TECHNICAL SPECIFICATION

ISO/TS 16407-1

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Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-1 —

Part 1:

Test suite structure and test purposes

Perception du télépéage — Évaluation de la conformité de l'équipement à l'ISO/TS 17575-1

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







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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO/TS 16407-1 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*, in collaboration with Technical Committee CEN/TC 278, *Road Transport and Traffic Telematics*.

ISO/TS 16407 consists of the following parts, under the general title *Electronic fee collection* — *Evaluation of equipment for conformity to ISO/TS 17575-1*:

- Part 1: Test suite structure and test purposes
- Part 2. Abstract test suite

Introduction

This part of ISO/TS 16407 is part of a set of standards that supports interoperability of autonomous electronic fee collection (EFC) systems, which includes ISO/TS 17575 parts 1 to 4 that define the EFC context data, their charge reports and their use of communication infrastructure.

Within the suite of EFC standards, this conformance evaluation procedure defines the process and tests for conformity evaluation of Front End and Back End that comply with the requirements in ISO/TS 17575-1.

This part of ISO/TS 16407 is intended to

- assess Front End and Back End capabilities,
- assess Front End and Back End behaviour,
- serve as a guide for Front End and Back End conformance evaluations and type approvals,
- achieve comparability between the results of the corresponding tests applied in different places at different times, and
- facilitate communication between parties.

This part of ISO 16407 is based on

- ISO/TS 17575-1, and
- the ISO 9646 family of standards on conformance test methodology.

Electronic fee collection — Evaluation of equipment for conformity to ISO/TS 17575-1 —

Part 1:

Test suite structure and test purposes

1 Scope

This part of ISO/TS 16407 specifies the test suite structure (TSS) and test purposes (TP) to evaluate the conformity of Front End and Back End to ISO/TS 17575-1.

The objective of this part of ISO/TS 16407 is to provide a basis for conformance tests for the Front End and the Back End in electronic fee collection (EFC) based on autonomous on-board equipment (OBE) to enable interoperability between different equipment supplied by different manufacturers.

Autonomous 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). These EFC systems are referred to by a variety of names. Besides the terms autonomous systems and GNSS/CN systems, also the terms GPS/GSM systems and wide-area charging systems are in use.

Autonomous systems use satellite positioning; often combined with additional sensor technologies such as gyroscopes, odometers, and accelerometers, to localise 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.

The testing of the following behaviours and functionalities is outside of the scope of this part of ISO/TS 16407:

- 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;
- authentication, as its handling is not described in ISO/TS 17575-1;
- account update procedure ("reload" and "add to account") with respect to time and duration based on onboard accounts, as run-time environment has significant impact on test purpose outcome.

As ISO/TS 17575-1 does not specify any invalid behaviour of Front End and Back End, BI test purposes are not applicable for any test purpose group.

As ISO/TS 17575-1 does not define which of the data elements shall be present in the charge report response (CRR) (and under which conditions), the scope of test purposes (TP) for Back End is very limited.

Normative references

The following referenced documents are indispensable for the application 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/IEC 9646-6, Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 6: Protocol profile test specification

ISO/TS 17575-1, Electronic fee collection — Application interface definition for autonomous systems — ,16407.1.201 Part 1: Charging

Terms and definitions 3

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

3.1

attribute

application information formed by one or by a sequence of data elements, and that is managed by different actions used for implementation of a transaction

[ISO 14906:2011, definition 3.3]

3.2

authenticator

data appended to, or a cryptographic transformation of, a data unit that allows a recipient of the data unit to prove the source and/or the integrity of the data unit and protect against forgery

[ISO 14906:2011, definition 3.4]

3.3

Back End

generic name for the computing and communication facilities of the Service Provider and/or the Toll Charger

[ISO/TS 17575-1:2010, definition 3.4]

3.4

charge report

data structure transmitted from the Front End to the Back End to report road usage data and supplementary related information

[ISO/TS 17575-1:2010, definition 3.5]

3.5

contract

expression of an agreement between two or more parties concerning the use of the road infrastructure

[ISO 14906:2011, definition 3.7]

3.6

data element

datum, which might itself consist of lower level data elements

[ISO/TS 17575-1:2010, definition 3.10]

3.7

Front End

part(s) of the toll system where road usage data for an individual road user are collected, processed and delivered to the Back End

NOTE The Front End comprises the on-board equipment and an optional proxy.

[ISO/TS 17575-1:2010, definition 3.13]

3.8

service provider

of Isolts AGAOT. A. 20 operator that accepts the user's payment means and in return provides a road-use service to the user

NOTE Taken from ISO 14906:2004.

3.9

toll charger

legal entity charging a toll for vehicles in a toll domain

[ISO/TS 17574:2009, definition 3.27]

3.10

toll context

logical view of a toll scheme as defined by attributes and functions IS FUIL S

[ISO/TS 17575-1:2010, definition 3.22]

3.11

toll regime

set of rules, including enforcement rules, governing the collection of toll in a toll

[ISO/TS 17575-1:2010, definition 3.25]

Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

ADU Application data unit (ISO/TS 17575-1)

ASN.1 Abstract Syntax Notation One (ISO/IEC 8824-1:2002)

Abstract Test Suite **ATS**

ΒI Invalid Behaviour

BV(Valid Behaviour

CCC Compliance Check Communication (ISO/TS 12813)

CN Cellular network (ISO/TS 17575-1)

CRR Charge Report Response

DUT **Device Under Test**

EFC Electronic Fee Collection (ISO 17573)

GNSS Global Navigation Satellite Systems (ISO/TS 17575-1)

ISO/TS 16407-1:2011(E)

HMI Human Machine Interface (ISO/TS 17575-1)

ID Identifier

OBE On-board Equipment (ISO/TS 17575-1)

PCTR Proforma Conformance Test Report

PICS Protocol Implementation Conformance Statements

TP **Test Purposes**

TSS **Test Suite Structure**

VAT Value Added Tax (ISO/TS 17575-1)

Value added tax (VAT) Test Suite Structure (TSS)

5.1 Structure

Table 1 shows the Test Suite Structure (TSS).

Table 1 — Test Suite Structures

Protocol Implementation (
Test Purposes					
Test Suite Structure	Test Suite Structure				
Value Added Tax (ISO/TS	aDF of ISOITS 16ADT. 1.2011				
alue added tax (VAT) Tes	t Suite Structure (TSS)	45			
Structure		, coll			
1 shows the Test Suite Structure	e (TSS).				
	Гable 1 — Test Suite Structu	res			
Group	Type of DUT	Behaviour			
Charge Report	Front End	Valid Behaviour			
	haji,	Invalid Behaviour not applicable			
Back End Feedback	Front End	Valid Behaviour			
	·Click	Invalid Behaviour not applicable			
Charge Report Response	Back End	Valid Behaviour			
, c		Invalid Behaviour not applicable			

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

- for test purposes that are identical to those defined in the base standards conformance test cases direct reference is reported; for 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;
- for test purposes that are **specific** to ISO/TS 17575-1, a complete description is given; C)
- an indication on whether a test purpose is **identical**, **derived**, or **specific** is given in each test purpose. d)

5.3 Test purposes (TP)

5.3.1 TP definition conventions

The TPs are defined following the rules shown in Table 2 below. 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/TS 17575-1.

