

RCA



Reference CCS Architecture

*An initiative facilitated by the ERTMS Users Group
and the EULYNX consortium*

A. Interface Specification SCI_4

This is a snapshot version. Please use it with caution.

There is ongoing work. The content of this document may be unfinished, will likely contain errors and can be changed without prior notice.

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REVISION HISTORY

| Version | Date | Superseded documents/description/details | Change Request No |
|---------|------------|--|-------------------|
| 0.0.7 | 06-12-2019 | Initial version of component specification | n/a |
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1. CONCEPT (PHASE 1)

Cenelec Phase 1 is not covered in this document

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2. SYSTEM DEFINITION (PHASE 2)

Cenelec Phase 2 is not covered in this document

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3. RISK ANALYSIS AND EVALUATION (PHASE 3)

Cenelec Phase 3 is not covered in this document

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4. SYSTEM REQUIREMENTS (PHASE 4)

4.1. Class Diagram: SCI_4 DriveProtectionSection

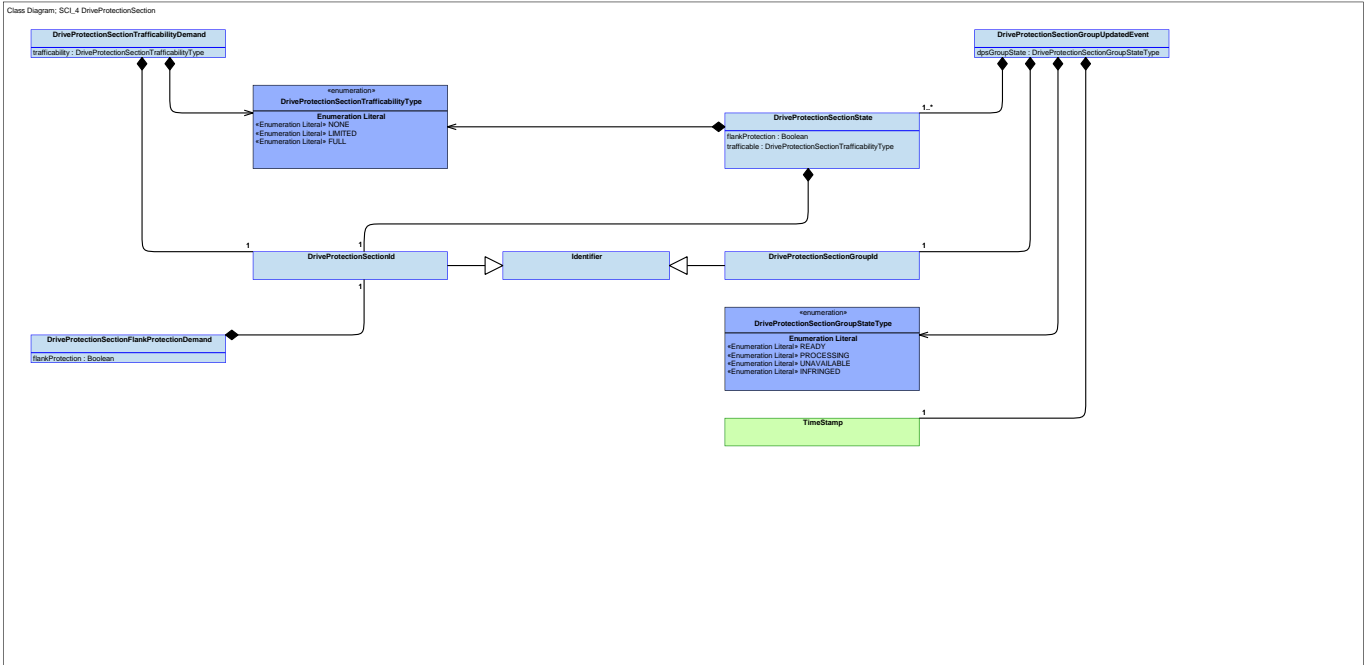


Figure 1 Class Diagram: SCI_4 DriveProtectionSection

Description: Class diagram shows [DriveProtectionSectionTrafficabilityDemand](#), [DriveProtectionSectionFlankProtectionDemand](#) and [DriveProtectionSectionGroupUpdatedEvent](#) messages

