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Errata Document for C-ITS Release 1

Release 1

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**TECHNICAL SPECIFICATION**

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# Foreword

This ETSI Errata Document reflects the decisions of the ETSI Technical Body responsible for the referenced ETSI Deliverables, that are not yet published. It has therefore to be noted that for ENs the agreed corrections have not been through the ENAP procedure yet. The Errata Document has been produced by ETSI Technical Committee Intelligent Transport Systems – ETSI TC ITS.

# Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](https://portal.etsi.org/Services/editHelp%21/Howtostart/ETSIDraftingRules.aspx) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

# 1 Scope

The present ETSI Errata Document reflects not yet published decisions of the ETSI Technical Committee Intelligent Transport Systems who are responsible for the referenced ETSI deliverable.

This Errata Document covers C-ITS Release 1

It has to be noted that for deliverables of the type ENs he agreed corrections have not been through the ENAP procedure yet and thus could be subject to changes as part of the ENAP procedure.

Section 2 of this document list the ETSI deliverables and their version number to which corrections are contained in this document

# 2 Impacted Deliverables

Corrections to the following ETSI deliverables are contained in this Errata Document

[1] ETSI TS 102 894-2 (V1.3.1): "Intelligent Transport Systems (ITS); Users and applications requirements; Part 2: Applications and facilities layer common data dictionary".

[2] ETSI TS 102 941 (V1.3.1): "Intelligent Transport Systems (ITS); Security; Trust and Privacy Management".

[3] ETSI EN 302 637-2 (V1.4.1): "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 2: Specification of Cooperative Awareness Basic Service ".

[4] ETSI EN 302 637-3 (V1.3.1): "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 3: Specifications of Decentralized Environmental Notification Basic Service".

# Corrections for ETSI TS 102 894-2 (V1.3.1):

|  |
| --- |
| **Overview of Change Requests** |
| <Change Requesrt> | <Date> | <Title> |
| CR 102 894-2-#001 | 12-07-19 | Correction of ASN.1 definition for Data Element [LanePosition ] |
|  |  |  |
|  |  |  |
|  |  |  |

|  |
| --- |
| **CHANGE REQUEST** |
|  | TS 102 894-2 | **Version** | 1.3.1 | **CR** | 1 | **rev** | - |  |
|  |
| **CR Title** | Correction of ASN.1 definition for Data Element [LanePosition ]  |
|  |  |
| **Original Source** | ITS WG1 |
|  |  |
| **Work Item Ref** | RTS/ITS-00168 | **Submission date** | 21/03/2019 |
| **Approving TB**  | TC ITS | **Approval date** | 08/04/2019 |
| **Category:** | F | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | In Annex B, ASN.1 definition of LanePosition is not in line with DE definition in Annex A.40 |
|  |  |
| **Consequence if not approved** | Wrong implementation of the base specification for the data element.  |
|  |  |
| **Summary of change** | In Annex A.40, outterHardShoulder should be outerHardShoulderChange LanePosition in Annex B to:LanePosition ::= INTEGER {offTheRoad(-1), innerHardShoulder(0),innermostDrivingLane(1), secondLaneFromInside(2), outerHardShoulder(14) } (-1..14) |
|  |  |
| **Clauses affected** | Annex B, Annex A.40 |
|  |  |
| **Linked Change Requests** |  |  |
|  |  |  |
|  |  |
| **Other comments** | Mantis issue 7789 and decision made in ITSWG1#47 meeting. <http://oldforge.etsi.org/mantis/view.php?id=7789>  |
|  |  |