Table 2 — TP Definition Rules

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

TP ID	The TP ID is a unique identifier. It shall be specified according to
	the TP naming conventions defined in the sub-clause below.
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.
1 101 1 101	TI WATER TO THE TOTAL OF THE PARTY OF THE PA
Initial condition	The condition defines in which initial state the DUT has to be to
	apply the actual TP.
Ctionally and averaged	
Stimulus and expected	Definition of the events the tester performs, and the events that are
behaviour	expected from the
	DUT to conform to the base anneitication
	DUT 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>/<dut>/<x>-<nn>

TP: to indicate that it is a Test Purpose;

<group> : which group TP belongs to;

<dut> : type of DUT (i.e. FE or BE);

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

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

The naming conventions are as described in Table 3.

Table 3 — TP naming convention

1			
Identifier:			
TP/ <group>/<dut>/<x>-<nn></nn></x></dut></group>			
<group></group>			
applicable for FE	CR	Charge Report	
• •	•	• .	
applicable for FE	BEF	Back End Feedback	
applicable for BE	CRR	Charge Report Response	
<dut> = type of DUT</dut>	FE	Front End	
, , , , , , , , , , , , , , , , , , ,	BE	Back End	
T			
x = Type of testing	BV	Valid Behaviour Tests	
	BI	Invalid Behaviour Tests	11
<nn> = sequential</nn>	(01-99)	Test Purpose Number) ,
number	(3:30)	G X	_
Humber		NO	

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.

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

Annex A (normative)

Test purposes (TP) for Front End

A.1 Introduction

This annex contains the Test Purposes (TP) for the conformity evaluation of Front End to ISOAS 17575-1.

A.1.1 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 below.

Table A.1 — Description of TP Symbols

	7. 9
SYMBOL	DESCRIPTION
XXX.rq ⇒	The Tester sends the XXX.rq to the DUT
← YYY.rs	The DUT sends the YYY.rs to the Tester
← YYY.rs = {attribute1, attribute2, attribute3}	The DUT sends the YYY.rs to the Tester. 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 DUT sends the YYY.rs to the Tester with attribute1. 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
ZID' Ø	Means "empty" or "not set"
A B	A OR B
$x \rightarrow n^-$	Value of parameter x is very close to n and x is less than n
$x \rightarrow n^+$	Value of parameter x is very close to n and x greater than n

In addition, it has to be noted that the sequence of ADUs issued by an Front End is not constrained by ISO/TS 17575-1. This means that ADU cannot in general be forced to be generated by the DUT. To execute the test purposes it may be needed to filter out some ADUs, as they might not be applicable for TP, e.g. some ADUs are applicable for different toll regime. Such situation is illustrated in Figure A.1.

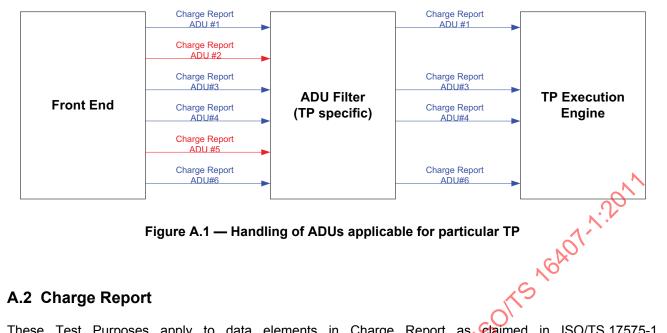


Figure A.1 — Handling of ADUs applicable for particular TP

A.2 Charge Report

These Test Purposes apply to data elements in Charge Report as claimed in ISO/TS 17575-1 Clause B.2/ChargeReport, Clause B.3.1, Clause B.3.3.

No test purposes for invalid behaviour are specified (BI), as ISQ/TS 17575-1 does not specify any invalid NOTE view the full behaviour of Front End.

A.2.1 BV test purposes

Test subgroup objective:

spect to chick chick to test the behaviour of the DUT with respect to data elements contained in Charge Report.

8

TP/CR/FE/BV/02	Verify that Time of Report is according to the local time
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.3.2
Initial Condition Front End received already Context Data with correctly set timeZone	
Front End is initialized and has a toll context activated.	
No authentication is required.	

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	45 16A01.1.20
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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 timeofReport is according to the local time
5	ien	ne.	IF verify "OK" OR timeofReport not present THEN TP passed ELSE TP failed ENDIF
6	on. Click to the	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/03	Verify that Transaction Counter is incremented
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.3.5
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter to be present.
Front End is initialized and has a toll context activated.	
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter = v1, mileage, listOfCCCAttributes, authenticator}	♦	ats 16401-1.1.
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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	*C	U JIO	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter = v2, mileage, listOfCCCAttributes, authenticator	↔	
6	ADSISO.		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7	10 ^k		IF verify NOT "OK" THEN TP failed
8	STATE		IF v2-v1 equals to 1 THEN TP passed ELSE TP failed ENDIF
9		U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/04	Transaction Counter Overflow	
TP Origin	Specific	
Reference	ISO/TS 17575-1, Clause 6.3.5	
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter to be present.	
	Front End is initialized and has a toll context activated.	
	No authentication is required.	
Stimulus and Expected Behaviour		

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter = 4294967295, mileage, listOfCCCAttributes, authenticator}	⇒	01516401-1-1
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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	*O view	~ ×	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter = v1, mileage, listOfCCCAttributes, authenticator}	⇒	
6	a Rosiso.		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7	W.		IF verify NOT "OK" THEN TP failed
8 5			IF v1 equals to 0 THEN TP passed ELSE TP failed ENDIF
9		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/05	Verify that mileage is not decreasing within one contract
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.3.6
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting mileage to be present.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage = v1, listOfCCCAttributes, authenticator}	⇒	OTS 16401.1.
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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	~C	4	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage = v2, listOfCCCAttributes, authenticator}	⇒	
6	ADSISO.		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7	W.		IF verify NOT "OK" THEN TP failed
8	STAR		IF (v2.dist >= v1.dist) AND (v2.disUnit equals to v1.disUnit) THEN TP passed ELSE TP failed ENDIF
9		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/06	Verify that mileage rolls over		
TP Origin	Specific		
Reference	ISO/TS 17575-1, Clause 6.3.6		
Initial Condition Front End received already Context Data with Charge Report Context Data with			
	Front End is initialized and has a toll context activated.		
Mileage is about to roll-over, e.g. its value is close to 16777215			
	No authentication is required.		
Stimulus and Expected Behaviour			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession,	⇒	isors 16407.
	accountStatus, transactionCounter, mileage → 16777215 , listOfCCCAttributes, authenticator}		, ISOIT
2			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Jable C.1
3		-0	IF verify NOT "OK" THEN TP failed
4	click to view	=	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
5	Mileage has changed enough to perform roll-over		
6	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage = v1, listOfCCCAttributes, authenticator}	⇒	
7	MORP		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
80			IF verify NOT "OK" THEN TP failed
9			
10		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/07	Verify that OBE ID is fixed
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.4.1
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting obeld to be present.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	-15 16A01-1-1-1
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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		± 110°	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	
6	apsiso.		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7	W.		IF verify NOT "OK" THEN TP failed
8	STATE	←	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
n	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	

n+1	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
n+2	Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
n+3	IF verify NOT "OK" THEN TP failed
n+4	IF (obeld the same in every ChargeReport) THEN TP passed ELSE TP failed ENDIF