DynamicUmlClassName: Class Diagram

| Name | Description |
|---|---|
| DriveProtectionSectionFlankProtectionDemand | Demands to change the current Flank Protection state of a specific Drive Protection Section . |
| DriveProtectionSectionGroupId | Unique Identification of a Drive Protection Section Group . |
| DriveProtectionSectionGroupUpdatedEvent | This event will be sent if the state of a Drive Protection Section within the Drive Protection Section Group has been changed. It shall contain always the current state of all Drive Protection Section of the same group. |
| DriveProtectionSectionId | Unique Identification of a Drive Protection Section . |
| DriveProtectionSectionState | DriveProtectionSectionState contains the current state of one Drive Protection Section of a group |

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| Name | Description |
|--|--|
| DriveProtectionSectionTrafficabilityDemand | Demands a specific Drive Protection Section to change it's current trafficability state. |
| Identifier | ToDo |

Table 1 Description of Classes

4.2. Class Diagram: SCI_4 IO Items

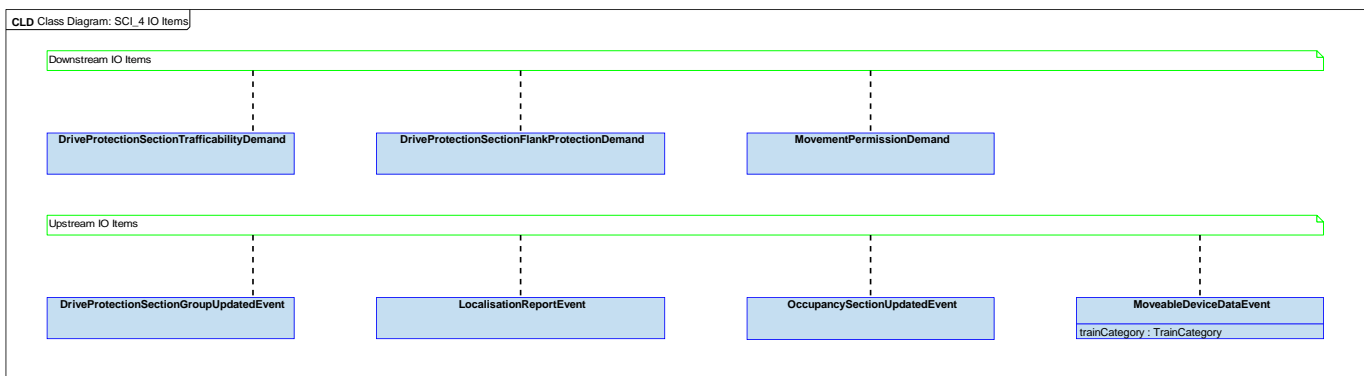


Figure 2 Class Diagram: SCI_4 IO Items

Description: Class diagram shows IO Items on [SCI_4](#)

DynamicUmlClassName: Class Diagram

| Name | Description |
|---|---|
| DriveProtectionSectionFlankProtectionDemand | Demands to change the current Flank Protection state of a specific Drive Protection Section . |
| DriveProtectionSectionGroupUpdatedEvent | This event will be sent if the state of a Drive Protection Section within the Drive Protection Section Group has been changed. It shall contain always the current state of all Drive Protection Section of the same group. |
| DriveProtectionSectionTrafficabilityDemand | Demands a specific Drive Protection Section to change it's current trafficability state. |
| LocalisationReportEvent | This event reports the current known position information of a Moveable Object . Example of a LocalisationReportEvent with ETCS Message 136: Train Position Report without safe length |

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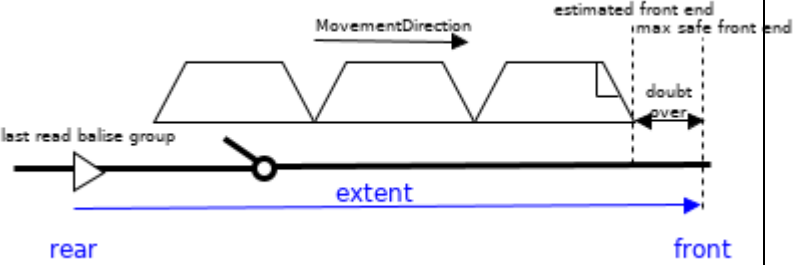
| Name | Description |
|------------------------------|--|
| |  |
| MoveableDeviceDataEvent | The MoveableDeviceDataEvent contains information about the moveable device. On a ETCS controlled device this data structure also contains the information from messages like validated train data or operation id. |
| MovementPermissionDemand | Demand to transmit a Movement Permission . |
| OccupancySectionUpdatedEvent | This event will be sent if a Train Detection System detects a change of the occupation. |

