California Automated Vehicle Regulations Update

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Fundamental Challenges in Defining Automation Regulations

• Balancing need to protect public safety (due diligence) with desire to encourage technological innovation

• Trying to ensure that general public really understands limitations of their vehicles

• Detecting unsafe systems as early as possible

• Managing cultural differences between automotive and information technology industries

• Determining where to draw the go/no-go line in the absence of explicit technical standards or test procedures
California Background

- SB 1298 amended Vehicle Code in July 2012
- Rules apply to SAE Level 3+ driving automation
- Testing regulations effective Sept. 2014
  - Permission for specific vehicles, drivers
  - Strict test driver requirements
  - Describe prior closed-course testing
  - No heavy vehicle or motorcycle testing for now
  - Report certain driver interventions, but all crashes
- Permits for 42 manufacturers, 269 vehicles, 975 test drivers (9/17)
  - (July 2016: 14 mfgrs., 111 vehicles, 428 drivers)
CA DMV released draft for public comment on March 10, 2017 (prior to NHTSA update) and proposed regulations (after NHTSA update) on October 12, 2017:

- Clarified identification of covered vehicles (SAE L3-5) and importance of Operational Design Domain (ODD), with explicit references to SAE J3016
- Extended validity of testing permit to 2 years
- No paying passengers during testing
- More specific requirements on disengagement reports to ensure consistency
- New set of regulations for testing without driver onboard
AV Testing Without an Onboard Driver

For vehicles designed for “driverless” operation:

- Manufacturer assumes liability for collisions
- Notify local authorities within ODD
- Wireless communication with remote operator to monitor status and exchange information in case of a problem
- FMVSS compliance or NHTSA exemption
- Law enforcement interaction plan, with multiple requirements
- Submit copy of public disclosures of approach to safety
- Amend for any significant ODD or automation level change
- Disclose any personally identifiable data collection to passengers
California AV Deployment Regulation
Principles and Background

• Public safety now depends on the technology, not on the trained test drivers
• Treat all developers equally
• Clear and unambiguous requirements representing real transportation needs to avoid temptations to “game the test”
• Transparency of results to gain public confidence, without jeopardizing developers’ intellectual property
• *March 10, 2017 draft for public comment,* and *October 12 release of proposed regulations* (+15 day comment period)
California AV Deployment Permit Rules (1/2)

• Define ODD and certify that “autonomous mode” cannot operate outside ODD
• EDR to record sensor data for 30 s before any crash
• Comply with FMVSS or have NHTSA exemption
• Comply with CA Vehicle Code, including updates at least annually
• Follow “industry standards” to protect against cyber-attacks
• Consumer education plan – ODD restrictions, with submittal of language used, and access for law enforcement, EMR and used-vehicle purchasers
• How it will come to a complete stop after a failure
California AV Deployment Permit Rules (2/2)

• Summarize test results proving performance within ODD:
  – VMT within each ODD
  – How system was validated
  – Safety-critical incidents encountered in testing
  – Description of collisions causing injury or property damage over $1000 and how they will be avoided in the future
• Submit copy of publicly disclosed approach to achieving safety
• If no driver is required, add:
  – Communication with remote operator (softened)
  – Display owner/operator info. for law enforcement
  – FMVSS compliance or NHTSA exemption
Additional California AV Deployment Provisions

- File amendment based on significant changes (level of automation, speed increase >15 mph, change of location of ODD, change of roadway type, removal of ODD restrictions)
- Report safety-related defects
- Suspend permit based on failures to disclose, misrepresentations, recalls, safety concerns -- Manufacturer must notify vehicle owners
- Disclose to owner any collection of information not necessary for safe operation - Owner opt-in to collection of identifiable data
- Manufacturer liable for crashes in “autonomous mode” if vehicle was properly maintained, but driver responsible otherwise
- Truth in advertising about “autonomous” capabilities
- Approval based on submittals that “satisfy the department that the subject AVs are safe to operate on public roads”