TP/CR/FE/BV/08	Verify that Vehicle License Plate Number is not used in Charge Report once it is used in lower level data elements	
TP Origin	Specific	
Reference	ISO/TS 17575-1, Clause 6.4.2	
Initial Condition	Front End received already Context Data.	
	Front End is initialized and has a toll context activated.	
	No authentication is required.	
Stimulus and Expected Behaviour		

		1	_
	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	
2	ARDSISO.		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Dr		IF verify NOT "OK" THEN TP failed
45			IF (vehicleLPNr present in usageStatementList at any level) AND (vehicleLPNr present in ChargeReport) THEN TP failed ELSE TP passed ENDIF
5		\(\)	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

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TP/CR/FE/BV/09	Verify the uniqueness of Usage Statement ID
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.5.2
Initial Condition	Front End received already Context Data.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	45 16A0T-1.20
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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		jie	IF (usageStatementList present in ChargeReport) AND NOT (every usageStatementId unique within usageStatementList) THEN TP failed ELSE TP passed ENDIF
5	OW. Click to	←	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/10	Verify that begin period is lower than end period in Report Period
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.3.3
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting reportPeriod to be present.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	ors reading.
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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	jien	ne,	F (reportPeriod.beginOfPeriod < reportPeriod.endOfPeriod) THEN TP passed ELSE TP failed ENDIF
5	ON. Click to M	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/11	Verify that begin period is lower than end period in Aggregated Fee
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.5.4
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting aggregatedFee to be present.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	ELSOITS VEROTA !!
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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		Civ	IF each usageStatementList[i].aggregatedFee.timePeriodCovered.beginOfPeriod usageStatementList[i].aggregatedFee.timePeriodCovered.endOfPeriod (where i=1number usageStatement) THEN TP passed ELSE TP failed ENDIF

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TP/CR/FE/BV/12	Verify that begin period is lower than end period in Aggregated Single Tariff Class Session			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.5.5			
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting timePeriodCovered (associated with aggregatedSingleClassTariffSession) to be present.			
	Front End is initialized and has a toll context activated.			
	No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	of of Isolfs 1640
2			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3			IF verity NOT "OK" THEN TP failed
4	con. click	OV.	IF each usageStatementList[i]. aggregatedSingleTariffClassSession.timePeriodCovered.beginOfPeriod < usageStatementList[i]. aggregatedSingleTariffClassSession.timePeriodCovered.endOfPeriod (where i=1number usageStatement) THEN TP passed ELSE TP failed ENDIF
5	, 20515O.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

TP/CR/FE/BV/13	Verify that reported Tariff Class is defined in Context Data (Aggregated Single Class Tariff Session)
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.5.6
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting tariffClass (associated with aggregatedSingleClassTariffSession) to be present.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	of 1501TS 16AOT
2			Verify structure of sent ChargeReport, taking presence and absence of optional 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	STANDARDSISO.COM. Click	0	Condition#1. Werify whether each usageStatementList[i]. aggregatedSingleTariffClassSession.tariffClass.locationClassId defined in Context Data Condition#2. Verify whether each usageStatementList[i]. aggregatedSingleTariffClassSession.tariffClass.timeClassId defined in Context Data Condition#3. Verify whether each usageStatementList[i]. aggregatedSingleTariffClassSession.tariffClass.userClassId defined in Context Data where i=1number usageStatement
5	STAND		IF (Condition#1 OK) AND (Condition#2 OK) AND (Condition#3 OK) THEN TP passed ELSE TP failed ENDIF

TP/CF	R/FE/BV/14	Verify that reported Charged Objects)	Tari	ff Class is defined in Context Data (List of	
TP Origin Specific					
Reference ISO/TS 17575-1, Clause		se 6.5	5.7		
Initial	requesting tariffClass (present.		ready Context Data with Charge Report Configuration (associated with DetectedChargeObjectContent) to be and has a toll context activated.		
		No authentication is red	quire	d.	
Stimu	llus and Expected B	l Behaviour			
		DUT		Tester	
1	' '	ProviderContract = contract1, ort, reportPeriod, versionInfo, tForThisSession, ionCounter, mileage,	⇒	(SOITS 16AO	
2				Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1	
3			C.	IF verify NOT "OK" THEN TP failed	
4		OM: Click to view	. Company	Condition#1. Verify whether each usageStatementList[i]. listOfChargeObjects[j].tariffClass.locationClassId defined in Context Data Condition#2.	
	co.	OW. Clip		Verify whether each usageStatementList[i]. listOfChargeObjects[j].tariffClass.timeClassId defined in Context Data Condition#3. Verify whether each usageStatementList[i]. listOfChargeObjects[j].tariffClass.userClassId defined in	
	ADARDS150.C			Context Data where i=1number usageStatement j = 1 number listOfChargedObjets for particular usageStatement	
5	7			IF (Condition#1 OK) AND (Condition#2 OK) AND (Condition#3 OK) THEN TP passed ELSE TP failed ENDIF	
6			(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}	

TP/CR/FE/BV/15	Verify that reported Tariff Class is defined in Context Data (List of Raw Usage Data)			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.5.9			
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting tariffClass (associated with ListOfRawUsageDataContent) to be present.			
	Front End is initialized and has a toll context activated.			
	No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	(150/TS 1640)
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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	~C	jie	Condition#1. Verify whether each usageStatementList[i]. listOfRawUsageData.tariffClass.locationClassId defined in Context Data
	en: Click to		Condition#2. Verify whether each usageStatementList[i]. listOfRawUsageData.tariffClass.timeClassId defined in Context Data
	SISO. COL		Condition#3. Verify whether each usageStatementList[i]. listOfRawUsageData.tariffClass.userClassId defined in Context Data
			where i=1number usageStatement
5	STANDARDSISO.COM. Click to		IF (Condition#1 OK) AND (Condition#2 OK) AND (Condition#3 OK) THEN TP passed ELSE TP failed ENDIF
6		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}

A.2.2 BI test purposes

No BI test purposes are applicable for this TP group.

to test DUT behaviour with respect to OBE Status for Driver;

A.3 Back End Feedback

These Test Purposes apply to Back End feedback sent in Charge Report Response as claimed in ISO/TS 17575-1 Clause B.2.ChargeReportResponse, Clause B.3.2, Clause B.3.4.

No test purposes for invalid behaviour are specified (BI), as ISO/TS 17575-1 does not specify any invalid JTS 16407.1.20 behaviour of Front End.

