

Driving Forward: Autonomous Vehicles in Claims and Litigation

Presented By:

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SAE Classification Levels

SAE level	Name	Narrative Definition	Execution of Steering and Acceleration/Deceleration	Monitoring of Driving Environment	Fallback Performance of Dynamic Driving Task	System Capability (Driving Modes)
Human driver monitors the driving environment						
0	No Automation	the full-time performance by the <i>human driver</i> of all aspects of the <i>dynamic driving task</i> , even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
1	Driver Assistance	the <i>driving mode</i> -specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	Human driver and system	Human driver	Human driver	Some driving modes
2	Partial Automation	the <i>driving mode</i> -specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	System	Human driver	Human driver	Some driving modes
Automated driving system ("system") monitors the driving environment						
3	Conditional Automation	the <i>driving mode</i> -specific performance by an <i>automated driving system</i> of all aspects of the dynamic driving task with the expectation that the <i>human driver</i> will respond appropriately to a <i>request to intervene</i>	System	System	Human driver	Some driving modes
4	High Automation	the <i>driving mode</i> -specific performance by an automated driving system of all aspects of the <i>dynamic driving task</i> , even if a <i>human driver</i> does not respond appropriately to a <i>request to intervene</i>	System	System	System	Some driving modes
5	Full Automation	the full-time performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> under all roadway and environmental conditions that can be managed by a <i>human driver</i>	System	System	System	All driving modes

Testing

- Uber / Volvo: Suspended testing after Arizona crash resulted in fatality to pedestrian (Level 4)
- Toyota: Suspended testing on public roads after fatal Uber crash
- Waymo (Google) / Toyota Prius, Lexus, Chrysler Pacifica: Testing fully autonomous vehicles (Level 5)
- Lyft / Chevrolet Bolt: Testing fully autonomous vehicles (Level 5); Expected release of GM Cruise (Level 5) in 2019
- Audi: Expected 2018 release of Level 3 Traffic Jam Pilot; developing Level 4 Highway Pilot (expected 2020 release) and Level 5 concept cars now.
- Ford: Expected 2021 release of Level 5 vehicle
- Volkswagen / Aurora – Sedric Level 5 concept car to begin testing in 2018
- Apple, Lyft, Samsung, Bosch: Received permits from California DMV to begin testing autonomous vehicles

Market Availability

- Tesla Level 2 AutoPilot
- Audi Level 2 Traffic Jam Assist
- Cadillac CT6 with Level 2 Super Cruise
- Mercedes Benz Level 2 Drive Pilot System
- Acura Level 2 Driver Assist
- Volvo Level 2 Pilot Assist

Safety Implications and Ethical Considerations

- Accident / Fatality Statistics (Tesla)
- Driving in a Highway of Autonomous Vehicles
 - Average Age of Vehicles
 - Interactions Between Different Levels of Autonomous Vehicles
- The Human Factor
 - As the User
 - As the Third Party
- Ethical Considerations

Autonomous Vehicle Claims

- What Happened?
 - System malfunction / defect
 - Component malfunction / defect



Autonomous Vehicle Claims

- What Happened?
 - User Error
 - Operating system in wrong type of environment
 - Not being attentive to the roadway
 - Not responding to an emergency situation / triggering event

Autonomous Vehicle Claims

- Evidence Preservation
 - Where is the data kept?
 - SD Cards / Computer
 - Cameras
 - Air bag Recorder
 - Transmitted directly to manufacturer
- Data Accessibility
 - How is the data interpreted?

Diagnostic Logs

ACCELERATOR PEDAL POSITION (%)
(102 is recorded when vehicle is off)

VEHICLE SPEED (mph)
(179.8 mph is recorded when vehicle is off)

DRIVER BRAKE PEDAL APPLICATION
(Faulty_SNA is recorded when vehicle is off)

STEERING ANGLE SENSOR (degrees)
(positive indicates right turn,
+/-819.1 is recorded when signal is off)

ODOMETER (miles)
(signal not available)

CRUISE STATE

CRUISE SET SPEED

LEAD VEHICLE DISTANCE (meters)
(204.6 recorded when vehicle not detected)

AUTO LANE CHANGE STATE

HANDS ON STATE

AUTOPILOT STATE

ALERT

Litigating Claims Involving Autonomous Vehicles

- Who is the Defendant?
 - Vehicle Manufacturer
 - Component Manufacturer
 - Other Driver
 - Third Party Vehicle Owner

Litigating Claims Involving Autonomous Vehicles

- Costs of Litigation
 - Experts:
 - Software Engineer
 - Accident Reconstructionist
 - Human Factors
 - Discovery
 - Proprietary information
- Considering the Cost of Litigation and the Size of the Claim

Claims and Claim Issues / Defenses

- Negligence and Product Liability Claims
 - Economic Loss Doctrine
- Breach of Contract and Breach of Warranty Claims
 - State Law Warranty Issues
- Comparative Negligence / Proportionate Responsibility
 - When a driver is rarely asked to respond, the driver will rarely respond when asked to respond

Contact Information

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