Table 2 Description of Classes

| | | |
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4.3. Class Diagram: SCI_4 Localisation

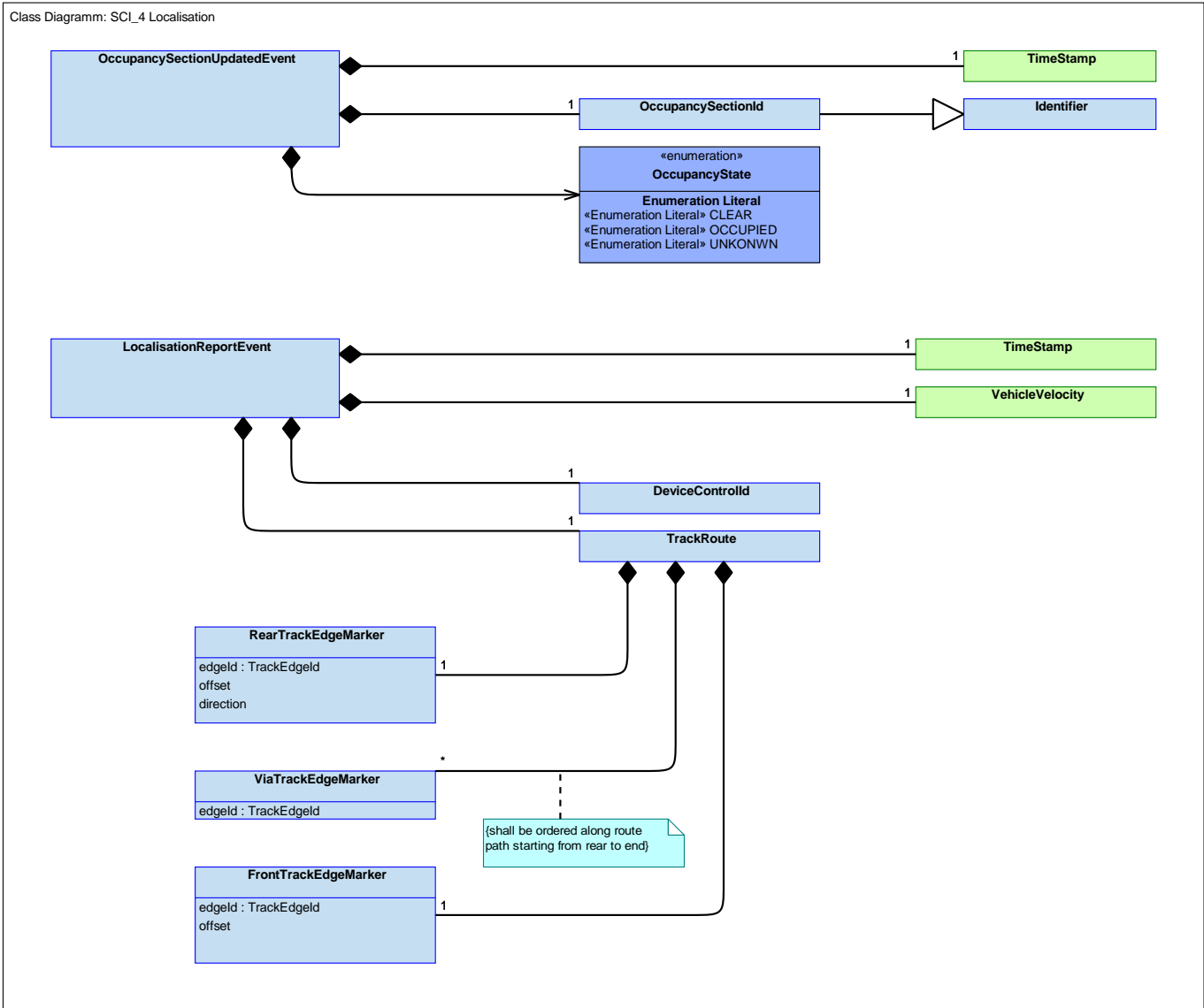


Figure 3 Class Diagram: SCI_4 Localisation

Description: Class diagram shows [LocalisationReportEvent](#) message

DynamicUmlClassName: Class Diagram

| Name | Description |
|----------------------|---|
| DeviceControllId | Unique Identification of a Moveable Object . |
| FrontTrackEdgeMarker | Marker to define the Front position on the TrackRoute . |
| Identifier | ToDo |

