is NOT SECTIONLAYOUT THEN
			            TP failed
			    ENDIF
			}
			FOR each TCPO.tollContextPartitions DO {
			
			    IF TCPO.tollContextPartitionType = 1 (i.e. areaPricingDistance) OR TCPO.tollContextPartitionType = 2 (i.e. areaPricingTime) THEN
			        IF TCL.layoutDescription is NOT EALAYOUT THEN
			            TP failed
			    ENDIF
			}
			FOR each TCPO.tollContextPartitions DO {
			
			    IF TCPO.tollContextPartitionType = 3 (i.e.cordonPricing) THEN
			        IF TCL.layoutDescription is NOT CORDONLAYOUT THEN
			            TP failed
			    ENDIF
			}
			TP passed

Table B.22 — TP_TCL_BE_BV_02

TP_TCL_BE_BV_02	Verify that one toll context shall have one or more toll context partition layout descriptions, one per defined toll context partition		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.1		
Initial condition	Back End is initialized and can send Context Data Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO),	⇒	

Table B.22 *(continued)*

	(tariffTable = TT), (currencyConversionTable = CCT), (tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCPL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV) } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF (at least one TollContextPartitionLayout is part of TCPL defined for toll context) AND
			(each TCO.tollContextPartitions has exactly one cor-responding TollContextPartitionLayout definition in TCL)
			   THEN TP passed
			   ELSE TP failed
			ENDIF

B.12.2.1 Toll Context Partition Layout test purposes for section pricing scheme

Table B.23 — TP_TCL-S_BE_BV_01

TP_TCL-S_BE_BV_01	Verify that Charge Object Id is unique		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.2		
Initial condition	Back End is initialized and can send Context Data. Section pricing scheme is used for the Toll Context. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO), (tariffTable = TT), (currencyConversionTable = CCT),	⇒	

Table B.23 (continued)

	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV) } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF each
			    TCL[i].sectionLayoutDescription[j].chargeId is unique (where i = 1.. length of TCL sequence,
			    j = 1..number of sectionLayoutDescriptions)
			
			    THEN
			        TP passed
			    ELSE TP failed
			ENDIF

Table B.24 — TP_TCL-S_BE_BV_02

TP_TCL-S_BE_BV_02	Verify that Point Identifier is unique		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.2		
Initial condition	Back End is initialized and can send Context Data. Section pricing scheme is used for the Toll Context. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**
1	**Iso17575-3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO), (tariffTable = TT), (currencyConversionTable = CCT), (tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV)	⇒	

Table B.24 *(continued)*

	} } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.		
2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			FOR each TCL[i].sectionLayoutDescription[j]
			
			 (where i = 1..length of TCL sequence,
			 j = 1..number of sectionLayoutDescription)
			
			 IF (each networkPoints[k].pointIdentifier is unique within sectionLayoutDescription[j] (where k = 1..number of Network Points))
			
			 OR (networkPoints = ø)
			
			 THEN
			 GOTO next i,j,k combination
			 ELSE TP failed
			 ENDIF

5			IF TP not failed THEN TP passed

Table B.25 — TP_TCL-S_BE_BV_03

TP_TCL-S_BE_BV_03	Verify the Link Id is unique		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.2.3		
Initial condition	Back End is initialized and can send Context Data. Section pricing scheme is used for the Toll Context. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	 (tollContextOverview = TCO),
	 (tollContextPartitionOverview = TCPO),
	 (tariffTable = TT),
	 (currencyConversionTable = CCT),
	 (tariffClassDefinition = TACD),
	 (localVehicleClassDefinition = LVCD),
	 (timeClassDefinition = TICD),
	 (userClassDefinition = USCD),
	 (tollContextLayout = TCL),
	 (chargeReportingEvents = CRE),
	 (chargeReportConfiguration = CRC),
	 (TollContextVersion = TCV)
	 }
	 }
		⇒	

Table B.25 *(continued)*

	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.	
2		Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3		IF verify NOT "OK" THEN TP failed

4		IF (each
		
		TCL[i].sectionLayoutDescription[j].tollPath. linkId is unique (where i = 1.. length of TCL sequence, j = 1..number of sectionLayoutDescription))
		
		THEN
		  TP passed
		  ELSE TP failed
		
		ENDIF
		
		NOTE link ID is to be unique within the entire toll context

Table B.26 — TP_TCL-S_BE_BV_06

TP_TCL-S_BE_BV_06	Verify that Point identified by Point Identifier in Link has been defined in Network Points		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.2.3		
Initial condition	Back End is initialized and can send Context Data. Section pricing scheme is used for the Toll Context. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		Tester