### A.40 DE\_LanePosition

|  |  |
| --- | --- |
| **Descriptive Name** | LanePosition |
| **Identifier** | DataType\_ 40 |
| **ASN.1 representation** | LanePosition ::= INTEGER {offTheRoad(-1), innerHardShoulder(0),innermostDrivingLane(1), secondLaneFromInside(2), outerHardShoulder(14) } (-1..14) |
| **Definition** | This DE indicates the transversal position information on the road in resolution of lanes, counted from the inside border of the road for a given traffic direction. For example, the innermostDrivingLane corresponds to the left most lane of the carriageway in a country with right-land traffic, and to the right most lane of the carriageway in a left-land traffic (e.g. in UK). The value -1 denotes that the referenced position is outside the road. |
| **Unit** | N/A |
| **Category** | GeoReference information, road topology information |

### Annex B (normative):

### ASN.1 module of the common data dictionary

The ASN.1 module of the common data dictionary shall be as specified as below.

|  |
| --- |
|  |
|  |
|  |
| LanePosition ::= INTEGER {offTheRoad(-1), innerHardShoulder(0),innermostDrivingLane(1), secondLaneFromInside(2), outerHardShoulder(14) } (-1..14) |

# Corrections for ETSI TS 102 941 (V1.3.1):

|  |
| --- |
| **Overview of Change Requests** |
| <Change Requesrt> | <Date> | <Title> |
| CR 102 941-#001 | 12-07-19 | Allowing of DC entries in the ECTL |
| CR 102 941#002 | 17-01-20 | Add definitions of CTL and CRL update fields |
|  |  |  |
|  |  |  |

|  |
| --- |
| **CHANGE REQUEST** |
|  | ETSI TS 102 941 | **Version** | 1.3.1 | **CR** | 1 | **rev** | - |  |
|  |
| **CR Title** | Allowing of DC entries in the ECTL |
|  |  |
| **Original Source** | ITS WG5 |
|  |  |
| **Work Item Ref** | RTS/ITS-00552 | **Submission date** | 22/03/2019 |
| **Approving TB**  | TC ITS | **Approval date** | 08/04/2019 |
| **Category:** | **F** | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | ECTL contains the list of trusted Root certificates but there is no way to download CRLs issued by these Root CAs.Putting DC entries in the ECTL allows distributing the Root CA DC access point URLs. |
|  |  |
| **Consequence if not approved** | The CRL from some PKIs can be not available for all ITS-Ss. Messages from stations, enrolled in these PKIs, shall be considered as untrusted even if these devices are successfully enrolled and authorized by its PKIs. |
|  |  |
| **Summary of change** | 1. Allowing DC entry in ECTL
 |
|  |  |
| **Clauses affected** | **6.3.1 and Annex B.2** |
|  |  |
| **Linked Change Requests** | None |  |
|  |  |  |
|  |  |
| **Other comments** | None |
|  |  |

**6.3.1 Generation and distribution of CTL by TLM**

* delete a Root CA certificate (revoked);
* add, remove or modify DC access points of Root CAs;
* update the TLM certificate after a renewal process (creation of new key and generation of TLM certificates);

…

The CTL issued by the TLM shall contain the following information:

* TLM certificate and optionally link certificate ~~(optional)~~;
* Root CA certificates and optionally link certificates ~~(optional~~);
* CPOC access point.

The CTL issued by the TLM may contain the following information:

* Root CA DC access points.

The CTL issued by the TLM shall not contain any other information.

´

---- Next change --

**Annex B.2**

Table B.: Allowed combinations of CTL SSPs

| CTL type | Allowed CTL entries | Value |
| --- | --- | --- |
| TLM CTL (ECTL) | * TLM certificate entries;
* Root CA entries;
* DC entry (for CPOC and Root CA DC access points).
 | C8h |
| RootCA CTL | * EA entries;
* AA entries;
* Root CA DC access point entries.
 | 38h |