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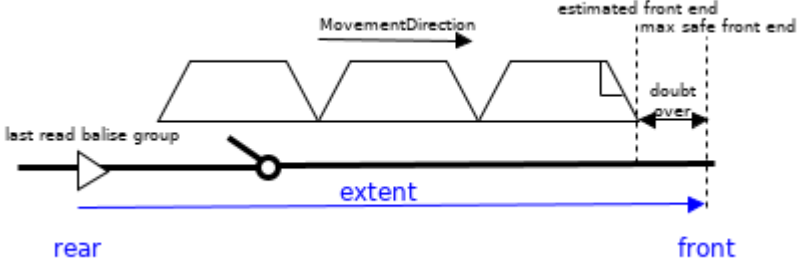
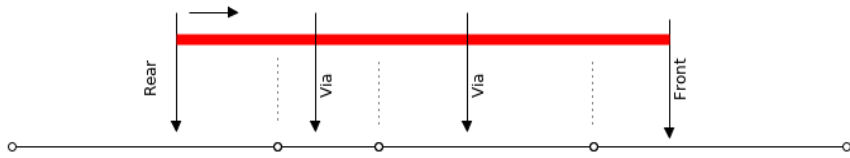
| Name | Description |
|------------------------------|---|
| LocalisationReportEvent | <p>This event reports the current known position information of a Moveable Object.</p> <p>Example of a LocalisationReportEvent with ETCS Message 136: Train Position Report without safe length</p>  |
| OccupancySectionId | Unique Identification of an Occupancy Section |
| OccupancySectionUpdatedEvent | This event will be sent if a Train Detection System detects a change of the occupation. |
| RearTrackEdgeMarker | Marker to define the Rear position on the TrackRoute . |
| TrackRoute | <p>The track route describes the extent of a navigable gap free route path on the Topology in a defined direction.</p> <p>Example of a TrackRoute with an extent over 4 Track Edges</p>  |
| ViaTrackEdgeMarker | If the directed Track Edge Section contains one or more full Track Edge between the rear Track Edge and front Track Edge the via is a list of sorted Track Edge along the route path starting from rear to front. The rear Track Edge and front Track Edge is not included. |

Table 3 Description of Classes

| | | |
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4.4. Class Diagram: SCI_4 MoveableDeviceDataEvent