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	  }
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

Table B.26 *(continued)*

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Verify that each point (i.e. startPoint, end point, intermediatePoints) defined in each Link of TCL[i] which is identified by pointIdentifier is defined in corresponding Toll Context Layout TCL[i].net-workPoints where i = 1.. length of TCL sequence

5			IF verify "OK"
			    THEN TP passed
			    ELSE TP failed
			ENDIF

Table B.27 — TP_TCL-S_BE_BV_08

TP_TCL-S_BE_BV_08	Verify that Point identified by Point Identifier in Liability Rules has been defined in Network Points
TP origin	Identical to TP_TCL-S_BE_BV_06
Reference	ISO 17575-3:2016, 8.5.4.2.4
Initial condition	See TP_TCL-S_BE_BV_06
Stimulus and expected behaviour	
See Table B.26.	
Link type is replaced by LiabilityRules type	

Table B.28 — TP_TCL-S_BE_BV_10

TP_TCL-S_BE_BV_10	Verify that Point identified by Point Identifier in Supporting Information has been defined in Network Points
TP origin	Identical to TP_TCL-S_BE_BV_06
Reference	ISO 17575-3:2016, 8.5.4.2.5
Initial condition	See TP_TCL-S_BE_BV_06
Stimulus and expected behaviour	
See Table B.26.	
Link type is replaced by SupportingPoints type	

Table B.29 — TP_TCL-S_BE_BV_11

TP_TCL-S_BE_BV_11	Verify that Applicable Time Classes for Section Layout are present in Time Class Definition
TP origin	Specific
Reference	ISO 17575-3:2016, 8.5.4.2.2
Initial condition	Back End is initialized and can send Context Data. Section Pricing scheme is used for the Toll Context. Authentication is not used.

Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	   }
	
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed
4			Verify that each TCL[i].sectionLayoutDescription[j].applicableTimeClasses[k] is defined in TICD (where i = 1.. length of TCL sequence, j = 1..number of sectionLayoutDescription, k = 1..number of applicableTimeClasses)) NOTE If applicableTimeClasses = ø, the result of the verification for particular sectionLayout is OK.
5			IF verify "OK" OR applicableTimeClasses = ø THEN TP passed ELSE TP failed ENDIF

B.12.2.2 Toll Context Partition Layout test purposes for area pricing scheme

Table B.30 — TP_TCL-A_BE_BV_01

TP_TCL-A_BE_BV_01	Verify that the Area Id is unique		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.3		
Initial condition	Back End is initialized and can send Context Data. Area pricing scheme is used for the Toll Context. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	    }
	}
	
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			IF each TCL[i].areaPricingLayout[j].areaId is
			    unique
			    (where i = 1..length of TCL sequence,
			    j = 1..number of areaPricingLayouts)
			
			    THEN
			      TP passed
			        ELSE TP failed
			
			ENDIF

Table B.31 — TP_TCL-A_BE_BV_02

TP_TCL-A_BE_BV_02	Verify that the Charge Object Id is unique
TP origin	Identical to TP_TCL-S_BE_BV_01
Reference	ISO 17575-3:2016, 8.5.4.3
Initial condition	Back End is initialized and can send Context Data. Area pricing scheme is used for the Toll Context.
Stimulus and expected behaviour	
See Table B.23. Replace each sectionLayoutDescription.chargeId element with areaPricingLayout.roadNetworks.roadNetworkObjects.chargeId element.	

Table B.32 — TP_TCL-A_BE_BV_03

TP_TCL-A_BE_BV_03	Verify that the Point Identifier is unique
TP Origin	Identical to TP_TCL-S_BE_BV_02
Reference	ISO 17575-3:2016, 8.5.4.3
Initial condition	Back End is initialized and can send Context Data. Area pricing scheme is used for the Toll Context.
Stimulus and expected behaviour	
See Table B.24. Replace each sectionLayoutDescription element with areaPricingLayout.roadNetworks.roadNetworkObjects which consists of networkPoints element.	

