Sund≋Bælt

Annex E (Technical Conditions)

Annex to the EETS Domain Statement concerning the Danish Kilometer Tolling Scheme

Version: 0.6

Date: 17 May 2023

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1 DOCUMENT HISTORY

Version	Date	Comment	Initials
0.5	10 February 2023	Draft version published to the EETS Provider for information and review purposes as part of the accreditation procedure.	MAVX / SR
0.6	17 May 2023	Updated draft version published to the EETS Provider reflecting the current requirements for the accreditation procedure. Final version of the document is published once the KmToll Law is passed in Danish Parliament.	MAVX / SR

2 DEFINITIONS AND ABBREVIATIONS

All definitions in the EETS Domain Statement shall have the same meaning in this Annex.

In addition to the definitions in the EETS Domain Statement the following definitions shall apply for this Annex:

"**Exception Lists**" means the White Lists and Black Lists shared between the EETS Provider and the Toll Charger.

"**OBE Type 1**" means the complete set of hardware and software components to be used as part of the toll service which is installed or carried on board a vehicle in order to collect, store, process and remotely receive/transmit data enabling toll collection on the KmToll Domain and is compliant with EN 12813:2019 and EN 15509:2023 along with OBE Type 1 requirements defined in this documents.

"**OBE Type 2**" means the complete set of hardware and software components to be used as part of the toll service which is installed or carried on board a vehicle in order to collect, store, process and remotely receive/transmit data enabling toll collection on the KmToll Domain and is compliant with OBE Type 2 requirements defined in this document – see section 6.3. In contrast to OBE Type 1, OBE Type 2 does not set a requirement for DSRC technology to be part of the OBE.

"**EETS Provider (EP)**" means an entity which under a contractual agreement grants access to EETS to an EETS User, transfers the Tolls to the relevant Toll Charger, and which is registered by its Member State of establishment. The EETS Provider can also be referred to as a "**Toll Service Provider (TSP)**" in this Annex.

3 INTRODUCTION

This Annex contains the technical conditions applicable for the EETS Provider under the KmToll Scheme. The Annex contains the Toll Charger's EETS Domain specific requirements concerning technical standards, technical conditions, business processes, OBE requirements and technical relation to interfaces described in Annex F (Interface Specifications).

Reading this Annex the EETS Provider will obtain the necessary knowledge on technical requirements and conditions of the Toll Charger in order for the EETS Provider to provide EETS Services to its users and comply with technical requirements and regulations required by the Toll Charger.

The next sections of this Annex are structured as follows:

(i)   **Section 4**: In this section, a general description of the system architecture and interfaces between the Toll Charger and the EETS Provider is provided;

(ii) **Section 5:** In this section, information related to applicable technical standards are described;

(iii) **Section 6:** In this section, the Toll Charger's requirements towards OBE types are described;

(iv) **Section 7:** In this section, information related to back-office interfaces are described;

(v) **Section 8:** In this section, information related to data transfer mechanism are described; and

(vi) **Section 9:** In this section, the Toll Charger's security requirements are described.

4 SYSTEM ARCHITECTURE AND INTERFACES

The architecture of the KmToll Scheme is designed to facilitate and comply with EETS. The figure and description below outline how the EETS Provider is expected to interface with the Toll Charger.

Figure 1 below illustrates a simplified system architecture of the KmToll Scheme. Interfaces between the Toll Charger and the EETS Provider is marked with red. The interfaces defined in this Annex and further defined in detail in Annex F (Interface Specifications) are:

- A Tolling Interface between the TSP and the TC for the exchange of tolling-related data (toll declarations, exceptions lists, billing details etc.)

- An Enforcement Interface between the OBE in toll-liable vehicle and the Roadside Equipment of the Enforcement system (DSRC) related to OBE Type 1 (EN/ISO 12813:2019) and if an OBE Type 2 is offered an OBE Type 2 external interface which is not defined in applicable standards but specified separately by TC) related for compliance check data used in TC's enforcement processes. Both marked with a dotted red line in the figure.