A.3.1 BV test purposes

Test subgroup objective:

- STANDARDSISO.COM. Click to view the full PLF of — to test the DUT behaviour with respect account update handling for the following types of on-board

TP/BEF/FE/BV/01	Verify that OBE Status For Driver is 'OK' having received Charge Report Response
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.4.7
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter or mileage to be present.
Front End is initialized and has a toll context activated.	
	No authentication is required.

	DUT		Tester
	DOT		rester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	COIS 16401
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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		# jie	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
5	Verify that OBE status 'OK'		
6	IF verify "OK" THEN TP passed ELSE TP failed ENDIF		

TP/BEF/FE/BV/02	Verify that OBE Status For Driver is 'NOK' having received Charge Report Response	
TP Origin	Specific	
Reference	ISO/TS 17575-1, Clause 6.4.7	
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter or mileage to be present.	
	Front End is initialized and has a toll context activated.	
	No authentication is required.	

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	COITS 16AOT
2			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3		ķ	Fverify NOT "OK" THEN TP failed
4	x to rien		ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 1, accountUpdate = Ø, responseAuthenticator = Ø}
5	Verify that OBE status 'NOK'		
6	IF verify "OK" THEN TP passed ELSE TP failed ENDIF		

TP/BEF/FE/BV/03	Verify that OBE Status For Driver is 'contactOperator' having received Charge Report Response
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.4.7
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter or mileage to be present.
	Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT	1	T 4 - 11
	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	cors react.
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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			ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 2, accountUpdate = Ø, responseAuthenticator = Ø}
5	Verify that OBE status 'contactOperator'		
6	IF verify "OK" THEN TP passed ELSE TP failed ENDIF		

TP/BEF/FE/BV/04	Verify that OBE Status For Driver is 'nokInLocalContext' having received Charge Report Response	
TP Origin	Specific	
Reference	ISO/TS 17575-1, Clause 6.4.7	
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter or mileage to be present.	
	Front End is initialized and has a toll context activated.	
	No authentication is required.	

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	COITS 1640T
2			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3		×	Fverify NOT "OK" THEN TP failed
4	x to view		ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 3, accountUpdate = Ø, responseAuthenticator = Ø}
5	Verify that OBE status 'nokInLocalContext'		
6	IF verify "OK" THEN TP passed ELSE TP failed ENDIF		

TP/BEF/FE/BV/05	Verify that OBE Status For Driver is 'noSignalling' having received Charge Report Response	
TP Origin	Specific	
Reference	ISO/TS 17575-1, Clause 6.4.7	
Initial Condition	Front End received already Context Data with Charge Report Configuration requesting transactionCounter or mileage to be present.	
	Front End is initialized and has a toll context activated.	
	No authentication is required.	

	DUT	1	Tester
	DOI		rester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	COTS 16401
2			Verify structure of sent ChargeReport , taking presence and absence of optional 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		# 18 19 W	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 255, accountUpdate = Ø, responseAuthenticator = Ø}
5	Verify that OBE status 'noSignalling'		
6	IF verify "OK" THEN TP passed ELSE TP failed ENDIF		

TP/BEF/FE/BV/06	Verify that DUT sets Account Status to 'OK' for credit based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.			
	Front End implementation supports on-board account.			
	On-board account is credit based with unit defined as UNIT.			
	Threshold for on-board account is set to THR.			
	Front End is initialized and has a toll context activated.			
	No authentication is required.			
Stimulus and Expected Behaviour				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII PDF OF ISON
2	ick to lieth		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Cite		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = { paymentFeeAmount > THR, paymentFeeUnit = UNIT } newDistanceLimit = Ø, newTimeLimit = Ø, newDurationLimit = Ø, newEventLimit = Ø, newEventLimit = Ø, newAuthenticator = Ø }

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5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} No credit change shall occur before sending this data element		
6			IF (accountS2 equals to 0) THEN TP passed ELSE TP failed ENDIF
7		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
	STANDARDSISO.COM. Click to		Mithe full PD.

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TP/BEF/FE/BV/07	Verify that DUT sets Account Status to 'LOW' for credit based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.			
	Front End implementation supports on-board account. On-board account is credit based with unit defined as UNIT.			
	Threshold for on-board account is set to THR.			
	Front End is initialized and has a toll context activated.			
	No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	0	JIII PDF OF ISON
2	ick to lieth		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = { 0 < paymentFeeAmount < THR, paymentFeeUnit = UNIT } newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = ø, newEventLimit = ø, newEventLimit = ø, newAuthenticator = ø }

			,
5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	No credit change shall occur before sending this data		
	element		
6			IF (accountS2 equals to 1)
			THEN TP passed
			ELSE TP failed
			ENDIF
			LINDII
7		4	ChargeReportResponse = { reportRecipientId = any,
			The state of the s
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
			,
	STANDARDSISO.COM. Click to	jie	with E full I

TP/BEF/FE/BV/08	Verify that DUT sets Account Status to 'EMPTY' for credit based on-board accounts
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is credit based with unit defined as UNIT. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒ *	JIII POF OF ISON
2	"CX to view		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Cille		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO. COM.	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = { paymentFeeAmount = 0, paymentFeeUnit = UNIT } newDistanceLimit = Ø, newTimeLimit = Ø, newEventLimit = Ø, newEventLimit = Ø, newEventLimit = Ø, newAuthenticator = Ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	No credit change shall occur before sending this data		
	element		
6			15 (100 1 1 0)
6			IF (accountS2 equals to 2)
			THEN TP passed
			ELSE TP failed
			ENDIF
7		←	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
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TP/BEF/FE/BV/09	Verify that DUT sets Account Status to 'NEGATIVE' for credit based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is credit based with unit defined as UNIT. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII PDF OF ISO
2	ick to lieth		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = { paymentFeeAmount < 0, paymentFeeUnit = UNIT } newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = ø, newEventLimit = ø, newEventLimit = ø, newAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} No credit change shall occur before sending this data element		
6			IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF
7		₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
	STANDARDSISO.COM. Click to		withe full PD.

TP/BEF/FE/BV/10	Verify that DUT sets Account Status to 'OK' for distance based on-board accounts
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is distance based with unit defined as UNIT. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒ × ×	JIII POF OF ISON
2	ick to lient		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	MDARDSISO. COM.	\(\)	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = { dist > THR, disUnit = UNIT } newTimeLimit = ø, newDurationLimit = ø, newEventLimit = ø, newEventLimit = ø, newAuthenticator = ø }

ISO/TS 16407-1:2011(E)

5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession,		
	accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator}		
	No distance change shall occur before sending this data element		~
6			IF (accountS2 equals to 0) THEN TP passed ELSE TP failed ENDIF
7		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
	STANDARDSISO.COM. Click to	أناو	responseAuthenticator of

TP/BEF/FE/BV/11	Verify that DUT sets Account Status to 'LOW' for distance based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.			
	Front End implementation supports on-board account.			
	On-board account is distance based with unit defined as UNIT.			
	Threshold for on-board account is set to THR.			
	Front End is initialized and has a toll context activated.			
	No authentication is required.			
Stimulus and Expected Behaviour				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII PDF OF ISON
2	ick to lieth		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = { 0 < dist < THR, disUnit = UNIT } newTimeLimit = ø, newDurationLimit = ø, newEventLimit = ø, newEventLimit = ø, newAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	notorogo kundutos, addrendatorj		
	No distance change shall occur before sending this		
	data element		
	data element		_ ^ `
6			IF (accountS2 equals to 1)
Π			
			THEN TP passed
			ELSE TP failed
			ENDIF
			C X
7		<	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
11		1	
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
			,
	STANDARDSISO.COM. Click to	jie	wike full.

