



We are now a little over 3 months away from our 2019 meeting in Beijing, China.

This conference will be our first in China, an exciting country that is already the world's largest car market. China has many new indigenous car makers looking to participate in the automotive markets world-wide.

The earlier you can register with our host CIRC, the easier it will be for you to complete your Chinese visa application and enable CIRC to reserve the necessary hotel accommodation. If necessary, your flight and arrival times can be added at a later date.

I have also sent out the call for technical presentations and we would like the names and topics of your presentations by July 26 so that we can plan the technical agenda.

In March, I travelled to Beijing to review the conference preparations and I am pleased to report that the plans for a very successful conference and engagement with the Chinese car makers are well underway.

My contact for any feedback or questions is [rmcdonald@rcar.org](mailto:rmcdonald@rcar.org)

In this June Newsletter, 12 RCAR members have contributed articles. I'm sure you'll agree that there are many items of great interest:

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## New RCAR standard finalised

Already in RCAR's June 2018 newsletter AZT reported on the requirements for Virtual Vehicle Keys (VVK). Since then several meetings with both OEMs and suppliers have taken place, showing the industry's interest in the topic.

The document has since been discussed in the RCAR working group Cyber Security and has also been introduced to the annual conference in Madrid, Spain, on Tuesday, October 2<sup>nd</sup>, 2018.

A draft version of the RCAR document was discussed by the WG in the February meeting in Washington, where an agreement in principle was reached between all group members.

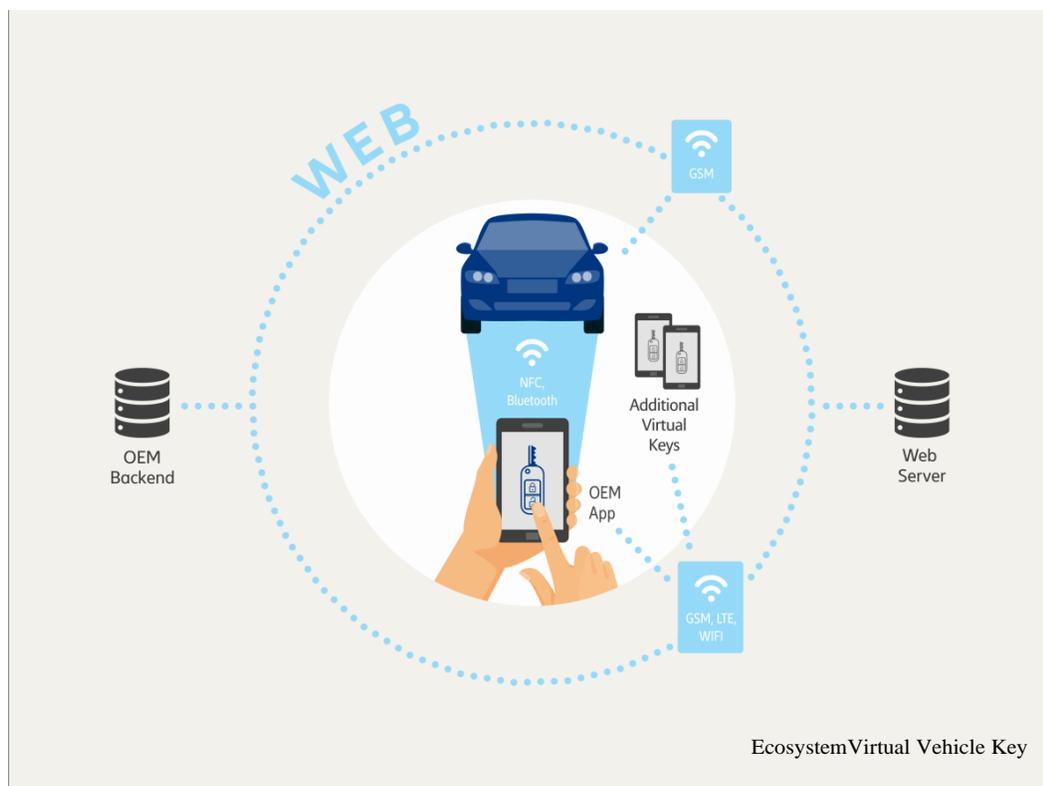
Major input was delivered especially by Thatcham and IIHS in a very constructive remote collaboration with AZT, so that in April the chairman of the WG, Richard Billeyard, could deliver a final version to the Secretary General.

