

### **Cross Testing**

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### **Cross border harmonization**





#### The Interoperability Pyramid





#### STEP 0 – Principle Willingness to Achieve Interoperability





On 10 June 2013, the Ministers of Transport of the Netherlands, Germany and Austria signed the Memorandum of Understanding on the setting up of the C-ITS corridor.

Step 0 Principle willingness to achieve interoperability

# STEP 1 – Exchange of system specifications







Step 0 Principle willingness to achieve interoperability

### STEP 2 – Harmonisation and Profiling



- Many functional descriptions available on national basis
- No common language for functional description present (e.g. use case, function, scenario, operation mode, etc.)
- Communication specified in national profiles
- Risk of national instead of international user experience (e.g. EventHistory or Trace on the carriage way)



## STEP 2 – Harmonisation and Profiling ECo-AT

- Defining the context of the Profile
  - System component,
  - System interfaces and
  - System layer.





## STEP 2 – Harmonisation and Profiling ECo-AT

- Grouping of functions, e.g. Probe Vehicle Data (PVD):
  - CAM Aggregation [AT],
  - Probe Vehicle Data [DE] and
  - Basic Probe Vehicle Data (bPVD) [NL].
- Laying national profiles on top of each other identifying
  - Similarities,
  - Specialities and
  - Discrepancies.

### STEP 2 – Harmonistion and Profiling





#### STEP 3 – Coordinated Tests





#### **Eco-AT Living Lab**





#### STEP 3 – Coordinated Tests



- Eco-AT organised already 4 Test Cycles
- Has supported the ETSI interoperability tests in Livorno
- 5th Test Cycle is scheduled 21st 23rd of March 2017
- Every interessted party (supplier, OEMs, road operator) are welcome
- Clear structure with agreed, published test specifications and test procedures
  - 49 predefined events / messages sent out by 19 Road Side Stations
  - 5 traffic lights sending intersection information
  - Detailed interactive storyboard



#### Virtual Test Cycles



- (Virtual) TC5 includes updated reference message for all use cases
  - Roadworks Warning (RWW)
  - Hazardous Locations / Events (OtherDENM)
  - In-Vehicle Information / Signage (IVI)
  - Intersection Safety (ISS / SPAT / MAP)
  - Co-Existence (CAM Protected Zones)
- Reference message include ...
  - Source DATEX II data from TCC
  - PCAP Capture / Air Dump of the target message
  - Visualization of message location (KMZ / Google Earth)



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#### STEP 4 – Conformance Assessment



- Will only conformant service providers / equipment receive a security certificate from EU PKI?
- Under which preconditions?
- Initial and regular conformance tests?
- Who shall do them?
- Selfdeclaration?
- ....



#### The Interoperability Pyramid







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