INFORMATION BULLETIN

January 3, 2024

INTERACTION WITH SAE LEVEL 3 AUTONOMOUS VEHICLES

This Information Bulletin (IB) provides guidance to officers for the investigation of crashes involving SAE Level 3 autonomous vehicles, as well as traffic enforcement considerations.

The California Department of Motor Vehicles (DMV) approved the first SAE Level 3 autonomous vehicle deployment permit to a vehicle manufacturer. It is anticipated vehicles with SAE Level 3 autonomous capabilities will be sold to the public beginning in 2023. As these vehicles become more prevalent on California highways, it is important to understand the capabilities of autonomous vehicles and special considerations during crash investigations and traffic enforcement contacts. SAE Level 3 autonomous vehicles pose unique challenges due to the mix of autonomous operation with conventional driving.

A list of manufacturers with autonomous vehicle permits for testing and/or deployment can be found on the DMV website at:

https://www.dmv.ca.gov/portal/vehicle-industry-services/autonomous-vehicles/

UNDERSTANDING AUTONOMOUS VEHICLES

Autonomous vehicle technology is classified according to an equipped vehicle's capabilities per SAE International's Surface Vehicle Recommended Practice J3016. SAE classifies all vehicles according to six levels of autonomy (Level 0 through Level 5), with autonomous capabilities of performing the entire dynamic driving task beginning at SAE Level 3. The first four SAE levels are:

Level 0: The driver is responsible for the entire driving task. Driver support features,if any, are limited to those providing warnings and momentary assistance (e.g., conventional cruise control, automatic emergency braking, blind spot warning, lane departure warning).

Level 1: The driver is responsible for the entire driving task. Driver support features may provide steering or brake/acceleration control (e.g., lane centering, adaptive cruise control).

Level 2: Same as Level 1; however, driver support features may simultaneously provide steering and brake/acceleration control (e.g., lane centering and adaptive cruise control). These features are commonly referred to as Advanced Driver Assistance Systems.

Level 3: The driver is responsible for the dynamic driving task until they engage the automated driving feature, commonly referred to as Automated Driving System (ADS). When the ADS is

engaged, the system performs the entire dynamic driving task under specific conditions, and the person in the driver seat is the fallback-ready user.

REQUIREMENTS

Vehicles equipped with Level 3 autonomy are required to obtain a testing or deployment permit from the DMV prior to their use on public roads. A Law Enforcement Interaction Plan (LEIP) is not required for Level 3 vehicles; however, manufacturers with a deployment permit are required to maintain a website, accessible to first responders, containing the end user education plan training and the operational design domain (ODD). The ODD includes a map depicting the geographical area and specified conditions under which the vehicle may operate autonomously. These websites, LEIPs, and other important information can be found on the CHP Crashes SharePoint site under the "Autonomous Vehicles" tab.

Vehicles capable of Level 3 autonomy may also operate in Levels 0-2 when the ADS is not engaged. A person operating a vehicle in Level 0-2 is considered a driver. When Level 3 autonomy is engaged, the ADS becomes the driver, and the person in the driver seat becomes the fallback-ready user. They shall remain in the driver seat and be prepared to take over the entire dynamic driving task when prompted by the ADS. The fallback-ready user is not required to monitor the road ahead or the ADS when the vehicle is operating in Level 3 autonomy. Manufacturers incorporate fail-safe features to prevent autonomous operation when the fallback-ready user is not capable or in position to take back control when prompted by the ADS. Level 3 vehicles shall be operated by a person with a valid driver license.

Vehicles equipped with Level 3 autonomy are required to have a visual indicator inside the vehicle's cabin to indicate when the ADS is engaged. The Mercedes EQS, for example, has two lights on the steering wheel that will illuminate a turquoise color when the Level 3 "Drive Pilot" ADS is active. In the event the ADS can no longer drive, and the fallback-ready user fails to take over the driving task when notified, the ADS will default to a "minimal risk condition" as a fail-safe. A minimal risk condition will slowly bring the vehicle to a stop within the traffic lane and activate the hazard lights before turning off.

State laws and regulations governing autonomous vehicles are in the California Vehicle Code (CVC), Division 16.6, and California Code of Regulations, Title 13, Division 1,Chapter 1, Article 3.7 and 3.8.