TP/BEF/FE/BV/12	Verify that DUT sets Account Status to 'EMPTY' for distance based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is distance based with unit defined as UNIT. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	0	JIII PDF OF ISON
2	istorocontinuics, addrenicatory		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO COM.	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = { dist = 0, disUnit = UNIT } newTimeLimit = ø, newDurationLimit = ø, newEventLimit = ø, newEventLimit = ø, newAuthenticator = ø }

	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} No distance change shall occur before sending this data element		
6	uata element		IF (accountS2 equals to 2) THEN TP passed ELSE TP failed ENDIF
7		(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
	STANDARDSISO. COM. Click to	ji [©]	with Etill P

TP/BEF/FE/BV/13	Verify that DUT sets Account Status to 'NEGATIVE' for distance based on-board accounts					
TP Origin	Specific					
Reference	ISO/TS 17575-1, Clause 6.6					
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.					
	Front End implementation supports on-board account.					
	On-board account is distance based with unit defined as UNIT.					
	Threshold for on-board account is set to THR.					
	Front End is initialized and has a toll context activated.					
	No authentication is required.					
Stimulus and Expected Behaviour						

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII POF OF ISON
2	istorocontinuics, addrenicatory		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = { dist < 0, disUnit = UNIT } newTimeLimit = ø, newDurationLimit = ø, newEventLimit = ø, newEventLimit = ø, newAuthenticator = ø }

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5	ChargeReport = { obeld, vehicleLPNr, paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	No distance change shall occur before sending this		
	data element		_^
6			IF (accountS2 equals to 3)
			IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF
			ELSE TP failed
			ENDIF
7		=	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = 0, accountUpdate = ø,
			response Authenticator = gl
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	COM. Click		
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TP/BEF/FE/BV/14	Verify that DUT sets Account Status to 'OK' for time based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is time based. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	n * %	JIII POF OF 150'
2	.c.t.o jient		Verify structure of sent ChargeReport , taking presence and absence of optional 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	MDARDSISO.COM.	#	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = Ø, newDistanceLimit = Ø, newTimeLimit > currentTime + THR, newDurationLimit = Ø, newEventLimit = Ø, newAuthenticator = Ø } currentTime equals to the timestamp when this step is executed

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	This data unit shall be sent not later than DUT		
	changes its accountStatus.		
6			IF (accountS2 equals to 0)
\prod			
			THEN TP passed
			ELSE TP failed
			ENDIF
-			
7		←	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
			response Authenticated by
	STANDARDSISO.COM. Click to	jie	whefull

TP/BEF/FE/BV/15	Verify that DUT sets Account Status to 'LOW' for time based on-board accounts
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is time based. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.

	BUT	1	Tester
	DUT		
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	0	JIII PDF OF 150'
2	istorico, autorico, autori		Verify structure of sent ChargeReport , taking presence and absence of optional 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	AND ARD SISO COM.	₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = Ø, newDistanceLimit = Ø, currentTime < newTimeLimit < currentTime + THR, newDurationLimit = Ø, newEventLimit = Ø, newAuthenticator = Ø } currentTime equals to the timestamp when this step is executed

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5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	This data unit shall be sent not later than DUT		
	changes its accountStatus.		
	changes its account ctatus.		
6			IF (accountS2 equals to 1) THEN TP passed ELSE TP failed ENDIF
			THEN TP passed
			ELSE TP failed
			ELSE IF Idilleu
			ENDIF
7		(=	ChargeReportResponse = { reportRecipientId = any,
11'		1	
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
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TP/BEF/FE/BV/16	Verify that DUT sets Account Status to 'EMPTY' for time based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is time based.			
	Threshold for on-board account is set to THR.			
	Front End is initialized and has a toll context activated.			
	No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒ × ×	All POF of ISO
2	.c.t.o jieth		Verify structure of sent ChargeReport , taking presence and absence of optional 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	AND ARD SISO COM.	₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = Ø, newDistanceLimit = Ø, newTimeLimit = currentTime, newDurationLimit = Ø, newEventLimit = Ø, newAuthenticator = Ø } currentTime equals to the timestamp when this step is executed

5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} This data unit shall be sent immediately after receipt of ChargeReportResponse. Otherwise Empty status		
	cannot be observed.		001
6			IF (accountS2 equals to 2) THEN TP passed ELSE TP failed ENDIF
7		Ш	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}
	STANDARDSISO.COM. Click to	ji [©]	M. the full.

TP/BEF/FE/BV/17	Verify that DUT sets Account Status to 'NEGATIVE' for time based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is time based. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒ × ×	JIII POF OF 150
2	.c.t.o rient		Verify structure of sent ChargeReport , taking presence and absence of optional 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	MDARDSISO.COM.	₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = Ø, newDistanceLimit = Ø, newTimeLimit < currentTime, newEventLimit = Ø, newEventLimit = Ø, newAuthenticator = Ø } currentTime equals to the timestamp when this step is executed

		_	
5	ChargeReport = { obeld, vehicleLPNr,	1	
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,	1	
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
6			IF (accountS2 equals to 3)
			THEN TP passed
			ELSE TP failed
			ENDIF
7			Charge Beneut Beneute = (report Beniniant II 4 any
11'		←	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport)
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			responseAuthenticator = ø}
			155,511531 (40.1016)
	STANDARDSISO.COM. Click to	jie	ø, obeStatusForDriver = 0, accountUpdate = ø, responseAuthenticator = ø}

TP/BEF/FE/BV/18	Verify that DUT sets Account Status to 'OK' for duration based on-board accounts				
TP Origin	Specific				
Reference	ISO/TS 17575-1, Clause 6.6				
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.				
	Front End implementation supports on-board account.				
	On-board account is duration based with unit defined as UNIT.				
	Threshold for on-board account is set to THR.				
	Front End is initialized and has a toll context activated.				
No authentication is required.					
Stimulus and Expecte	Stimulus and Expected Behaviour				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII POF OF ISON
2	istorcoattributes, authenticatory		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = { dur > THR, durUnit = UNIT }, newEventLimit = ø, newAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	This data unit shall be sent not later than DUT		
	changes its accountStatus.		
6			IF (accountS2 equals to 0) THEN TP passed ELSE TP failed ENDIF
-			THEN TP passed
			ELSE TP failed
			ELSE IP lalled
			ENDIF
7		—	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
	STANDARDSISO.COM. Click to	, je	withefor
	6		

