

---

## 정책, 제도 및 결함



## 자율주행자동차 사고정보 관리시스템에 대한 고찰

강정중\* · 전민건\* · 권용희\* · 조광상\*

### A Study on the Management System for Autonomous Vehicle Accident Information

Jeong-Jung Kang\*, Min-Geon Jeon\*, Yong-Hee Kwon\*, Kwang-Sang Cho\*

**Key Words :** Accident information(사고정보), Autonomous vehicle(자율주행자동차), DASSAD(Data Storage System for Automated Driving, 자율주행정보저장시스템), EDR(Event Data Recorder, 사고정보기록장치)

#### ABSTRACT

To establish AVAIB(Autonomous Vehicle Accident Investigation Board), the Compulsory Motor Vehicle Liability Security Act was amended in April, 2020. It is one of AVAIB's tasks to provide information, build and operate network system for autonomous vehicle accident information management. The purpose of this study is to consider the development and the progress of the management system for autonomous vehicle accident information. In this paper, we would like to introduce major function of this network system and propose the roadmap. The network system which is on development has three major function. First, reporting the accident involving autonomous vehicle. Reporting could be done by insurance company or interested party. Receptionist who receive the report will be notified immediately. Furthermore, it could form a link with the vehicle registration network for confirming and auto-completing the vehicle specification. Second, storing information about accident. It extract the data from the device, such as EDR and DSSAD which storing the accident information, and turn them into database. Various stored information about accident is used for analyzing the cause of the accident and can be statisticize. Extraction of accident information and storing it into database, analyzing it to derive the cause of the accident and simulating that accident are what this work covers. Lastly, providing the accident information and investigation result to interested party after investigation. Interested party can request and be provided with result, which is derived from accident analysis and accident simulation, through this network. In 2021, the development of the first step of the network system for autonomous vehicle accident information management had started, and the second step will be completed in 2023. It is planned to start the advancement to third step in 2025 when the increment of the number of autonomous vehicle in operation is expected.

---

\* 한국교통안전공단 자동차안전연구원  
E-mail : jejecka@kotsa.or.kr

## 자율주행차 사고조사 체계 정립을 위한 조사지침 개발

이헌주\* · 이상진\*\* · 조광상\*\*\*

### Development of Investigation Guideline for Establishing an Accident Investigation System for Autonomous Vehicles

Heonjoo Lee\*, Sangjin Lee\*\*, Kwangsang Cho\*\*\*

**Key Words :** Autonomous vehicle(자율주행자동차), Accident investigation(사고조사), Location of accident responsibility (사고책임 소재), ARAIB(항공철도사고조사위원회), NTSB(미국연방교통안전위원회), AAIB(영국항공사고 조사국), Investigation guideline(사고조사 지침)

#### ABSTRACT

With the launch of the first Level 3 autonomous vehicle manufactured by Honda, Japan in March '21, the supply of autonomous vehicle manufactured by Mercedes-Benz, BMW, and Hyundai is expected to begin in the second of '22. As the supply of autonomous vehicle increases, accidents of them are also expected to increase. Unlike conventional car accidents, autonomous vehicle accidents can be caused by the driver or autonomous driving system.

This study aims to develop an accident investigation guideline that can be used to investigate and analyze the exact cause of the accident in order to identify the location of accident responsibility in the event of an autonomous vehicle accident.

In order to establish study methods and details, a comparative analysis will be conducted by referring to the domestic aviation and railway accident investigation guideline and the overseas NTSB and AAIB guidelines.

The study is largely composed of the contents of accident reporting and investigation procedures, field investigation, accident information cause analysis, and information provision.

Through the accident investigation guideline proposed in this study, it is expected that it will be usefully used to investigate accidents and determine the cause of autonomous vehicle accidents.

---

\* 자동차안전연구원/책임연구원

\*\* 자동차안전연구원/인턴

\*\*\* 자동차안전연구원/사무국장

E-mail : leehj@kotsa.or.kr

## 구동축전지 인증제도 연구

황경연\* · 문보현\* · 오주호\* · 이현우\* · 조성우\*

### A Study on Reess Certification

Kyeongyeon Hwang\*, Bohyun Moon\*, Juho Oh\*, Hyunwoo Lee\*, Sungwoo Joe\*

**Key Words** : REESS(구동축전지), KMVSS (자동차 안전기준), EV(전기차), Global Technical Regulation(세계기술규정)

#### ABSTRACT

Market share of EV(Electric Vehicle) is increasing due to high oil prices and environmental concerns. These EV demand to ensure high safety of electric energy storage system, high voltage system and mechanical structure.

