
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)**

Extensions to California Testing Regulations

- **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”**