TP/BEF/FE/BV/19	Verify that DUT sets Account Status to 'LOW' for duration based on-board accounts
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is duration based with unit defined as UNIT. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII POF OF ISON
2	istorcoattributes, authenticatory		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = { 0 < dur < THR, durUnit = UNIT }, newEventLimit = ø, newAuthenticator = ø }

		,	
5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	iistoroooAttributes, autrienticator		
	This data unit shall be sent not later than DUT		
	changes its accountStatus.		. N
6			IF (accountS2 equals to 1) THEN TP passed ELSE TP failed ENDIF
			THEN TP passed
			ELSE TP failed
			ENDIF
			CX
7		←	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
	STANDARDSISO.COM. Click to) vie	withe te

TP/BEF/FE/BV/20	Verify that DUT sets Account Status to 'EMPTY' for duration based on-board accounts					
TP Origin	Specific					
Reference	ISO/TS 17575-1, Clause 6.6					
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.					
	Front End implementation supports on-board account.					
	On-board account is duration based with unit defined as UNIT.					
	Threshold for on-board account is set to THR.					
	Front End is initialized and has a toll context activated.					
	No authentication is required.					
Stimulus and Expected Behaviour						

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII POF OF ISON
2	istorcoattributes, authenticatory		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = { dur = 0, durUnit = UNIT }, newEventLimit = ø, newAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	=		
	listOfCCCAttributes, authenticator}		
	This data unit shall be sent not later than DUT		
	changes its accountStatus.		
	Changes its accountstatus.		
6			IF (accountS2 equals to 2)
			IF (accountS2 equals to 2) THEN TP passed ELSE TP failed ENDIF
			ELSE TP failed
			ELSE IP lalled
			ENDIF
7		=	ChargeReportResponse = { reportRecipientId = any,
		_	dataReceived = (ChargeReport.timeQfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator (ø)
	STANDARDSISO.COM. Click to	ji [©]	with e fill.
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TP/BEF/FE/BV/21	Verify that DUT sets Account Status to 'NEGATIVE' for duration based on-board accounts
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. On-board account is duration based with unit defined as UNIT. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	20	JIII PDF OF ISON
2	istorcoattributes, authenticatory		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	Clife		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM.	(ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = setAccount { newCreditLimit = Ø, newDistanceLimit = Ø, newTimeLimit = Ø, newDurationLimit = { dur < 0, durUnit = UNIT }, newEventLimit = Ø, newAuthenticator = Ø }

		,	
5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	notoro o numbrico, dutire nitodior j		
	This data unit shall be sent not later than DUT		
	changes its accountStatus.		. N
6			IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF
			THEN TP passed
			ELSE TP failed
			ENDIF
			C X
7		⇐	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			was a second of the anti-option to what is a to what is what is a to what is a to what is a to what is a to w
			responseAuthenticator ø}
	STANDARDSISO.COM. Click to	أوار	With Ethi.

TP/BEF/FE/BV/22	Verify that DUT sets Account Status to 'OK' for event based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.			
Stimulus and Expected Behaviour				

	DUT		Tester
1	Charge Penert - Cahold vehicle DNr	_	200
'	<pre>ChargeReport = { obeld, vehicleLPNr, paymentMeans,</pre>	⇒	III POF OF ISOPT
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		8 3
	versionInfo, usageStatementList,		0
	vatForThisSession,		N. C.
	accountStatus = accountS1,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}	ķ	<i>y</i> ,
	,	20	
2		0,	Verify structure of sent ChargeReport, taking presence
	N.S.		and absence of optional data elements into account and
	Jile		verify allowed values of present data elements according
	×O		to Table C.1
3			IF verify NOT "OK" THEN TP failed
4	AMDARDSISO. COM. Citc.	(ChargeReportResponse = {
			reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
	cO,		ChargeReport.mileage
			ChargeReport.transactionCounter),
	CO		versionsResponse = ø,
			obeStatusForDriver = ø,
			accountUpdate = accountU,
	A.		responseAuthenticator = ø
	·OK		1
	4		where accountU = setAccount {
1	V.		newCreditLimit = ø,
G)`			newDistanceLimit = ø,
			newTimeLimit = ø,
			newDurationLimit = ø,
			newEventLimit > THR,
			newAuthenticator = Ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	No accountable events shall occur before sending		
	this data element		
		<u> </u>	15 () ()
6			IF (accountS2 equals to 0)
			THEN TP passed
			ELSE TP failed
			ENDIF
			ENSII
7		⇐	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator > ø}
	STANDARDSISO.COM. Click to	فان (withe for
	5 `		

TP/BEF/FE/BV/23	Verify that DUT sets Account Status to 'LOW' for event based on-board accounts			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated.			
	No authentication is required.			
Stimulus and Expected Behaviour				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒	JII PDF OF ISON
2	ien x		Verify structure of sent ChargeReport , taking presence and absence of optional 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	AND ARD SISO COM. Cito	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = ø, 0 < newEventLimit < THR, newAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	No accountable events shall occur before sending		
	this data element		
			I.E. () () ()
6			IF (accountS2 equals to 1)
			THEN TP passed
			ELSE TP failed
			ENDIF
			ENSII
7		<=	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeOfReport
		1	ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator > ø}
	STANDARDSISO.COM. Click to	jie	with Etill.
	9		

TP/BEF/FE/BV/24	Verify that DUT sets Account Status to 'EMPTY' for event based on-board accounts				
TP Origin	Specific				
Reference	ISO/TS 17575-1, Clause 6.6				
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present. Front End implementation supports on-board account. Threshold for on-board account is set to THR. Front End is initialized and has a toll context activated. No authentication is required.				
Stimulus and Expected Behaviour					
	DUT Tester				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	↑	JIIPDF OF ISOM
2	"O JIEN	Ue	Verify structure of sent ChargeReport , taking presence and absence of optional 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	ANDARDSISO.COM. Cito.	₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = ø, newEventLimit = 0, newAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
	No accountable events shall occur before sending		
	this data element		
I -		1	
6			IF (accountS2 equals to 2)
			THEN TP passed
			ELSE TP failed
			ENDIF
			LINDII
7		=	ChargeReportResponse = { reportRecipientId = any,
			dataReceived = (ChargeReport.timeQfReport
		1	
			ChargeReport.mileage
			ChargeReport.transactionCounter), versionsResponse =
			ø, obeStatusForDriver = 0, accountUpdate = ø,
			responseAuthenticator = ø}
	STANDARDSISO.COM. Click to	, vie	with Etill

