

Input for FRAV #4 from the Netherlands

Dear John, Chen Chunmei, Ezana, Richard,

Thanks for the preparation of the 4<sup>th</sup> FRAV meeting, including all documents provided in the webpage. Sorry for our late reply. Please find below our input for the meeting.

**General:**

there have been a lot of discussions during and between FRAV meetings, also reflected by the amount of documents for the meetings. The inputs for FRAV#4 do not show unanimous views for the different issues. We hope that it will be able to come to decisions respecting the majority and – as far as possible – allowing future improvement.

**Specific:**

Definitions:

ODD: We prefer to use the common definition of ODD in line with the contribution of SAE. Internal elements (like “seat-belt-connected”) need to be considered from a safety perspective. However, the first priority of FRAV is on the exterior elements. Features/Functions: We would suggest to include the Figure provided by Germany to clarify the relation between ADS/Function/Feature. This clarification gives a good understanding (visualization) of the used terminology in FRAV. The idea to have multiple AD-features that make the ADS, is important for the general understanding. Different features have different ODD’s, but features can also be used in full automated mode or in co-pilot mode with interaction/co-operation with the human driver (creating yet another ODD).

System Safety: we recognize the problem of redefining well known definitions. As System Safety is a generic term, we could choose to introduce Vehicle System Safety throughout our documents  
Requirements: we support the Canadian proposal to use the NASA definitions for functional – and performance requirements. Both requirements are product requirements, and will be supplemented with process requirements.

Development of requirements:

we would prefer to use a top-down approach in order to start with the high level descriptions matching the generic approach. The document FRAV-03-03(Germany) gives a structured explanation. The document FRAV-04-13(Japan) proposes further solutions. To contribute to the discussion on reasonably foreseeable. If an accident or high-risk situation was not foreseeable the Automated Vehicle was driving without knowing the risk. One could say the situation awareness did not match the required level for the situation. The automation needs to understand the risks involved in the dynamic driving tasks and needs to mitigate these risks to the level that accidents are preventable. This leaves only extremities for the category “unforeseeable”. The reasoning that the document FRAV-04-13 uses is now mainly based on prevention of crash. We think we should also incorporate the mechanisms that reduce the risk on the situations that will need a prevention of crash. One of the ODD-boundaries will be(or could be for certain features) the perceived risk. Speed reduction, alarming the human driver and other measures can bring the ADS back within acceptable limits.