FRAV Status Report

Report to GRVA from the UN Informal Working Group on Functional Requirements for Automated Vehicles
Sessions

- Preparatory session, 23 September 2019, Geneva
- FRAV-01, 9-10 October 2019, Berlin
- FRAV-02, 14-15 January 2020, Tokyo

FRAV currently includes 100 stakeholders from across the Contracting Parties, Industry, and other interested parties.
Progress Report

• FRAV has reviewed SR1 for gaps in addressing anticipated vehicle configurations enabled by automation.
• FRAV has reviewed the Contracting Party guidelines and policies.
• FRAV has agreed conceptually on the common safety elements.
• FRAV has gathered extensive stakeholder input on potential functional performance goals.
• FRAV has devised a documentation tool ("Document 5") to structure and organize the stakeholder input for further development.
Considerations: Terminology

- SR1 refers to “drivers” and “seating positions” in vehicle definitions. Automated vehicles may not have drivers and could include small vehicles with standing passengers.
- “ODD” provides an accurate term for referring to operating conditions; use of “OD” should be discontinued.
- “Autonomous” is an inaccurate and misleading term; its use should be discontinued.
Considerations: Terminology

• “Accident” is an inaccurate and misleading term; it should be replaced with more objective and/or precise terms.

• “Reasonable” and “rationale” are not synonyms; “reasonable” is the accurate term established under product law and pairs with “unreasonable” as used across functional safety standards.

• “Minimal” not “minimum” risk maneuvers/conditions: best response under a given set of uncontrollable conditions.
Considerations: High-Level Guidance

FRAV is proceeding from high-level requirements towards more detailed requirements as may be justified to address specific safety needs.

• “Free of unreasonable safety risks” is an accepted and established concept and may be preferable to “non-tolerable risks” or other nonstandard terminology.
• Assurance of safe and fluid traffic flows should be a high-level priority to guide functional performance requirements.
• Collision avoidance goal suggests that “destruction of property” should be avoided where possible and consistent with avoiding injury or death.
Common Safety Elements (from an FRAV perspective)

• Operational Design Domain
  • Intended use conditions, including at the level of system features
  • Does not prejudice minimum requirements

• System Safety
  • Includes Object and Event Detection and Response (OEDR)

• Object and Event Response Execution
  • Specific focus on motion-control performance under normal and other conditions
  • Associated with third-party testing

• Human-Machine Interface and Operator Information
  • External and Internal
  • Misuse, abuse, and disuse mitigation

• Safe Fallback Response
  • Broader scope than “Failsafe response”
Other Considerations

• “Vehicle maintenance and inspection”
  • In-use performance (prevention of use in an unsafe state)
• “Consumer education and training”
  • Misuse prevention
• “Crashworthiness and compatibility”
  • GRSP responsibility
• “Post-crash AV behavior”
  • Safe state following a collision
Near-term FRAV Orientation

• FRAV-03, 14-15 April 2020, Paris (CCFA)
• FRAV-04, 8-9 September 2020, Santa Clara (NVIDIA)

• Elaborate Document 5 to establish work streams
• Consensus on initial descriptions of candidate functional performance requirements
• Elaboration of descriptions with explanations of safety needs and candidate performance criteria
FRAV Requests to GRVA

- GRVA consideration of input to WP.29
  - Terminology
  - High-level guidance (Safety Vision)
  - Common safety elements
  - Unallocated topics

- Comments or guidance on FRAV program