UN/ECE WP29 GRSP established the Informal Working Group(IWG) in 2012 and has continued discussion to enact Global Technical Regulation(GTR20) for Electric Vehicle Safety(EVS).

The GTR20 for EVS was established in 2018. The UN Regulation 136, the international standard for electric motorcycles, was enacted in 2016.

The KMVSS of Rechargeable Electrical Energy Storage System(REESS) safety standards were established in 2010 for the first time in the world, It has been revised in 2021 to harmony with GTR20 and ensure Safety. Nevertheless, There is still demand to relieve public anxiety and support the successful shift to future vehicle.

As the demand for EV Skyrocket, We have encountered to some problems that we didn't have before, such as REESS FIRE. Because EV omplexion and damage that cause public concern and large-scale recall burden the industry are different from an Internal Combustion engine(ICE).

Self-certification has adopted on REESS. After 2-3 years from the Car release, the government checks if the cars conform to safety standards. If found anything, defect investigation or recall will follow for safety management REESS applied with New technology cannot be controlled in advance(large-scale recall), safety blind spot may occur. So New Certificate system is needed to keep it under controll.

This Presentation shows the purpose and procedure of the New Certificate system on EV core Part

---

\* 한국교통안전공단 자동차안전연구원  
E-mail : kyeongyeon.hwang@ts2020.kr

## 자동차 교환·환불 중재제도의 효과성에 대한 고찰

조상수\* · 이현우\*\* · 정상덕\*\*\* · 박경균\*\*\*\* · 김정석\*\*\*\*\*

### The Consideration for the Social Effectiveness of ADR on Occurring the New Car's Non-conformities

Sangsoo Cho\*, Hyunwoo Lee\*\*, Sangdeuk Jeong\*\*\*, Kyounggyun Park\*\*\*\*, Jeongseok Kim\*\*\*\*\*

**Key Words** : Alternative dispute resolution(대체적 분쟁해결 도구), Arbitration(중재), Lemon law(레몬법)

#### ABSTRACT

Since 2019, it has been operating a new car exchange-refund arbitration system called Korean Lemon Law in accordance with the amendment of the Automobile Management Act in Korea. As soaring social interests after introducing that system in Korea, the number of the arbitration applications is increasing every year. As a result, the government and other institutions and automobile manufacturers have been making great efforts to resolve disputes, and that system has been stably established itself.

Despite the fact that the applicants for the arbitration are benefiting greatly from this system, a few of press and some automobile experts are doubting the effectiveness of this system due to mis-understandings of that system. In this regard, this study intends to review the core contents of Korean Lemon Law and examine the effects of this system. In addition, the future tasks for the development of this system is considered in the mid. or long term.

---

\* 한국교통안전공단 자동차안전연구원/책임연구원

\*\* 한국교통안전공단 자동차안전연구원/사무국장

\*\*\* 한국교통안전공단 자동차안전연구원/연구위원

\*\*\*\* 한국교통안전공단 자동차안전연구원/책임연구원

\*\*\*\*\* 한국교통안전공단 자동차안전연구원/연구원

E-mail : cider2@kotsa.or.kr

## 자동차안전도평가 좌석안전성 목 하단 상해 평가 도입에 관한 고찰

곽준규\* · 이호열\* · 이은덕\* · 장형진\* · 전준호\*

### A Study on The Introduction of Lower Neck Injury Criteria for Whiplash in KNCAP

Jun Gue Kwak\*, Ho Yeol Lee\*, EunDok Lee\*, Hyung Jin Chang\*, Joon-Ho Jun\*

**Key Words** : KNCAP(자동차안전도평가), Rear-Crash(후방충돌), Whiplash(목상해), Lower Neck(목 하단)

#### ABSTRACT

According to the Korea National Police Agency's TASS(Traffic Accident Analysis System) statistics from 2017 to 2022, the proportion of rear-crash car accidents among car to car accidents in Korea accounts for more than 20%. It is very important to protect the safety of occupants in car accidents and it is necessary to continuously develop technologies for confirming and evaluating car safety around the occupants.