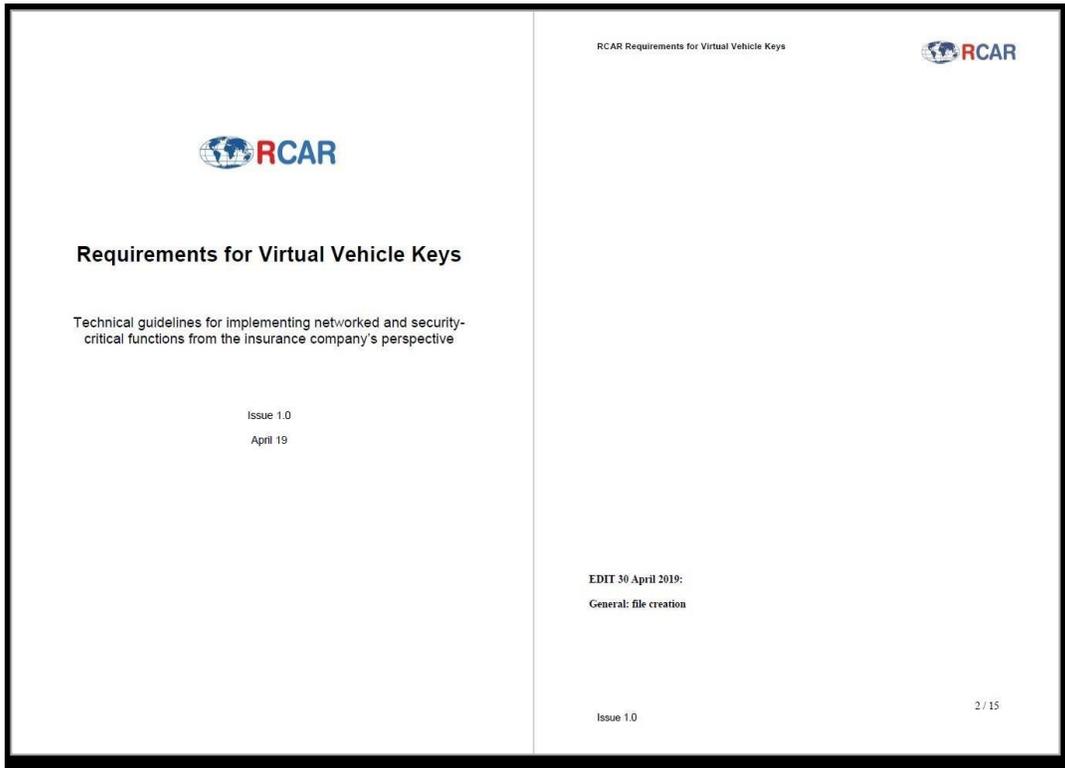
The new RCAR standard is available under

<http://rcar.org/published-works>

or

[http://rcar.org/images/2019-04-30\\_RCAR\\_VVK\\_Standard.pdf](http://rcar.org/images/2019-04-30_RCAR_VVK_Standard.pdf)





RCAR standard document for Virtual Vehicle Keys



### AZT status report on pedestrian safety

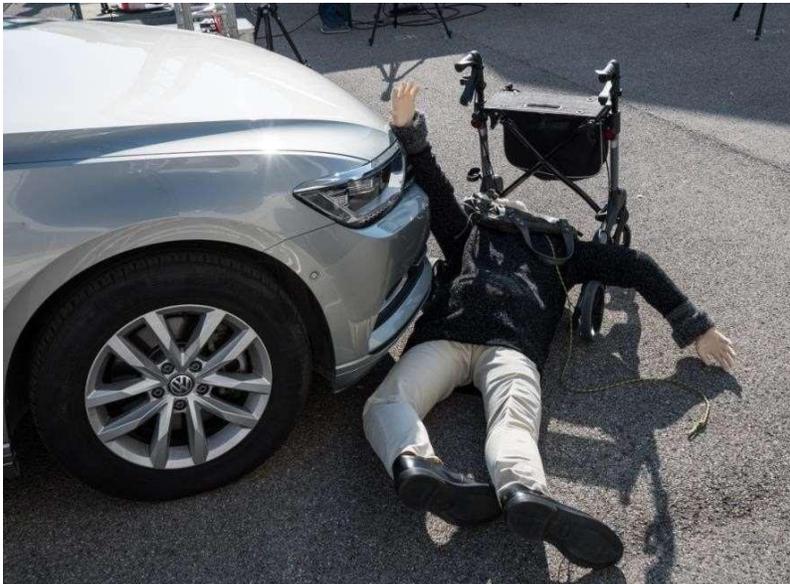
Worldwide, 23 % of all road fatalities refer to pedestrians, at least 310,000 deaths p.a. In the EU, more than 5,000 pedestrians lose their lives every year, a fifth of all that die in road traffic. What is the significance for automotive insurers? First: Motorcar-pedestrian accidents are the most expensive possible. With Allianz data, average claim expenditure is 36 k € (third party liability), while motorcar-cyclist accidents count for the half. German federal economic costs of pedestrian accidents exceed 2 b€ a year. Second: Shares of pedestrian deaths of all road deaths are subject to rise and death rates per mileages show pedestrians most at risk. To strengthen efforts in pedestrian safety can help with coming Vision Zero a step closer and can help with fighting the peaks in claims costs.