Figure 1. Simplified System Architecture
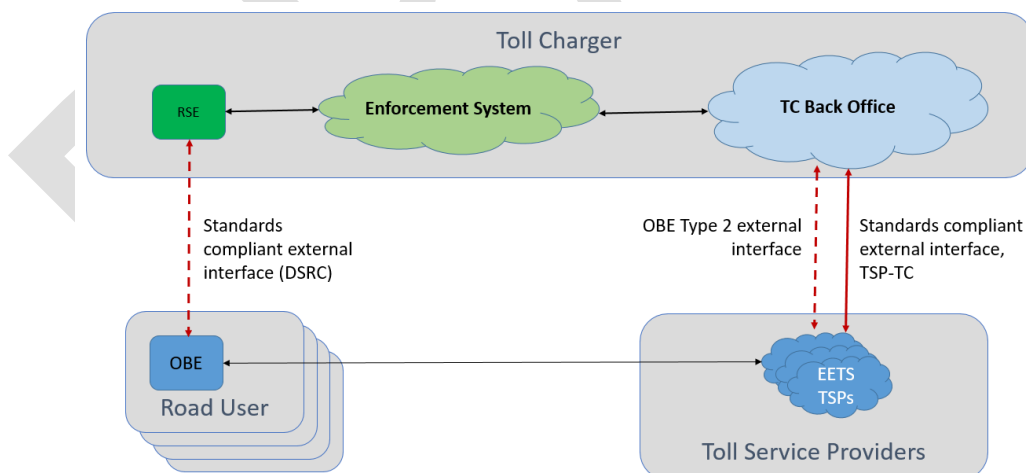
The contents of the interfaces are be defined in Annex F (Interface Specifications).

5 APPLICABLE TECHNICAL STANDARDS

All interfaces relating to the exchange of tolling data must be compliant with the standards identified in the EETS Directive (EU) 2019/520, Commission Delegated Regulation (EU) 2020/203 of 28

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November 2019, and Commission Implementing Regulation (EU) 2020/204 of 28 November 2019. The solution must in addition ensure that all data required to comply with the "Vignette" Directive 2022/362 are exchanged.

It shall be noticed that a number of standards referred to are under revision or recently approved which will lead to or has led to revision of the versions referred to in the directive. As the KmToll Scheme is going to start operation in 2025 the system will be based on the latest available standard in 1st Quarter 2023. If not all applicable standards are approved there may be reference to standards with a prEN status.

In addition to the standards mentioned in the directives a number of standards mentioned in the referred standards are applicable.

The data exchange between Toll Charger and EETS Provider is dived between categories where different standards are relevant:

- Road Side Equipment (RSE)/On-board Equipment (OBE) – where the purpose is to identify that the OBE function according to requirement. Detailed in section 5.1 and section 6.2.

- Data exchange between TC and EP back office – where the purpose is to ensure that the data necessary to charge for road usage and perform financial settlement are available timely. Detailed in section 5.2.

5.1 RSE/OBE Communication

OBE Type 1 communications between EETS User's On-board Equipment and the Road Enforcement System shall be compliant with standard EN ISO 12813:2019 and EN 15509:2023 provided that the OBE facilitate DSRC data exchange as OBE Type 1.

OBE Type 2 does not require DSRC based communication for CCC communication at the RSE. For the EP to provide an OBE Type 2 solution to the EETS User in the KmToll Domain the Toll Charger require the EP to establish and implement an alternative digital solution. The purpose of the alternative digital CCC communication – which is an interface between TC back-office and EP back-office – is to stimulate a similar CCC transaction enabling efficient enforcement processes.

Further details on the required OBE Type 2 CCC interface are at the time of writing not yet fully specified. Data transfer mechanism and related process will be similar to already defined interfaces in Annex F (Interface Specifications).

5.2 Data exchange between TC and EP

Communication between the back-offices of the TC and of the EETS Provider shall be compliant with prEN 16986:2023, except where specifically identified. It is recognised that prEN 16986:2023 is currently still in draft form (identified by the "pr" prefix). It is anticipated that during the course of the implementation phase of this project, the standard will be ratified, and if possible this ratified version will be used in the project.

The standard defines a number of profiles, covering different tolling solutions. The standard defines a number of profiles, covering different tolling solutions. The KmToll Scheme will use the Section-Autonomous profile with Toll Charger (TC) dominance. This means that section 8, 10 and 11 of the standard are not relevant.