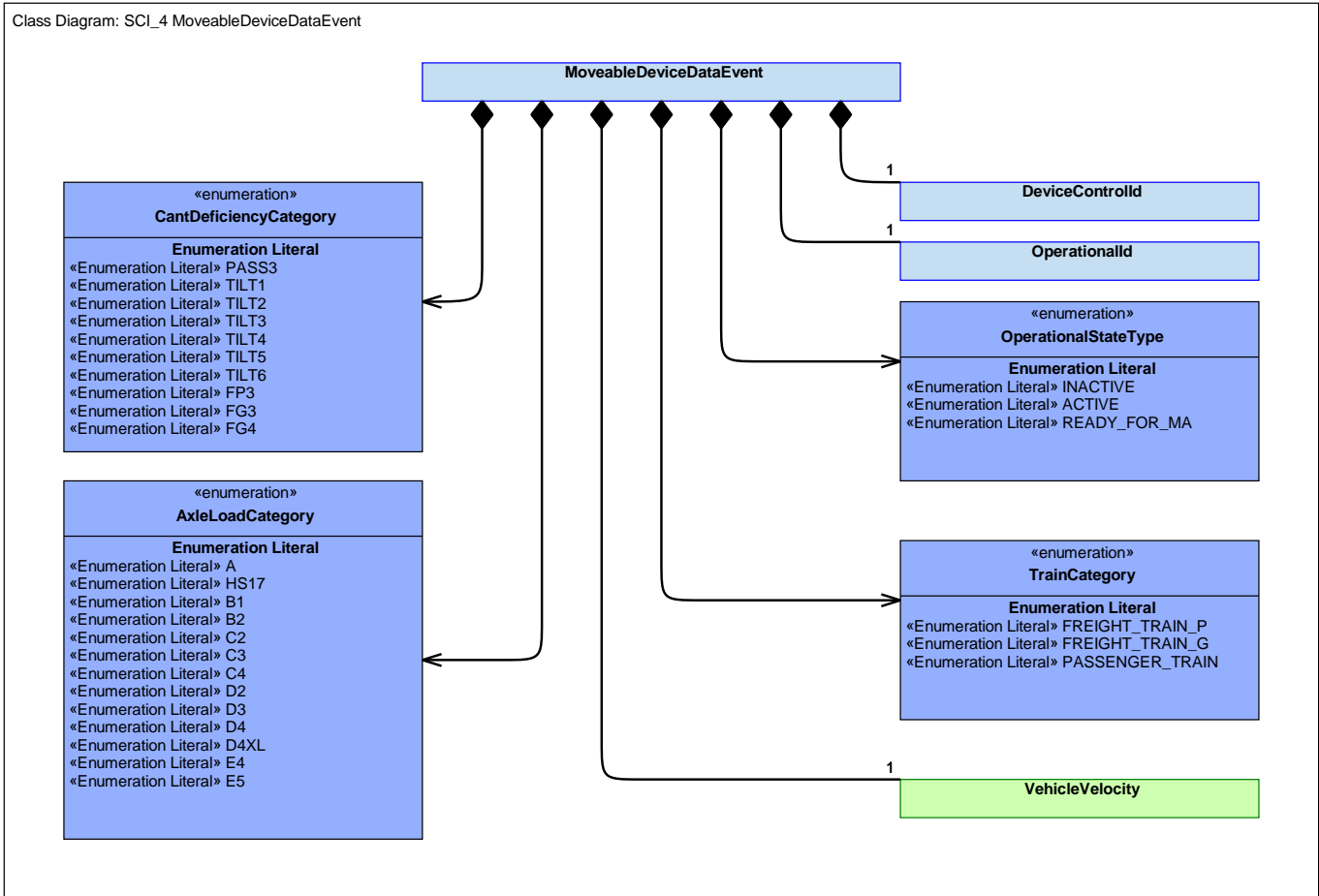


Figure 4 Class Diagram: SCI_4 MoveableDeviceDataEvent

Description: Class diagram shows [MoveableDeviceDataEvent](#) message

DynamicUmlClassName: Class Diagram

| Name | Description |
|-------------------------|--|
| DeviceControllId | Unique Identification of a Moveable Object . |
| MoveableDeviceDataEvent | The MoveableDeviceDataEvent contains information about the moveable device. On a ETCS controlled device this data structure also contains the information from messages like validated train data or operation id. |
| OperationalId | Operational Train Number |

Table 4 Description of Classes

| | |
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4.5. Class Diagram: SCI_4 MovementPermission