CRASH INVESTIGATION CONSIDERATIONS

When any vehicle is involved in a crash, the investigating officer is to ask questions in order to ascertain the highest SAE Level capability of the vehicle, and what SAE Level the vehicle was being operated in at the time of the crash. This information will be documented properly on the CHP 555, Page 2, Traffic Crash Coding.

When evaluating the statements of a party claiming the vehicle's ADS was engaged, consider the vehicle's autonomy limitations. For example, is the system capable of changing lanes? Does the system have speed restrictions? When in doubt, and if the vehicle is capable, you may ask the party on scene to provide a log history showing when the ADS was engaged and disengaged. Remember, accessing electronic vehicle data without permission would

otherwise require a search warrant. Upon determination that the ADS was engaged during the crash, the party would be considered an operator and NOT a driver.

If the investigating officer determines a forensic examination of the autonomous vehicle's data recorder or event data recorder would assist in the investigation, the appropriate Multidisciplinary Accident Investigation Team (MAIT) may be consulted in accordance with policy contained in Highway Patrol Manual 110.1, MAIT Operations Manual.

TRAFFIC ENFORCEMENT CONSIDERATIONS

The CVC applies to autonomous vehicles as it would apply to any other vehicle, with some sections deserving special consideration. Some examples of sections requiring special considerations are as follows:

Electronic Devices

When a vehicle's ADS is engaged, the fallback-ready user is NOT a driver. A fallback-ready user, while the vehicle is operating autonomously, is not restricted from using wireless devices or viewing video screens. Autonomous vehicles may, in fact, be equipped with built-in entertainment systems capable of being used when the vehicle is in autonomous mode.

Officers will use sound professional judgement when deciding to conduct an enforcement stop on the person in the driver seat of a vehicle capable of autonomous operation. If the officer did not observe any signs of autonomous operation and believes a driver committed a violation, the officer may issue a citation. If the driver claims there was no violation because the vehicle's ADS was engaged, the officer should consider engagement and disengagement times from the ADS log if they are available and provided voluntarily. If ADS logs are not available or cannot be provided, the officer is to use sound professional judgement when deciding whether to issue a citation.

Moving Violations

Autonomous vehicles are expected to comply with all provisions of the CVC applicable to the performance of the dynamic driving task in their intended operational design domain. Officers are to use sound professional judgement when issuing citations for moving violations when the vehicle is capable of ADS operation.

If a fallback-ready user of a Level 3 vehicle does not take control of the vehicle when requested by the ADS, the vehicle will default to the minimal risk condition. This may lead to the vehicle coming to a complete stop within traffic lanes. If the fallback-ready user allows the vehicle to stop in lanes as a result of being distracted or incapacitated (other than due to injury, medical condition, or mechanical failure), they may be in violation of Section 21718 CVC–Stopping or Parking on Freeway, or Section 22400 CVC–Impeding Traffic.

If an autonomous vehicle requires a safety driver under a testing permit and the driver is not seated in the driver's seat, not monitoring the safe operation of the autonomous vehicle, and/or not able to take over immediate manual control when required, the driver may be cited for a

violation of Section 38750(b)(2) CVC. For deployment permit vehicles, there is no comparable CVC section for the fallback-ready user. A person operating a Level 3 vehicle in an autonomous mode, while not able to take immediate manual control of the vehicle, may be in violation of Section 22350 CVC–Unsafe Speed. This does not preclude an officer from charging other violations if, in the officer's best judgement, they appear applicable.

Driving Under the Influence

Conventional indicators of driving under the influence (DUI) will not likely be evident if a vehicle is being operated autonomously. Since the driver of a Level 3 vehicle has the capability and responsibility to take over control of the vehicle, normal DUI investigation procedures apply when contacting a driver suspected of being under the influence of drugs and/or alcohol. Familiarity with the capabilities and limitations of the autonomous vehicles will aid the officer in their investigation, as will noting whether the visual indicator light inside the cabin was illuminated prior to an enforcement stop, if possible. In the event the ADS defaults to a minimal risk condition and the officer does not witness the person drive the vehicle, the officer should be prepared to explain the applicability of Section 40300.5 CVC.

This IB provides guidance for officers as autonomous vehicles are deployed, but it is imperative officers use sound, professional judgment when contemplating any enforcement actions.

Questions regarding this IB should be directed to the Enforcement and Planning Division, Collision Investigation Unit, at (916) 843-3455.

OFFICE OF THE COMMISSIONER

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