The following interfaces between the EETS Provider's back-office and the Toll Charger's back-office will be defined;

- exception lists
- trust objects

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- Contract Issuer List

- toll context data

- toll declarations

- payment claims

- payment announcements

- billing details

- report abnormal OBE behaviour

- CCC Data Request

- CCC Data response

See section 8 for further detail on back-office interfaces.

6 OBE REQUIREMENTS

On the KmToll Domain two types of OBEs are allowed:

1. OBE Type 1 – a GNSS capable OBE including DSRC and compliant with ISO 12813:2019 and EN 15509:2023; and

2. OBE Type 2 – a GNSS capable OBE.

Requirements towards each of the two types is detailed in the below sections. Section 6.1 define requirements applicable for both types of OBE. Section 6.2 define requirements specific to OBE Type 1. Section 6.3 define requirements specific to OBE Type 2.

The EETS Provider must clearly state which type of OBE it is in the Contract Issuer list according to ISO 12855:2022 & prEN 16986:2023.

6.1 General OBE requirements

The OBE must comply with (EU) 2020/203 Annex II and (EU) 2022 203 Annex I based on the approved standard, however, compliance will be reduced slightly for OBE Type 2 based on the nature of OBE Type 2, see section 6.3.1.

The OBE must be able to obtain high quality and precise GNSS locational data with a frequency of 1 position point per 5 second and send it continuously over mobile cellar network to the EETS Provider's back-office enabling the EETS Provider to send Toll Declarations to the Toll Charger according to the requirements in Annex F (Interface Specifications).

In case the OBE loose mobile cellar network the OBE must be able to continue to operate and collect data for a minimum of 3 Days. When the storage capacity of the OBE runs out following minimum 3 Days of operations without cellar network the OBE must stop operating and turn to status 2 as defined in section 6.1.2. As soon as mobile cellar network or another data connection is re-established all stored data in the OBE must be send to the EETS Provider's back-office from where it is forwarded to Toll Charger as fast as possible.

Distinguishing OBE type

In order to undertake enforcement processes for OBE Type 1 and OBE Type 2 the OBE type must be clearly distinguishable listed on Exceptions Lists. For the purpose of distinguishing OBE types EFCcontextmark attribute and Payment Means attribute and Contract Issuer List will be used.

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The EETS Provider must inform the Toll Charger clearly based on the EFC-ContextMark and Payment Means which type of OBE it is.

6.1.1   Personalisation of OBE

All OBE must be initialised by the EETS Provider prior to use by ensuring accurate OBE personalisation.

The EETS Provider is allowed to perform personlisation of the OBE and change to personalisation over-the-air (OTA).

All toll rate relevant parameters of the vehicle description – Vehicle Class, Vehicle Weightlimits and Vehicle CO2Class – are by default of static nature static and not dynamic – which only the EETS Provider is allowed to initially set and change in the OBE.

No dynamic vehicle information such as vehicle axles is used for toll calculation and it is therefore not a requirement that the user configure and maintain dynamic vehicle information.

6.1.2   MMI elements

The OBE shall have at least the following user interface elements to fulfil the required functionality:

- An optical element

The optical element shall visually indicate as minimum the following information required for the use of the OBE in the KmToll Domain:

- The operational status of the OBE

The indication of the operational status of the OBE shall have at least the following states:

Table 1. OBE minimum operational status indicators

State	Operational status indication to the OBE user
State 1	The OBE is working correctly in the KmToll Domain
State 2	The OBE is not working correctly in the KmToll Domain

The EETS provider is allowed to incorporate additional states as long as the EETS User is clearly instructed in the use and meaning of each state – preferably using an intuitive coloured indicator scheme (State 1 could be green, State 2 could be red).

Visibility requirement related to the operational status of the OBE differ between OBE types, see section 6.2 and 6.3.

Note on acoustic MMI element:
No acoustic information signal shall take place in relation to the communication between RSE and the OBE. This is to be supported by SET-MMI codes when passing an RSE. SET-MMI code 255 will be used so the buzzer provide 'no beep'. 'No beep' is applied for road safety reasons and as DSRC communication is solely used for enforcement purposes.

Acoustic MMI element is allowed for other purposes like informing the user about OBE malfunction or similar.

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6.1.3 **Requirements to data sets in OBE**

The required data described in this section must be in the OBE (personalisation) and identically in the Toll Declarations originating from the OBE when sent to the Toll Charger by the EETS Provider according to Annex F (Interface Specifications).