|  |
| --- |
| **CHANGE REQUEST** |
|  | ETSI TS 102 941 | **Version** | 1.3.1 | **CR** | 2 | **rev** | - |  |
|  |
| **CR Title** | Add definitions of CTL and CRL update fields |
|  |  |
| **Original Source** | ITS WG5 |
|  |  |
| **Work Item Ref** | RTS/ITS-00552 | **Submission date** | 17/12/2019 |
| **Approving TB**  | ITS | **Approval date** | 17/01/2019 |
| **Category:** | **D** | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | Clarification of definitions for some fields used in the CTL and CRL data structures is proposed: the definition of thisUpdate and nextUpdate as specified in RFC 5280 is added. |
|  |  |
| **Consequence if not approved** | The issuer of CTL or CRL may not provide values for these dates which are conformant to these definitions and therefore the transmitted information may not be correct and would open attack surfaces on the receiver side. |
|  |  |
| **Summary of change** | Adding definitions of thisUpdate and nextUpdate fields used in CRL/CTL data structures |
|  |  |
| **Clauses affected** | Clause 2.2, clause 3.1 |
|  |  |
| **Linked Change Requests** | None |  |
|  |  |  |
|  |  |
| **Other comments** | None |
|  |  |

### 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

……………………

[i.16] IETF RFC 5280 : « Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile »

### 3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 102 731 [1], ETSI TS 102 940 [5], ISO/IEC 15408-2 [i.1] and the following apply:

…………….

**thisUpdate:** this field indicates the issue date of this CRL (as specified in RFC 5280 [i.10])

**nextUpdate**: this field indicates the date by which the next CRL (respectively the next CTL) will be issued. The next CRL (respectively the next CTL) could be issued before the indicated date, but it will not be issued any later than the indicated date (as specified in RFC 5280 [i.16])

# Corrections for ETSI EN 302 637-2 (V1.4.1)

|  |
| --- |
| **Overview of Change Requests** |
| <Change Requesrt> | <Date> | <Title> |
| CR 302 637-2-#001 | 12-07-19 | Description of LanePosition in the CAM standard |
| CR 302 637-2-#002 | 17-01-20 | Description of closedLanes in the CAM standard (B.43) |
|  |  |  |
|  |  |  |

|  |
| --- |
| **CHANGE REQUEST** |
|  | ETSI EN 302 637-2 | **Version** | 1.4.1 | **CR** | 1 | **rev** | - |  |
|  |
| **CR Title** | Description of LanePosition in the CAM standard |
|  |  |
| **Original Source** | ITS WG1 |
|  |  |
| **Work Item Ref** | REN/ITS-0010089 | **Submission date** | 22/03/2019 |
| **Approving TB**  | TC ITS | **Approval date** | 08/04/2019 |
| **Category:** | **F** | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | The description of LanePosition is not in line with the description of LanePosition in CDD. The CAM standard defines counting lanes from outside to inside and the CDD defines counting from inside to outside. It is unclear which definition of LanePosition prevails. |
|  |  |
| **Consequence if not approved** | It is unclear how to interpret the information provided on the lane the vehicle is in. This could lead to wrong interpretations and wrong advice to drivers. |
|  |  |
| **Summary of change** | The CAM standard should not re-define what is already defined elsewhere. Hence delete the last part of the first sentence in B.24The DE lanePosition of the *referencePosition* of a vehicle, ~~counted from the~~~~outside border of the road, in the direction of the traffic flow.~~ |
|  |  |
| **Clauses affected** | B.24 |
|  |  |
| **Linked Change Requests** | CR 102 894-2 - #0001 Correction of ASN.1 definition for Data Element [LanePosition ]. |  |
|  |  |  |
|  |  |
| **Other comments** | See similar CR for the DENM standard. |
|  |  |