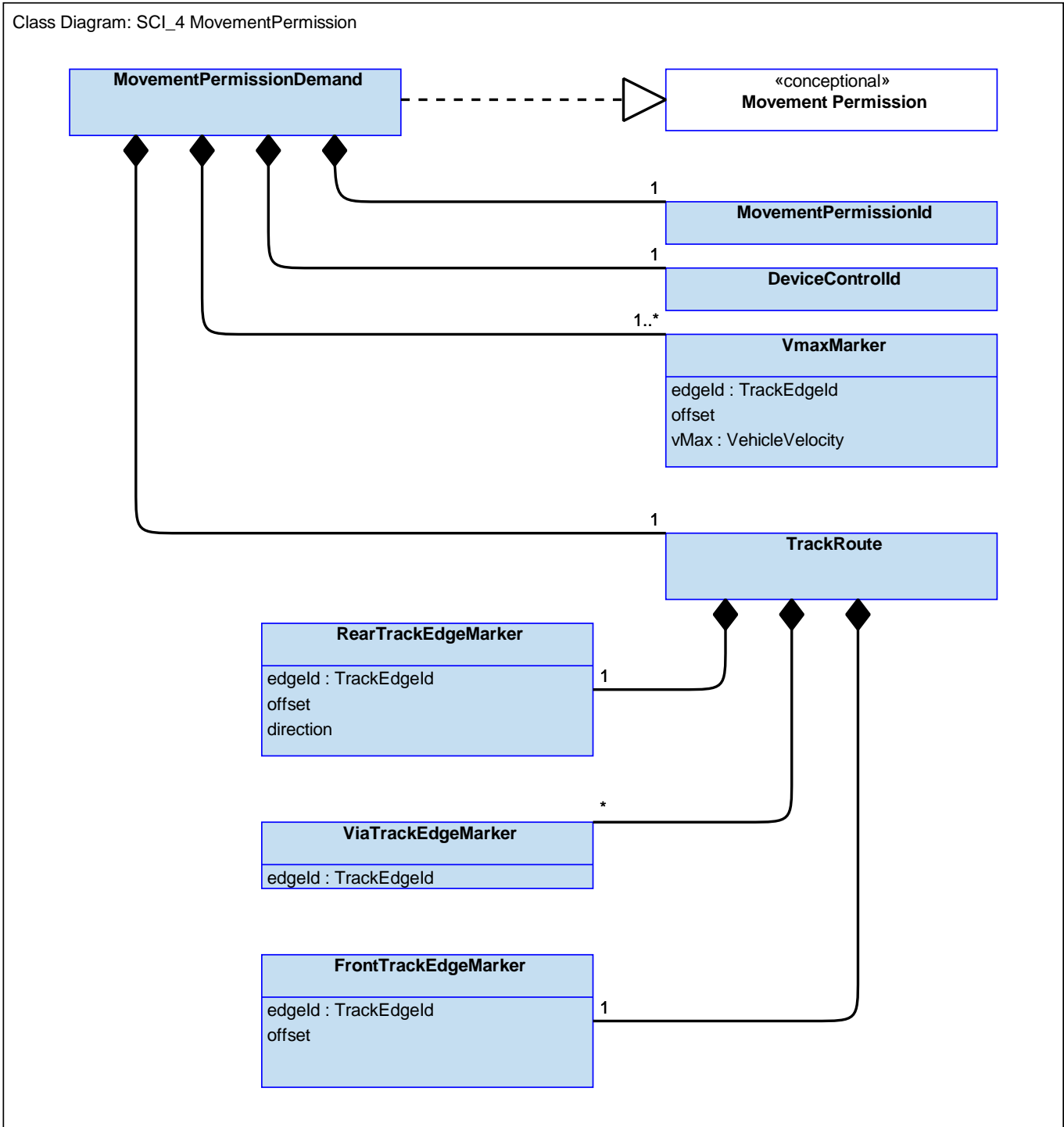


Figure 5 Class Diagram: SCI_4 MovementPermission

Description: Class diagram shows [MovementPermissionDemand](#) message

DynamicUmIClassName: Class Diagram

| Name | Description |
|------|-------------|
|------|-------------|

| | | |
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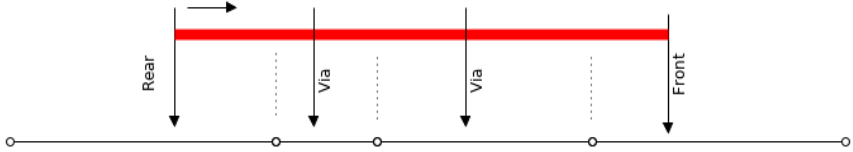
| Name | Description |
|--------------------------|---|
| DeviceControlId | Unique Identification of a Moveable Object . |
| FrontTrackEdgeMarker | Marker to define the Front position on the TrackRoute . |
| MovementPermissionDemand | Demand to transmit a Movement Permission . |
| MovementPermissionId | Unique Identification of a Movement Permission . |
| RearTrackEdgeMarker | Marker to define the Rear position on the TrackRoute . |
| TrackRoute | <p>The track route describes the extent of a navigable gap free route path on the Topology in a defined direction.</p> <p>Example of a TrackRoute with an extent over 4 Track Edges</p>  |
| ViaTrackEdgeMarker | If the directed Track Edge Section contains one or more full Track Edge between the rear Track Edge and front Track Edge the via is a list of sorted Track Edge along the route path starting from rear to front. The rear Track Edge and front Track Edge is not included. |
| VmaxMarker | Marker to define the maximum speed from the defined position until the next VmaxMarker . The speed profile is built with a list of maximum speed marker ordered along the path starting from rear to front of the Movement Permission . The first VmaxMarker must be placed exactly on the rear. |

Table 5 Description of Classes