

EDR/DSSAD

DSSAD's Research on ADS/ADAS Vehicle Accident Cases

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DSSAD's Research on ADS/ADAS Vehicle Accident Cases

◀ Purpose

- ☑ Share information that may assist in developing DSSAD guidelines currently under discussion at the IWG.

◀ Key Points

- ☑ Explain the types of trigger conditions that were considered and data elements during investigations of ADAS vehicles and ADS pilot vehicles in Korea.

Note: The Korean government investigates accidents involving ADS or ADAS-equipped vehicles.



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Trigger Condition

- ✓ The following trigger conditions were considered based on actual investigation cases of ADS/ADAS vehicles.

Occurrence	Trigger Condition	Investigation Cases
Critical Occurrence	EDR is triggered	When the EDR is triggered due to a vehicle collision or airbag deployment.
Non-critical Occurrence	ADS Failure	Autonomous driving is no longer possible. (1) the vehicle's sensors were damaged or required calibration due to the collision. (No EDR) (2) Due to an error in the vehicle's ADS software,
	Near-miss (Minor crash)	Although no collision occurred, a near-miss or very minor crash took place. - The sensors were not damaged, nor did they require calibration, but the vehicle's path was blocked by an object, making further driving impossible
	Unplanned event	(1) If the vehicle deviates from a planned route or makes an unintended drive due to an ADS software error (2) In the event that the vehicle incorrectly detects an object and suddenly decelerates. (Like a AEB Malfunction)

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◀ Data Elements

- ☑ These are the data elements used in the actual accident investigation cases mentioned earlier.

No	Category(Information)	Data Elements
1	Basic Information	ADS HW/SW ver., Odometer, Date/Time, Longitude/Latitude/Altitude, GPS Status
2	the Status and Dynamics of the Vehicle	Vehicle Speed, Engine/Motor RPM, Longitudinal/Lateral Acceleration, Yaw rate, Heading, Gear Position...
3	Operation of ADS	ADS operation status, Turn Signal, Longitudinal/Lateral requested(demanded) by ADS
4	Driving Environment	Object Speed/Acceleration, Distance to the object, Type of Object(Vehicle, Cyclist, Human), Object Status(stopping, moving)
5	Operation and Status of the Driver	Acceleration Position(%), Brake Pedal Position(%) or Brake Pressure, Steering Angle, Driver intervention via the accelerator/brake pedals or the steering wheel

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◀ Video Data

- ✓ We also utilized video data in accident investigations
- ✓ In Korea, most vehicles are equipped with dashcams, and autonomous pilot vehicles are also equipped with dashcams*
** However, ADS vehicles are required to have dashcams installed.*

Benefits of Using Accident Video in Investigations

- (1) Verify text data reliability by synchronizing with video data.
- (2) Compare and analyze recorded data (text data) where the system may have misdetected or made incorrect decisions.
- (3) Identify clear causes of accidents to assess DSSAD performance.



THANK YOU

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