### B.24 lanePosition

|  |  |
| --- | --- |
| Description | The DE lanePosition of the *referencePosition* of a vehicle.This DE shall be present if the data is available at the originating ITS-S (see note). |
| Data setting and presentation requirements | The DE shall be presented as specified in ETSI TS 102 894-2 [2] *LanePosition.* |
| NOTE: Additional information is needed to unambiguously identify the lane position and to allow the correlation to a map. |

|  |
| --- |
| **CHANGE REQUEST** |
|  | ETSI EN 302 637-2 | **Version** | 1.4.1 | **CR** | 2 | **rev** | - |  |
|  |
| **CR Title** | Description of closedLanes in the CAM standard (B.43) |
|  |  |
| **Original Source** | ITS WG1 |
|  |  |
| **Work Item Ref** | REN/ITS-0010089 | **Submission date** | 20/11/2019 |
| **Approving TB**  | TC ITS | **Approval date** | 17/01/2020 |
| **Category:** | **F** | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | The description of closedLines is not in line with the description of ClosedLines (A.106 and A.23) in CDD. |
|  |  |
| **Consequence if not approved** | It is unclear how to interpret the information provided on the closed lanes. This could lead to wrong interpretations and wrong advice to drivers. |
|  |  |
| **Summary of change** | The CAM standard should not re-define what is already defined elsewhere. Hence delete the part of the B.43 as it is already defined in CDD in A.106 and A.23 |
|  |  |
| **Clauses affected** | B.43 |
|  |  |
| **Linked Change Requests** | CR 102 894-2 - #0001 Correction of ASN.1 definition for Data Element [LanePosition ]. |
|  | CR 302 637-2 - #0001 Description of LanePosition in the CAM standard. |
|  |  |
| **Other comments** | See similar CR for the LanePosition DE. |
|  |  |

### B.43

It provides information about the opening/closure status of the lanes ahead. ~~Lanes are counted from the outside boarder of the road. If a lane is closed to traffic, the corresponding bit shall be set to 1.~~

# Corrections for ETSI EN 302 637-3 (V1.3.1)

|  |
| --- |
| **Overview of Change Requests** |
| <Change Requesrt> | <Date> | <Title> |
| CR 302 637-2-#001 | 12-07-19 | Description of LanePosition in the DENM standard |
| CR 302 637-2-#002 | 12-07-19 | Type of ServiceSpecificPermissions in the DENM standard |
|  |  |  |
|  |  |  |

|  |
| --- |
| **CHANGE REQUEST** |
|  | ETSI EN 302 637-3 | **Version** | 1.3.1 | **CR** | 1 | **rev** | - |  |
|  |
| **CR Title** | Description of LanePosition in the DENM standard |
|  |  |
| **Original Source** | ITS WG1 |
|  |  |
| **Work Item Ref** | REN/ITS-0010090 | **Submission date** | 22/03/2019 |
| **Approving TB**  | TC ITS | **Approval date** | 08/04/2019 |
| **Category:** | **F** | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | The description of LanePosition is not in line with the description of LanePosition in CDD. The DENM standard defines counting lanes from outside to inside and the CDD defines counting from inside to outside. It is unclear which definition of LanePosition prevails. |
|  |  |
| **Consequence if not approved** | It is unclear how to interpret the information related to the lane of the event. This could lead to wrong interpretations and wrong advice to drivers. |
|  |  |
| **Summary of change** | Delete the last part of the first sentence in B.24The lane position of the event position in the road ~~counted from the outside~~~~boarder of the road.~~ |
|  |  |
| **Clauses affected** | B.24 |
|  |  |
| **Linked Change Requests** | CR 102 894-2 - #0001 Correction of ASN.1 definition for Data Element [LanePosition ]. |  |
|  |  |  |
|  |  |
| **Other comments** | See similar CR for the CAM standard. |
|  |  |

### B.24 lanePosition

|  |  |
| --- | --- |
| Description | The lane position of the event position in the road.This DE in included in the *alacarte* container.If this data is provided, the originating ITS-S is required to determine the lane position with a predefined confidence level as defined by the ITS applications (e.g. 95 %). |
| Data setting and presentation requirements | This DE is OPTIONAL. It shall be present when this information is required by the ITS application. This DE shall be presented as specified in ETSI TS 102 894-2 [5] *LanePosition*. |