Table B.33 — TP_TCL-A_BE_BV_04

TP_TCL-A_BE_BV_04	Verify that the Link Id is unique
TP origin	Identical to TP_TCL-S_BE_BV_03
Reference	ISO 17575-3:2016, 8.5.4.3
Initial condition	Back End is initialized and can send Context Data. Area pricing scheme is used for the Toll Context.
Stimulus and expected behaviour	
See Table B.25. Replace each sectionLayoutDescription element with areaPricingLayout.roadNetworks.roadNetworkObjects which consists of tollPath element. link ID is to be unique within the entire toll context.	

Table B.34 — TP_TCL-A_BE_BV_06

TP_TCL-A_BE_BV_06	Verify that Point is identified by Point Identifier within Link
TP origin	Identical to TP_TCL-S_BE_BV_06
Reference	ISO 17575-3:2016, 8.5.4.3
Initial condition	Back End is initialized and can send Context Data. Area pricing scheme is used for the Toll Context.
Stimulus and expected behaviour	
See Table B.26.	

Table B.35 — TP_TCL-A_BE_BV_08

TP_TCL-A_BE_BV_08	Verify that Point identified by Point Identifier in Supporting Information has been defined in Network Points
TP origin	Identical to TP_TCL-A_BE_BV_06
Reference	ISO 17575-3:2016, 8.5.4.3
Initial condition	Back End is initialized and can send Context Data. Area pricing scheme is used for the Toll Context.
Stimulus and expected behaviour	
See Table B.34.	
Link type is replaced by LiabilityRules type	

B.12.2.3 Toll Context Partition Layout test purpose for Cordon pricing scheme

Table B.36 — TP_TCL-C_BE_BV_01

TP_TCL-C_BE_BV_01	Verify that Cordon Id is unique	
TP origin	Specific	
Reference	ISO 17575-3:2016, 8.5.4.4.1	
Initial condition	Back End is initialized and can send Context Data. Cordon pricing scheme is used for the Toll Context. Authentication is not used.	
Stimulus and expected behaviour		
	IUT	**Tester**
1	**Iso17575–3Adu** = {aduHeader, aduBody = { (tollContextOverview = TCO), (tollContextPartitionOverview = TCPO), (tariffTable = TT), (currencyConversionTable = CCT), (tariffClassDefinition = TACD), (localVehicleClassDefinition = LVCD), (timeClassDefinition = TICD), (userClassDefinition = USCD), (tollContextLayout = TCL), (chargeReportingEvents = CRE), (chargeReportConfiguration = CRC), (TollContextVersion = TCV) } } Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.	⇒	
2		Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3		IF verify NOT "OK" THEN TP failed

Table B.36 (continued)

4		IF each TCL[i].cordonPricingLayout[j]. cordonId is unique (where i = 1..length of TCL sequence, j = 1..number of cordonPricingLayouts)
		
		THEN
		  TP passed
		  ELSE TP failed
		
		ENDIF

Table B.37 — TP_TCL-C_BE_BV_02

TP_TCL-C_BE_BV_02	Verify that Applicable Time Classes for Cordon Layout are present in Time Class Definition (Cordon Entry Locations)		
TP origin	Specific		
Reference	ISO 17575-3:2016, 8.5.4.4.2		
Initial condition	Back End is initialized and can send Context Data. Cordon pricing scheme is used for the Toll Context. Authentication is not used.		
Stimulus and expected behaviour			
	IUT		**Tester**

1	**Iso17575–3Adu** = {aduHeader, aduBody = {
	
	(tollContextOverview = TCO),
	
	(tollContextPartitionOverview = TCPO),
	
	(tariffTable = TT),
	
	(currencyConversionTable = CCT),
	
	(tariffClassDefinition = TACD),
	(localVehicleClassDefinition = LVCD),
	(timeClassDefinition = TICD),
	(userClassDefinition = USCD),
	(tollContextLayout = TCL),
	(chargeReportingEvents = CRE),
	(chargeReportConfiguration = CRC),
	
	(TollContextVersion = TCV)
	
	  }
	
	}
	Back End may send the attributes in several **Iso17575–3Adus.** TollContext data element contained in ADU Header shall be the same in each ADU.
		⇒	

2			Verify the structure of sent **Iso17575–3Adu(s)**, taking presence and absence of data elements into account and verify allowed values of present data elements according to Table C.1.
3			IF verify NOT "OK" THEN TP failed

4			FOR each TCL. cordonPricingLayout DO {
			  FOR each cordonBorderPolygon DO {
			    FOR each cordonEntryLocation DO {
			      Verify that each timeClassId in applicableTimeClasses is defined in TICD
			      IF verify NOT "OK" THEN TP failed