Data definitions follow EN 12813:2019 while further details and requirements to specific attributes is highlighted below the table:

Table 2. Required data sets in OBE

Attribute	Reference to 12813:2019 EFC attributeID
EFC-ContextMark	0
EquipmentOBUID	24
EquipmentStatus	26
PaymentMeans	32
OBEStatusHistory	53 (optional include 99 & 100)
VehicleLicensePlateNumber	16
VehicleClass	17
VehicleWeightLimits	20
VehicleSpecificCharacteristics	22
VehicleSpecificCharacteristics.futureCharacteristics (CO2Class (1-5))	Not defined yet

The following sections provide in-depth notes to attributes defined in prEN 16986:2023 relevant for the KmToll Scheme.

Attribute 0: EFC-ContextMark

OBE Type must be clearly distinguishable both when read by RSE and listed on Exceptions Lists.

For the purpose of distinguishing OBE types EFCcontextmark attribute and Payment Means attribute and Contract Issuer List will be used.

The Contract Issuer List from EETS Provider must for each entry include information stating type of OBE and version of OBE.

Each type/version must be supplemented by detailed information describing each OBE type and version in order to access the equipment (new or update).

The EETS Provider must inform the Toll Charger clearly based on the EFC-ContextMark and Payment Means which type of OBE it is.

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Attribute 24: EquipmentOBUId

The EquipmentOBUId shall be a unique identification number assigned to OBE by the manufacturer during the production process.

The PAN identify a specific OBE e.g., for blacklisting purposes (together with the ManufacturerId, submitted in VST).

If the attribute EquipmentOBUID is shorter than 4 Byte (+1 Byte length indicator), it is rightpadded with 0'B to achieve the desired length of 4 Bytes.

Attribute 16: VehicleLicensePlateNumber

This attribute is holding information about the vehicles licence plate content (LPN) and the registering country. The licence plate information can have up to 14 characters acc. To EN 15509:2023.

The license plate information shall always be padded with NULL characters after the last charactertoachievethetotal length indicated by the length determinant

For the LPN only Latin Alphabet No. 1 (according to ISO 8859-1) upper case letters and numbers (without any spaces and hyphens) shall be used.

Non-Latin Alphabet No. 1 characters used in an LPN (i.e., characters from ISO 8859-2 Latin Alphabet No. 2 and ISO 8859-5 Latin/Cyrillic alphabet) shall be coded as lower-case letters applying the translation table from Annex E of EN ISO 14906 [EFC API].

Attribute 17: VehicleClass

The attribute VehicleClass may hold information about trailer presence, the value for European vehicle Group.

It shall be noted that the weight limit relevant for the KmToll Scheme for heavy vehicle are based on technically maximum permissible weight according to (EU) 2022/365. The letter N2, N3 on the vehicle registration certificate may be determined based on the maximum permissible weight which may lead to a weight just below the limit.

Table 3. Vehicle classification attributes

EN 15509:2023 European Vehicle Group (Byte 1)		Comment
0	No entry	
1	Group 1 - Small passenger vehicles (UNECE class M 1)	M1 (See note 1)
2	Group 2 - Light Goods Vehicles (UNECE class N 1)	N1 (See note 2)
3	Group 3 - Large passenger vehicles (UNECE class M 2, M 3)	**M2, M3 (See note 3)**
4	Heavy Goods Vehicles up to 12 T (UNECE class N 2)	
5	Group 5 - Heavy Goods Vehicles over 12 T (UNECE class N 3)	
6	Group 6 – Motorcycles (UNECE class L)	
7	Group 7 - Other vehicles including vehicles above 3,5 T not included in previous groups	**See note 4**

Note 1: Assumed to be ≤3.5 tons, otherwise assigned to group 7

Note 2: Assumed to have 2 axles, otherwise the vehicle is assigned to group 7

Note 3: Assumed to be >3.5 tons Note that a few of these vehicles may be ≤3.5 tons

Note 4: Any vehicle not defined in European Vehicle Groups 1- 6. This includes small passenger vehicles weighing more than 3.5 tons.

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Attribute 20: VehicleWeightLimits

The attribute VehicleWeightLimits is holding information about vehicle weight limits acc. to ISO1176.

Technically permissible maximum weight of the complete vehicle train, as defined in ISO 1176 10kg units, rounded down to the next 10kg step.