TP/BEF/FE/BV/25	Verify that DUT sets on-board accounts	Account Status to 'NEGATIVE' for event based				
TP Origin	Specific					
Reference	ISO/TS 17575-1, Clause	se 6.6				
Initial Condition		ready Context Data applicable for on-board accounts Report Configuration requesting accountStatus, if mileage to be present.				
	Front End implementation	ion supports on-board account.				
	Threshold for on-board					
	Front End is initialized a	Front End is initialized and has a toll context activated.				
	No authentication is req					
Stimulus and Expecte	d Behaviour	c _V O,				
	DUT	Tester				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	→	III PDF of ISON
2	*O vien	Ue	Verify structure of sent ChargeReport , taking presence and absence of optional 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	ANDARDSISO. COM. Cito.	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = setAccount { newCreditLimit = ø, newDistanceLimit = ø, newTimeLimit = ø, newDurationLimit = ø, newEventLimit < 0, newAuthenticator = ø }

paymentMeans, serviceProviderContract = contract1, totliCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator) No accountable events shall occur before sending this data element IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeRep				-
paymentMeans, serviceProviderContract = contract1, totilCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCcCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.mileage ChargeReport.mileage ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø. obeStatusForDriver = 0, accountUpdate = ø, responseAuthenticators, ø) Cittatus in the counter of the count	5	ChargeReport = { obeld, vehicleLPNr,		
serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCcCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3)				
tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCcCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3)				
versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3)				
vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listofCcCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3)				
accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3)		versionInfo, usageStatementList,		
accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3)		vatForThisSession,		
transactionCounter, mileage, listOfCcCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF ChargeReportResponse = { reportRespirentId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.timeOfReport ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø)		accountStatus = accountS2.		
IstOfCCCAttributes, authenticator} No accountable events shall occur before sending this data element IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF This is a specific of the sending of the sending this data element IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF This is a specific of the sending of the se				
No accountable events shall occur before sending this data element Figure IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF				
this data element If (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF		listorcccattributes, authenticator}		
this data element If (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF		No accountable events shall occur before sending		
IF (accountS2 equals to 3) THEN TP passed ELSE TP failed ENDIF		_		N N
ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.timeOfReport ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = ø, responseAuthenticator = ø}		this data element		_ ^ `
ChargeReportResponse = { reportRespontId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø}	6			IF (accountS2 equals to 3)
ChargeReportResponse = { reportRespontId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø}	•			THEN TO perced
ChargeReportResponse = { reportRespontId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø}				THEN TP passed
ChargeReportResponse = { reportRespontId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø}				ELSE IP falled
dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}				ENDIF
dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = 0, accountUpdate = Ø, responseAuthenticator = Ø}	-		+	Channe Ban and Baan and a Contract De Cont
ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = ø, responseAuthenticator = ø)	′		←	
ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = 0, accountUpdate = ø, responseAuthenticator = ø}				
ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø}				ChargeReport.mileage
ø, obeStatusForDriver = Ø, accountUpdate = ø, responseAuthenticator = ø}				ChargeReport.transactionCounter), versionsResponse =
responseAuthenticator ** ø} Cilck to view the full Publication of the first of the				
Clickto view the full PDF				response Authoriticator - al
CTANDARDSISO.COM. Click to View the full Pot				responses tuttienticates by
		STANDARDSISO.COM. Click to	, vie	withe te

TP/BEF/FE/BV/26	Verify that DUT updates Account Status for credit based on-board accounts upon AddToAccount operation
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.
	Front End implementation supports on-board account.
	On-board account is credit based with unit defined as UNIT.
	Threshold for on-board account is set to THR.
	Front End is initialized and has a toll context activated.
	Front End shall not utilize any credits during the whole test purpose.
	No authentication is required.
Ctimevilve and Evacete	d Debaggiore

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	A	Verify structure of sent ChargeReport, taking presence
2	Clicktone		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	9.		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO. COM.	₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = addToAccount { addCredit = { 0 < paymentFeeAmount < THR, paymentFeeUnit = UNIT } addDistance = ø, addDuration = ø, addEvents = ø, addAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr,		
\prod	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
6			Verify structure of sent ChargeReport , taking presence
			and absence of optional data elements into account and
			verify allowed values of present data elements according
			to Table C.1
7			IF verify NOT "OK" THEN TP failed
8			The following transitions from accountS1 to accountS2 are
			allowed (in notation accountS1 → account S2):
			$3 \rightarrow 3$
			3 → 2
			$3 \rightarrow 1$
			2 → 1
			1 → 1
			$3 \rightarrow 2$ $3 \rightarrow 1$ $2 \rightarrow 1$ $1 \rightarrow 1$ $1 \rightarrow 0$
			$0 \rightarrow 0$
			IF (transition not allowed)
			THEN TP failed
			ELSE GOTO STEP 9
			ENDIF
9		10	
9		7	IF (accountS2 equals to 0)
		1	THEN TP passed
			ELSE {
	c.illo		accountS1=accountS2
	.0		GOTO STEP 4
	1 .		ENDIF

TP/BEF/FE/BV/27	Verify that DUT updates Account Status for distance based on-board accounts upon AddToAccount operation
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.
	Front End implementation supports on-board account.
	On-board account is distance based with unit defined as UNIT.
	Threshold for on-board account is set to THR.
	Front End is initialized and has a toll context activated.
	Front End shall not change its mileage during the whole test purpose.
	No authentication is required.

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	→ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	Verify structure of sent ChargeReport, taking presence
2	Clickto		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	9.		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO COM.	U	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = ø, obeStatusForDriver = ø, accountUpdate = accountU, responseAuthenticator = ø } where accountU = addToAccount { addCredit = ø, addDistance = { 0 < dist < THR, disUnit = UNIT }, addTime = ø, addDuration = ø, addEvents = ø, addAuthenticator = ø }

5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator}		
6			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7			IF verify NOT "OK" THEN TP failed
8			The following transitions from accountS1 to accountS2 are allowed (in notation accountS1 \rightarrow account S2): $3 \rightarrow 3$ $3 \rightarrow 2$ $3 \rightarrow 1$ $2 \rightarrow 1$ $1 \rightarrow 1$ $1 \rightarrow 0$ $0 \rightarrow 0$ IF (transition not allowed) THEN TP failed ELSE GOTO STEP 9 ENDIF
9	M. Click ic	1/2	IF (accountS2 equals to 0) THEN TP passed ELSE { accountS1=accountS2 GOTO STEP 4 ENDIF

TP/BEF/FE/BV/28	Verify that DUT updates Account Status for event based on-board accounts upon AddToAccount operation			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.			
	Front End implementation supports on-board account. On-board account is event based with unit defined as UNIT.			
	Threshold for on-board account is set to THR.			
	Front End is initialized and has a toll context activated.			
	No accountable event happens during whole test purpose			
No authentication is required.				
Stimulus and Expecte	ed Behaviour			
	DUT			

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	→	III POF OF IS
2	Clickio		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	<i>U</i> ;		IF verify NOT "OK" THEN TP failed
4	ANDARDSISO.COM	₩	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = addToAccount { addCredit = Ø, addDistance = Ø, addTime = Ø, addDuration = Ø, 0 < addEvents < THR, addAuthenticator = Ø }