Among the KNCAP(Korea New Car Assessment Program) conducted by the Korea Automobile Testing and Research Institute, the seat safety assessment which is a field of passive safety, is conducted to confirm and evaluate the safety of occupants in a vehicle in the event of a rear-crash. The test is divided into a static test that geometrically measures the headrest position and the head position of the occupant when seated, and a dynamic test, which is whiplash test, that verifies the injury of BioRid-II dummy by applying acceleration in the boarding situation.

This study examines the introduction of additional criteria by comparing the KNCAP whiplash test with the GTR No.7 Ph2 stage of the global technical regulations, which can be introduced in the future for the purpose of evaluating the occupant's injury in the situation of a low-speed rear-crash.

The study was conducted by the Korea Automobile Safety Research Institute from 2017 to 2021, and the data collected by the dummy for the rear-cash test was analyzed using sensors that can measure injury data in addition to the current evaluation criteria. The speed applied to the test was 15.5km/h(KNCAP pulse), which was lower than the pulse of GTR No. 7-Ph2, 17.6km/h, and the test results showed that most of the 54 models performed at the safety evaluation level met the criteria.

---

\* 한국교통안전공단 자동차안전연구원  
E-mail : kwak@kotsa.or.kr

## ADAS 긴급제동장치 사고 분석을 위한 주행 시뮬레이터 개발

김종혁\* · 한현서\* · 김송희\* · 최지훈\*\* · 박종진\*\* · 전우정\*\*\* · 박하선\*\*\*\*

### Development of Driving Simulator for Traffic Accident Analysis about ADAS Autonomous Emergency Braking System

Jonghyuk Kim\*, Hyunseo Han\*, Songhui Kim\*, Jihun Choi\*\*, Jongjin Park\*\*, Woojeong Jeon\*\*\*, Hasun Park\*\*\*\*

**Key Words** : Autonomous Driving(자율주행), ADAS(첨단운전자지원시스템), AEB(긴급제동장치), Traffic Accident Analysis(교통사고 분석), Driving Simulator(주행 시뮬레이터), EuroNCAP AEB Test

#### ABSTRACT

Recently, the Ministry of Land, Infrastructure and Transport announced the ‘Mobility Innovation Roadmap’ to become the third in the world to commercialize partially autonomous vehicles(Lv 3) within 2022 and to realize the world’s highest level of fully autonomous driving(Lv 5) commercialization by 2027. Technological development towards autonomous vehicles is constantly progressing, and in the flow, current automobile technology is also significantly advanced. In autonomous driving technologies level as defined by SAE, Lv 0 to Lv 2 correspond to ADAS(Advanced Driver Assistance System), and it is installed in most recently released vehicles for the purpose of improving driver convenience and safety performance. Among the various functions of ADAS, the function most closely related to traffic accident analysis is AEB(Autonomous Emergency Braking) related to vehicle braking. In this study, we have developed a driving simulator capable of the accident reconstruction about AEB for analyzing the driver's negligence or the possibility of accident avoidance. In accordance with the EuroNCAP AEB test, AEB test was performed on a total of 10 test vehicles selected according to sales volume and popularity, AEB operation characteristics for each vehicle were databased. AEB operation algorithm based on AEB test data was developed in MATLAB/Simulink environment provided PreSCAN. Also by applying the AEB operation algorithm to SCANeR Studio, an operation program of the driving simulator, we could build AEB simulation environment that enables AEB operation simulation from the driver’s point of view on a virtual road that is similar to reality. As a result of AEB simulation in the driving simulator environment, it was confirmed that the simulation results were very similar to the actual vehicle AEB experiment data. Through this study, AEB operation simulation based on the driving simulator could be useful in the traffic accident analysis about autonomous driving or ADAS.

\* 국립과학수사연구원 교통과/공업연구소

\*\* 국립과학수사연구원 교통과/공업연구소

\*\*\* 국립과학수사연구원 교통과/과장

\*\*\*\* 광주과학수사연구소/소장

E-mail : jhkim11@korea.kr