Welcome to the World of Standards

STF 448 - "LOCAL DYNAMIC MAP (LDM) STANDARDISATION FOR VEHICLE ITS STATION"
Final
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An Local Dynamic Map (LDM) is a key feature to ease the access to relevant commonly used Cooperative ITS information available in the ITS-Station.

Complexity of the Roadside ITS-S and Vehicle ITS-S are different 2 Work Items were defined:

- **ETSI ITS TC: STF448 to create the Vehicle focused LDM. The EN 302 895.**
- **CEN278WG16/ISO204WG18: PT1604 to create the extended LDM specification with focus on RSU ITS-S. The TS 18750.**
Purpose of the LDM standardization

Cooperation between

- ETSI TC ITS
- CEN/ISO

ISO/CEN LDM (ISO TS 18750)

Multi Station LDM extensions

LDM specific Applications s.a. Data Fusion

Additional Interface specifications

data provider
data consumer

Security Management

ETSI LDM (ETSI EN 302 895)
The Local Dynamic Map (LDM) is a key facility within the ITS station facilities layer. The LDM supports the Basic Set of Applications by providing plausible authorized, area related information in a time relevant manner.

Applications considered:
- Driving assistance - Cooperative awareness;
- Driving assistance - Road Hazard Signalling;
- Speed management;
- Cooperative navigation Location based services;
- Community services;
- ITS station life cycle management.
The Basic Local Dynamic Map (LDM) is a Data store within the ITS-S to:

- Store and protect LDM Data Objects to be shared with facilities and applications within a single ITS-S;
  - Store LDM Data Objects from LDM Data Providers, such as the Basic Services
  - Provide LDM Data Objects to LDM Data Consumers, such as the BSA
    - by means of subscription/notification method; or
    - by means of queries including spatial queries;

- Ensure data access is authorized through registration as LDM Data Providers and Consumers;

- An entity can be registered as a LDM Data Provider and a Consumer, for example:
  - data fusion capabilities, or an application providing derived data as input to other applications

At registration the Security is asked for authorization. The LDM verifies permissions upon every access.
The Basic Local Dynamic Map (LDM) is a Data store within the ITS-S to:

- **Store, maintain and protect information according to constraints of time and area of maintenance;**
  - The LDM Data Provider defines LDM Data Objects with timestamp (generation time) and location reference (reference position/area)
  - The LDM maintains data within a minimum history window (time validity) and within an area around the ITS-S (LDM configuration)
  - Enable garbage collection mechanisms outside this window

- **Requests for LDM Data Objects can be filtered**
  - for example by LDM Data Object type, attribute values, time stamp, location (e.g. area)

- **Prioritize data requests;**
  - Enable LDM to manage its own performance by ordering requests
  - LDM Data Consumers may indicate their priority upon every request
**LDM Functional Architecture**

- The LDM Service component is responsible for providing functionalities to authorized LDM Data Providers for LDM data manipulation.
- The LDM Maintenance Component is responsible for storing and maintaining the data and its integrity as well as for the garbage collection of persistent data held within the LDM.

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<td>Management layer</td>
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<td>IN and OUT</td>
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LDM functionality EN 302 895

Now and Future use

Enable basic functionality
- Store and request data from basic messages as LDM Data Objects

Enable advanced functionality, e.g.
- Store and requests sub objects (e.g. dynamically changing containers)
- Maintain history of data (e.g. to support data fusion)

LDM Data Objects should be Common to all facilities and applications in an ITS-S
- As defined in a Common Data Dictionary
  - Currently only for (CAMs EN 302 637-2) and DENMs (EN 302 637-3);
- To be extended with data dictionaries from other message sets or applications, also from other standardization bodies, such as CEN; ISO; SAE; TISA; IEEE and ITU.
STATUS of the EN 302 895 Standard.

After 3 remote consensus with 0 comments at the last cycle the Final Draft EN 302 895 V0.0.12 is provided for TB approval 2014-01-16.

Start of Public Enquiry will start and will lead to the release of this standard as EN 302 895 V1.1.1.
Any questions?

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