5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator}		
6			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7			IF verify NOT "OK" THEN TP failed
8			The following transitions from accountS1 to accountS2 are allowed (in notation accountS1 \rightarrow account S2): $3 \rightarrow 3$ $3 \rightarrow 2$ $3 \rightarrow 1$ $2 \rightarrow 1$ $1 \rightarrow 1$ $1 \rightarrow 0$ $0 \rightarrow 0$ IF (transition not allowed) THEN TP failed ELSE GOTO STEP 9 ENDIF
9	M. Click ic	1/2	IF (accountS2 equals to 0) THEN TP passed ELSE { accountS1=accountS2 GOTO STEP 4 ENDIF

TP/BEF/FE/BV/29	Verify that DUT updates Account Status for credit based on-board accounts upon ReloadAccount operation			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6.2			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.			
	Front End implementation supports credit based on-board account.			
	Threshold for on-board account is set to THR.			
	Predefined value for reload is less than THR/2, but greater than Front End is initialized and has a toll context activated.			
	Front End shall not utilize any credits during the whole test purpose.			
	No authentication is required.			
Stimulus and Expected Behaviour				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒ >	JIII PDF Of 18
2	Clickto		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	U.		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO. COM	↓	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = reloadAccount { reloadOldCreditAmount = T, reloadOldDistanceLimit = Ø, reloadOldTimeLimit = Ø, reloadOldEventLimit = Ø, reloadOldEventLimit = Ø, reloadAuthenticator = Ø }

5	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator}		
6			Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
7			IF verify NOT "OK" THEN TP failed
8		: 0	The following transitions from accountS1 to accountS2 are allowed (in notation accountS1 \rightarrow account S2): $3 \rightarrow 3 \\ 3 \rightarrow 2 \\ 3 \rightarrow 1 \\ 2 \rightarrow 1 \\ 1 \rightarrow 1 \\ 1 \rightarrow 0 \\ 0 \rightarrow 0$ IF (transition not allowed) THEN TP failed ELSE GOTO STEP 9 ENDIF
9	M. Click to	The	IF (accountS2 equals to 0) THEN TP passed ELSE { accountS1=accountS2 GOTO STEP 4 ENDIF

TP/BEF/FE/BV/30	Verify that DUT updates Account Status for distance based on-board accounts upon ReloadAccount operation
TP Origin	Specific
Reference	ISO/TS 17575-1, Clause 6.6.2
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.
	Front End implementation supports distance based on-board account.
	Threshold for on-board account is set to THR.
	Predefined value for reload is less than THR/2, but greater than
	Front End is initialized and has a toll context activated.
	Front End shall not change its mileage during the whole test purpose.
	No authentication is required.
Stimulus and Expecte	ad Behaviour

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	⇒ ⇒	JIII POF OF TO
2	Clickto		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	V.		IF verify NOT "OK" THEN TP failed
4	MOAROSISO.	↓	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = reloadAccount { reloadOldCreditAmount = Ø, reloadOldDistanceLimit = T, reloadOldTimeLimit = Ø, reloadOldEventLimit = Ø, reloadAuthenticator = Ø }

ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
vatForThisSession, accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
accountStatus = accountS2, transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
transactionCounter, mileage, listOfCCCAttributes, authenticator} Verify structure of sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
Second Control of Sent ChargeReport, taking presence and absence of optional data elements into account and verify allowed values of present data elements according
Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according
and absence of optional data elements into account and verify allowed values of present data elements according
verify allowed values of present data elements according
verify allowed values of present data elements according
to radio 0.1
7 IF verify NOT "OK" THEN TP failed
The following transitions from accountS1 to accountS2 at
allowed (in notation accountS1 → account S2):
$3 \rightarrow 3$
3 → 2
3 → 1
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
$0 \rightarrow 0$
IF (transition not allowed)
THEN TP failed
ELSE GOTO STEP 9
NENDIF
· · · · · · · · · · · · · · · · · ·
IF (accountS2 equals to 0) THEN TP passed ELSE { accountS1=accountS2 GOTO STEP 4
THEN TP passed
ELSE {
accountS1=accountS2
GOTO STEP 4
ENDIF

TP/BEF/FE/BV/31	Verify that DUT updates Account Status for event based on-board accounts upon ReloadAccount operation			
TP Origin	Specific			
Reference	ISO/TS 17575-1, Clause 6.6.2			
Initial Condition	Front End received already Context Data applicable for on-board accounts and with Charge Report Configuration requesting accountStatus, transactionCounter and mileage to be present.			
	Front End implementation supports event based on-board account.			
	Threshold for on-board account is set to THR.			
	Predefined value for reload is less than THR/2, but greater than			
	Front End is initialized and has a toll context activated.			
	No accountable event happens during whole test purpose			
	No authentication is required.			
Stimulus and Expected Behaviour				

	DUT		Tester
1	ChargeReport = { obeld, vehicleLPNr, paymentMeans, serviceProviderContract = contract1, tollCharger, timeOfReport, reportPeriod, versionInfo, usageStatementList, vatForThisSession, accountStatus = accountS1, transactionCounter, mileage, listOfCCCAttributes, authenticator}	÷	UIII POF OF TO
2	Clickto		Verify structure of sent ChargeReport , taking presence and absence of optional data elements into account and verify allowed values of present data elements according to Table C.1
3	7.		IF verify NOT "OK" THEN TP failed
4	AND ARD SISO. COM	ψ	ChargeReportResponse = { reportRecipientId = any, dataReceived = (ChargeReport.timeOfReport ChargeReport.mileage ChargeReport.transactionCounter), versionsResponse = Ø, obeStatusForDriver = Ø, accountUpdate = accountU, responseAuthenticator = Ø } where accountU = reloadAccount { reloadOldCreditAmount = Ø, reloadOldDistanceLimit = Ø, reloadOldTimeLimit = Ø, reloadOldDurationLimit = Ø, reloadOldEventLimit = T, reloadAuthenticator = Ø }

5	ChargeReport = { obeld, vehicleLPNr,		
	paymentMeans,		
	serviceProviderContract = contract1,		
	tollCharger, timeOfReport, reportPeriod,		
	versionInfo, usageStatementList,		
	vatForThisSession,		
	accountStatus = accountS2,		
	transactionCounter, mileage,		
	listOfCCCAttributes, authenticator}		
6			Verify structure of sent ChargeReport, taking presence
			and absence of optional data elements into account and
			verify allowed values of present data elements according
			to Table C.1
7			IF verify NOT "OK" THEN TP failed
8			The following transitions from accountS1 to accountS2 are
			allowed (in notation accountS1 → account S2):
			3 → 3
			$3 \rightarrow 3$ $3 \rightarrow 2$ $3 \rightarrow 1$ $2 \rightarrow 1$ $1 \rightarrow 1$ $1 \rightarrow 0$
			3 → 1
			2 → 1
			1 → 1
			0 -> 0
			IF (transition not allowed)
			THEN TP failed
			ELSE GOTO STEP 9
		.0	ENDIF
9	en: Click to	jie	IF (accountS2 equals to 0)
	×C		THEN TP passed
			ELSE {
	alio,		accountS1=accountS2
	CV.		GOTO STEP 4
			ENDIF
1 1	<i>o</i> ,		