Attribute TBD: CO2 class

The attribute follow the EU vignette directive definition in version 2022/362.

6.2 OBE Type 1 specific requirements

The OBE Type 1 must be able to communication in a multilane environment with overlapping communication zones using different RF-channels. The performance of the OBE must not decrease due to the multilane free-flow functionality or disturb multilane RSE when transmitting.

The optical information elements related to operational status shall be easily visible at all times.

The OBE Type 1 must support CEN compatible DSRC communications at 5.8 GHz and must conform with EN 15509:2023 and EN 12813:2019. Related to EN 15509:2023 DSRC security profile 1 shall be supported.

The following standards apply for OBE Type 1:

- EN 14906:2023 - Application Interface for EFC

- EN 15509:2023 – Interoperability application profile for DSRC

- EN 12813:2019 - CCC for autonomous systems

6.2.1 DSRC based CCC transaction

When performing a transaction between RSE and OBE Type 1 the following must be supported and transmitted upon request from Toll Charger's RSE:

Table 4. CCC transaction attributes

Attribute	Attribute ID	Length	Data set
EFC-ContextMark	0	6	Identification
EquipmentOBUId	24	5 (1+4)	Identification
EquipmentStatus	26	16	Status
PaymentMean	32	14	Identification
OBEStatusHistory	53 (optional include 99 & 110)	23	Status
VehicleLicencePlateNumber	16	13 to 17	Vehicle
VehicleClass	17	1	Vehicle
VehicleWeightLimits	20	4	Vehicle
VehicleSpecificCharacteristics	22	5	Vehicle
VehicleSpecificCharacteristics.FutureCharacteristics	Not defined yet	TBD	Vehicle

The CCC transaction attribute list above is a subtract from CCC attribute list as defined in ISO14906, EN 15509:2023 and ISO/TS 17573-3 where they are defined.

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Note that the CCC transaction attributes in Table 3 correspond to attributes listed in Table 2. While Table 2 define data set required in the OBE, Table 3 define the attributes which must be supported for DSRC transmission and specific length and data set according to the standard.

6.3 OBE Type 2 specific requirements

OBE Type 2 contributes an OBE type which is not governed by standard EETS OBE requirements. The core purpose of OBE Type 2 is to do enable GNSS based tolling identically to OBE Type 1, however without the requirement of a DSRC module. OBE Type 2 allow for a wider range of hardware and software combinations – also where the EETS Provider provide the application software enabling the OBE in symbiosis with hardware the EETS User provide themselves either as a separate hardware unit or as part of a unit used for other technical purposes as well.

The Toll Charger's specific requirements to OBE Type 2 are:

- The OBE Type 2 must comply with general OBE requirements listed in section 6.1 of this Annex – hence be fit-for-purpose and enable Toll Declarations and subsequently toll collection.

- OBE Type 2 hardware must be CE certified.

- The OBE Type 2 must allow the user to undertake toll data collection effectively while driving on the road without imposing a personal or traffic safety risk and also comply with relevant road regulations. The EETS Provider must clearly guide and instruct the EETS User on how to operate the OBE to ensure that it is fit-for-purpose during operation.

- In case the EETS Provider only provide the software as part of OBE Type 2 the software application must be designed to be robust towards changes to OS platform as well as hardware updates the application is run on.

- The OBE Type 2 must allow and aid the EETS User to easily operate the unit and start Toll data collection when relevant driving on the KmToll Domain.

- The OBE Type 2 must upon request by the EETS User optically display at least the following information; operational status, OBE Type 2 version information and OBE personalisation information. The OBE Type 2 must not allow the EETS User to change Toll depending vehicle characteristics directly on the unit during use.

- The overall OBE Type 2 solution must be designed to notify the EETS User in case required external signal (GNSS, mobile cellar or similar) is lost during operation and notify the EETS User clearly about the consequence loss of signal have in relation to toll collection

- The optical information elements related to operational status shall be easily visible when the application is open and displayed as a highlighted element as part of applicable notification services as notification center, lock-screen or home screen or similar when the OBE Type is activated

- The EETS Provider ensure that the Toll Charger can identifier OBE Type 2 as a OBE Type 2 by the EFC-Contextmark and Payment means attribute and Contract Issuer List.

