



A RIDE WITH PLUS AI

At the recent ACT Expo in Long Beach, CA, I was able to sit behind the wheel of a 53' tractor-trailer and see Plus AI's autonomous truck technology up close.

The Advanced Clean Transportation Exposition (ACT Expo) has emerged as one of the most important truck trade shows in North America over the past several years. That's because the show has firmly staked out all forms of advanced commercial vehicle technology as its specialty. The show is largely focused on alternative fuels and battery-electric powertrains. But literally any emerging technology with implications for cleaner, more fuel-efficient freight movement is on the table at the show.

ACT Expo 2022 wrapped up in its hometown of Long Beach, CA, on May 12. It's the last show in the port city. Next year, the show will relocate to Anaheim, CA, because it has most decidedly outgrown the Long Beach Convention Center in terms of both attendees and exhibitors.

During the show, autonomous system developer Plus AI was offering evaluation rides featuring its latest self-driving technology, and I was lucky enough to go along for a trip on the Los Angeles freeways around Long Beach.

The drive was a significant one for me, because it marked the first time in seven years that I've had the opportunity to evaluate an autonomous control system that wasn't developed by Daimler Trucks or one of its tech partners. So, I thought it would be interesting to compare Plus AI's approach to that of Daimler and see how different — or similar — the two control systems are.

Plus AI's demonstration model was a recent Peterbilt Model 759 tractor, with a 53' trailer in tow. And this was very interesting in that for the first time, I was going to drive and ride in a truck that was retrofitted with an independently developed autonomous control system. So, there wasn't quite that cutting-edge technology "feel" to the truck when I climbed up into its cab. Other than a few minor graphic displays added to the center dash cluster, the truck felt about like any Model 579 I've ever driven.

With a full host of Plus AI engineers riding in the passenger seat as well as in the sleeper, we headed out from the convention center to pick up I-405, merge onto I-710, and

then loop back around to Long Beach. All told, we'd be out on the road for about an hour, in heavy noontime traffic.

For safety considerations, I stayed in full control of the truck as we maneuvered through downtown Long Beach to the I-405 on ramp. Plus AI calls its autonomous control system "PlusDrive." Once we were down the freeway ramp with a safe following distance established, I engaged the PlusDrive by hitting a steering wheel-mounted button (very similar to activating cruise control) and felt the system immediately take over driving.

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It was here that the first big difference between the Daimler system and Plus AI's became apparent. On the Daimler trucks, absolutely no driver input is required to keep the autonomous control system engaged. But for safety reasons, PlusDrive is programmed to detect driver input in the form of pressure on the steering wheel as a way of ensuring that a driver is behind the wheel and situationally aware of the vehicle's surroundings. If PlusDrive goes for 50 seconds without detecting any driver input on the steering wheel, an alert prompts the driver to either exert a bit of pressure on the wheel, or key the activation button on the steering wheel to let it know that everything is OK.

In practice, this isn't as strange as it sounds. The system is



A Peterbilt Model 579 tractor retrofitted with Plus AI's "PlusDrive" autonomous control system, awaits another freeway run outside the Long Beach Convention Center during ACT Expo 2022.

sensitive enough that it can detect very little human pressure on the steering wheel. But, interestingly enough, I was quickly so confident in PlusDrive's ability to safely steer the vehicle in heavy L.A. traffic that I got multiple prompts to reengage the system. My touch was too light, I guess.

On the road, PlusDrive performed admirably. A real-time graphic on the center cluster let me see what the Plus AI sensor arrays were "seeing" as well. The system tracks multiple vehicles around the truck and will not perform a maneuver unless all pertinent safety criteria are met. To change lanes, for example, I had to toggle the turn signal twice in the direction I wanted to go. Once the system was alerted that I wanted it to change lanes, it immediately began tracking oncoming traffic in the desired lane — with a red border highlighting the lane on the display, letting me know it wasn't safe to move over. But once the proper safe interval arrived, the truck moved over quickly and precisely and immediately adjusted its speed according to traffic conditions in the new lane.

Merging with PlusDrive on a congested L.A. freeway was interesting as well. In the interest of optimal fuel economy

and efficiency at all times, PlusDrive has been designed to keep moving if at all possible. In practice, the truck slows to a crawl, allowing other cars to flow in from an on-ramp and merge ahead of it, while always maintaining forward momentum. And then, when the time is right, the truck sees the interval it is looking for, and accelerates accordingly to take its place in the flow of traffic.

As with other autonomous systems I've experienced, PlusDrive inspires confidence in its capabilities almost immediately. There is simply never a shadow of doubt that the system is not capable of handling the truck safely and competently at all times — not matter how heavy traffic was. Even dealing with stalled vehicles on the side of the road was a matter-of-fact affair for Plus Drive. Once I was familiar with the idiosyncrasies

of PlusDrive, and understood how to and when to engage it, and how to manage it once it was in control of the truck, it performed flawlessly exactly as advertised.

It was a timely reminder that autonomous technology for commercial vehicles is advancing rapidly. Moreover, it is clear that this technology performs very well, even in tough driving situations like an L.A. freeway. And that, even in its early stages, will likely have tremendous safety, productivity and sustainability advantages that will appeal to both fleets and drivers alike.

About the Author: Jack Roberts is a transportation journalist who has been covering North American commercial vehicles for 25 years and has developed a reputation as a leading authority/futurist concentrating on new trucking technology, including autonomous vehicles, battery-electric trucks and emerging blockchain technology.



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