|  |
| --- |
| **CHANGE REQUEST** |
|  | ETSI EN 302 637-3 | **Version** | 1.3.1 | **CR** | 2 | **rev** | - |  |
|  |
| **CR Title** | Type of ServiceSpecificPermissions in the DENM standard |
|  |  |
| **Original Source** | ITS WG5 |
|  |  |
| **Work Item Ref** | REN/ITS-0010090 | **Submission date** | 22/03/2019 |
| **Approving TB**  | ITS | **Approval date** | 08/04/2019 |
| **Category:** | **F** | **Release** | 1 |  |
|  | Use **one** of the following categories:**F** (correction)**A** (correction in an earlier release)**B** (addition of feature) **C** (functional modification of feature)**D** (editorial modification) |  |
|  |  |
| **Reason for change** | There are two options for specifying SSPs in TS 103 097. The DENM standard does not state which one to use. |
|  |  |
| **Consequence if not approved** | If it is not clarified which one option be used, this could cause interoperability problems if sending and receiving implementations use different options. The permissions could potentially not be decoded and hence DENMs cannot be validated from a security/permissions point of view. |
|  |  |
| **Summary of change** | 1. Add the following sentence to 6.2.2.2:

*DENMs shall be signed using private keys associated to Authorization Tickets that contain SSPs of type BitmapSsp as specified in ETSI TS 103 097 (V1.3.1) [9].*1. Move reference [i.17] to the normative references as reference [9]
 |
|  |  |
| **Clauses affected** | 2.1 and 6.2.2.2 |
|  |  |
| **Linked Change Requests** |  |  |
|  |  |  |
|  |  |
| **Other comments** | The same change has already been done in the CAM standard clause 6.2.2.2 during the ENAP comment resolution. |
|  |  |

### 6.2.2.2 Service Specific Permissions (SSP)

The octet scheme allows the SSP format to accommodate current and future versions of the present document. The octet scheme for DENM SSP is constructed out of four octets as illustrated in Figure 4.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Octet 0 | Octet 1 | Octet 2 | Octet 3 |

Figure : Format for the Octets

EXAMPLE of bit order: The decimal value 199 shall be represented as shown in Figure 5.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

Figure : Example of octet presentation

For each octet, the most significant bit (MSB) shall be the leftmost bit. The transmission order shall always be the MSB first. The first octet (octet 0 in Figure 4) shall control the SSP version and be interpreted in the following way:

 0: No version, length 1 octet; the value shall only be used for testing purposes.

 1: First version, length 4 octets.

 2 to 255: Reserved for Future Usage.

The SSP has a maximum length as specified in ETSI TS 103 097 [i.17]. The first octet shall reflect the version of the present document. As future versions of the present document are published, the first octet shall be accordingly incremented. The second to fourth octet (octet 1 to octet 3 in Figure 4) is based on the *causeCode* types described in the clause 7.1.4.

Length of SSP is the length of the Octet String. Table 8 presents the octet scheme for DENM SSPs.

When the ITS Application Identifier (ITS-AID) is set for the DEN basic service, the permissions shall be as defined in Table 9.

DENMs shall be signed using private keys associated to Authorization Tickets that contain SSPs of type BitmapSsp as specified in ETSI TS 103 097 (V1.3.1) [9].

Table : Octet Scheme for DENM SSPs

|  |  |
| --- | --- |
| Octet # | Description |
| 0 | SSP version control |
| 1 to 3 | Service-specific parameter |
| 4 to 30 | Reserved for Future Usage |

………………..

### 2 References

### 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] SAE J2735 (2009-11-19): "Dedicated Short Range Communications (DSRC) Message Set Dictionary".

…………………..

[9] ETSI TS 103 097 (V1.3.1): "Intelligent Transport Systems (ITS); Security; Security header and certificate formats".

### 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TR 102 638 (V1.1.1): "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Definitions".

……………….

 [i.17] Void.

[i.18] ETSI TR 102 965 (V1.1.1): "Intelligent Transport Systems (ITS); Application object identifier (ITS-AID); Registration list".

History

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| **Document history** |
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