As DSRC communication capabilities is not a requirement for OBE Type 2 and therefore must the CCC data communication externally as described in section 8 provided by different means in order to verify OBE compliance when a OBE Type 2 whitelisted vehicle is detected at an enforcement point based on vehicle license plate identification.

OBE Type 2 CCC data communication will take place on request by the TC once an enforcement case require the CCC data for enforcement purposes. As specified in Annex F a CCC data request

and CCC data response interface must be implemented if the EETS Provider accreditate and operate an OBE Type 2. The process that the interface is to support is to allow the Toll Charger to request the CCC for an OBE Type 2 based on road enforcement observations with a specific time and date along with other vehicle information for the whitelisted vehicle. The CCC request from the Toll Charger to EETS Provider will take place earliest 5 Days after the road enforcement observation in case Toll declarations for the observed OBE Type 2 is not received. This will require the EETS Provider to store and maintain OBE Type 2 usage history enabling a CCC response following a request from Toll Charger up to 30 Days after the observation. The purpose of the OBE Type 2 CCC data communication is to determine the operational status of the OBE Type 2 at the time of enforcement.

6.3.1   **OBE Type 2 specific accreditation notes**

When seeking OBE Type 2 accreditation the EETS Provider must provide a list of OS platform and versions on which the OBE Type 2 can operate along with a list or descriptive of hardware characteristics on which the OBE Type 2 run providing insights into the hardware types the OBE type 2 designed for.

Reaccreditation of OBE Type 2 will be required in case of changes to OS platform or other fundaments of the OBE Type 2 changes unless the EETS Provider can document – based on a risk based assessment - that changes and updates do not affect the fundamentals on which the OBE Type 2 accreditation is conducted and do not compromise precision and operational liability of the OBE Type 2.

For accreditation purposes it should be noted that the following requirement of EETS Commission Implementing Regulation (EU) 2020/204 do not apply:

- Annex I, clause 1

- Annex III, Module A, (a) (ii)

- Annex III, Module A, (a) (iii) – "drawings" is to be subtracted from the requirement

7   **EXCEPTION LIST HANDLING**

Exception Lists is exchanged between the EETS Provider and the Toll Charger with the purpose of the EETS Provider to state and identify the OBE issued to the EETS User on which the EETS Provider guarantee toll payment as the OBE is used on the KmToll Domain.

The EETS Provider have to provide Exceptions Lists in form of both a White List and Black List to the Toll Charger on a regular basis according to the frequency requirements stated below:

Table 5. Exception list - transfer

Exception list type	Full list transfer	Incremental list update transfer
White List	Once daily at no later than 23.59 pm, 365 days a year	Allowed any time during the day, however maximum one incremental list per quarter of an hour
Black List	Once daily no later than 23.59 pm, 365 days a year	Allowed any time during the day, however maximum one incremental list per quarter of an hour

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The EETS Provider have to transfer both White List and Black List in latest and most updated version once daily at 23.59 am. Incremental White Lists is allowed at the frequency preferred by the EETS Provider, but maximum one incremental list per quarter of an hour. Incremental lists are used by the EETS Provider to add OBE to the KmToll Domain in between the daily full list transfer. Removal of OBEs from the Black List is allowed on an incremental basis enabling reactivation of OBEs.

Dominant exception list rules:

- Newly transferred full lists will overrule all previously transferred lists.

- Black lists will overrule white lists.

7.1 Moment of validity

Validity of Exception Lists is determined by the time of acknowledgement of list transfer by the Toll Charger according to Annex F (Interface Specifications). For White Lists and Black Lists the moment of validity is specified below:

Table 6. Exception list - validity

Exception list type	Moment of validity
White List	Valid from the moment where list transfer is acknowledged by the Toll Charger.
Black List	Adding to the black list: Valid from 00.00 am on the next day after the list transfer is acknowledged by the Toll Charger. Removing from the back list: Valid from the moment where list transfer is acknowledged by the Toll Charger.

Whitelisting

Adding an OBE takes effect immediately after the transfer of the White List is complete and acknowledged by the Toll Charger if the OBE is not on the Black List.

Blacklisting

Blacklisting an OBE – meaning that the EETS Provider choose to block the usage and thereby guarantee for toll payment related to the OBE – will take effect at the following day after transfer (running day plus one day).

The EETS Provider must keep a blacklisted OBE on the White List until the moment of validity of the Black List – hence a blacklisted OBE is only to be removed from the next full White List the day after the OBE is added to the Black List.

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Reactivation of blacklisted OBE

Subsequently if the EETS Provider intend to move an OBE from the Black List to the White List – reactivating the same OBE – the EETS Provider have to (i) remove the OBE from the Black List, (ii) add the OBE to the White List. Once the OBE is whitelisted and not on the Black List the OBE whitelisting is valid and take effect.

Delay of validity for Black Lists and non-overlapping White Lists and Black Lists allow the Toll Charger to handle Exception Lists in the enforcement process and RSE sequentially. Moreover, it ensures that the EETS User will not be 'cut-off' during use – either intentionally or unintentionally – immediately without the EETS Provider also informing the contract holder in advance.

8   DATA TRANSFER MECHANISM

The KmToll Scheme will deviate from the current version of prEN 16986:2023 in the choice of data transfer mechanism. REST API is used as data transfer mechanism instead of SOAP V1.2 or FTP.

PrEN 16986:2023 specifies that generic data transfer to use either web services using SOAP V1.2, or FTP – except for transfer of trust objects. Web services using SOAP V1.2 or FTP are not deemed not optimal for the data transfer envisaged, so the data transfer mechanism to be used is REST (Representational state transfer) API. REST has been employed throughout the software industry and is widely accepted for creating stateless, reliable web APIs. Details of the REST API, data formats and coding are defined in Annex F (Interface Specifications). Please note that data format is JSON. However, an option to transfer data in the format of XML is also possible – see further detail in Annex F (Interface Specifications).

All data transfer between the EETS Provider and the Toll Charger will use REST, with the single exception of trust objects, which will be transferred using a mechanism bilaterally agreed between the Toll Charger and the EETS Provider. By default, data will be PUSHed from sender to receiver.

As also defined in Annex F (Interface Specifications) the below table provide an overview of the interfaces and data to be exchanged:

Table 7. Interfaces and data to be exchanged

Data to be exchanged	Frequency of exchange	Direction
Ack_TC	Ad-hoc	TSP-TC
Ack_TSP	Ad-hoc	TC-TSP
Exception Lists	Daily (full lists) Ad-hoc (incremental lists)	TSP - TC
Trust Objects	Ad-hoc	TC - TSP
Contract Issuer List	Ad-hoc	TSP – TC
Toll Declarations	Once every 5 minutes	TSP – TC
Payment Claims	Monthly	TC – TSP
Payment Announcements	Monthly	TSP – PC
Billing Details	Daily	TC – TSP
Report Abnormal OBE	Ad-hoc	TC – TSP
CCC Data Request	Ad-hoc	TC - TSP
CCC Data Response	Ad-hoc	TSP - TC

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9   SECURITY

The Toll Charger uses a risk-based approach to information and IT security based on the CIS framework and comply with the ISO 27001 standard. This means that the Toll Charger demand that the EETS Provider and/or third parties to comply with the same requirements and standards.

The EETS Provider's solution must comply with ISO 27001:2017 with the requirements stated in ISO 27002:2017 and ISO 19299 Electronic fee collection security framework.

Security and data integrity is a key element addressed in three key areas:

- The EETS Provider's compliance with overall requirements in the EETS Domain Statement;

- OBE Type 1 DSRC security requirements defined in section 5.1; and

- Data interface security requirements defined in Annex F (Interface Specifications) as part of the interface definitions and built in security model.

Note: Main interfaces connection is shown in ISO:19299, see Figure. Please note that the interface between the EETS Provider and the Toll Charger is HTTPS.

Below are the formalised security requirements that Sund & Bælt requires the EETS Provider to comply with in connection with accreditation.

9.1   Security requirements

The EETS provider shall have internal processes in place that ensures secure handling of data (data processing). The EETS Provider must provide the Toll Charger with either an ISAE 3402 Type 2 certificate, or an ISO 27001 certificate to prove this.

The EETS provider must provide a threat analysis addressing the risks set out in ISO 19299 Annex D and ISO 27005, a Business Continuity/Disaster Recovery plan describing the availability, backup and recovery procedure as well as a rocess description of patch and vulnerability management.

Figure 2. Interface connections between EETS Provider and the Toll Charger