Therefore, a new AZT safety study took a closer look into the state of the art of mobility and safety in pedestrians. The study was to highlight Germany, Austria and Switzerland. Focusing walking – apart from other vulnerable road using – seems to be past due. The study comes to the conclusion that strategical governmental papers on pedestrian mobility politics are urgently needed. Results from an Allianz claim pool analysis gave new insights into the nature of the pedestrian accident: Reverse car driving is a leading accident scenario (23 %), while obstacles between pedestrian and driver count for 4 % only.

Commercial cars form a considerable group (27 %) and 25 % happen at crossing aids (zebras etc.), with the highest average claim expenditure (44 k€). Since elderlies are a major group at risk while walking – 47 % of all fatal injured are 65+ (EU) – AZT performed the crash test scenario walking-aid using senior vs. passenger car. Tests were run with a CTS biofidel-dummy at 3, 6, and 20 km/h. At 3 and 6 km/h, only the walking-aid was touched by the car. All tests resulted in hard head impacts at street side, not at the car. Rollator-only-touching was enough to make the senior fall and to cause severe injuries. The tests exemplified that safety measures should enhance active ADAS (pedestrian detection, emergency

braking) rather than further car front measures. A sample survey, carried out in 1,300 pedestrians, raised mobility pattern, motives of walking, and asked for device use while walking. Distraction prevalence seems impressive: Two thirds confirmed phoning, 43 % texting, 28 % music listening. Texting and music listening were statistically related to accidents. However, pedestrian distraction must not be overvalued. Statistics show the drivers at fault for accidents in the most.

The full German language report by Jörg Kubitzki and Wolfgang Fastenmeier is now ready for download under [https://azt-automotive.com/Resources/Persistent/2da50ad5bc95a880ddb839bd98dfc2101d100a5/Allianz\\_Studie\\_Sicher\\_zu\\_Fu%C3%9F\\_2019.pdf](https://azt-automotive.com/Resources/Persistent/2da50ad5bc95a880ddb839bd98dfc2101d100a5/Allianz_Studie_Sicher_zu_Fu%C3%9F_2019.pdf)



AZT impact tests with a CTS biofidel pedestrian dummy (representing a female, 70 kg, 163 cm) run with 3, 6 and 20 km/h forward and 3 km/h reverse. The outcome shown here, was the result of a 3 km/h forward touching of the rollator only that made the senior fall along the car front, injuring her shoulder, cutting her face in the rollator and finalizing in a hard head impact at the bottom

## THE SAFEST CAR

Every year CESVI ARGENTINA chooses the safest cars in the local market. The experience accumulated by CESVI specialists in the analysis of crash tests, deformation zones, the study of structures and the behaviour of each system in a crash, allows to analyse and weigh more than 180 items and factors depending on the security that they provide to the occupants of the vehicle.



Marcelo Aiello, General Manager CESVI ARGENTINA, Santiago Labella, Communication Manager, Ford Argentina, Salvador Rueda Ruiz CEO MAPFRE

Every model launched to the market during the year gets to CESVI ARGENTINA Experimentation Laboratory, where experts from the Experimentation and Engineering areas evaluate, dismantle and analyse it to check what equipment it offers, how its driving assistances work, and its structural configuration is.

The safety index is made up of the following aspects:

**ACTIVE SAFETY:** All the systems that act preventively to try to avoid the accident (ABS, Stability and Traction Control, Assistance to the Start in Slopes, among others).

**PASSIVE SAFETY:** The systems and elements that act once an impact occurs protecting the occupants of the vehicle (airbags, safety belts, anchors of child safety seats, etc)

**STRUCTURAL BEHAVIOR:** Body type, materials and

manufacturing technologies, design considerations, high speed crash test performance (Latin Cap / EuroNcap / IIHS, etc)

**DRIVING ASSISTANCE:** All the devices that collaborate with the driver to increase safety (EAB, ESP, ACC, BSD, LKA, power steering, parking sensors, etc.) and comfort, consequently, Each of these items leads to a scoring. By adding all these items, the Security Index is reached, which is linked to the market value of the vehicle to establish the Price-Product Ratio.

The base versions of each model are taken into account, which, ultimately, are those to which the majority of consumers have access to. CESVI ARGENTINA promotes an increase of safety standards from the cheapest options to the ones on the top of the range.

To determine the different categories, the launchings along the year are taken into account, then a difference is made by the type of vehicle and afterwards by its length.

In the last edition the following categories were awarded: SMALL CAR, MEDIUM CAR, COMPACT SUV, MEDIUM SUV, PICK UP, EXCELLENCE IN SAFETY AND GOLD CAR.

The vehicle with the best Price-Safety ratio of each segment takes the prize in its category.

The Excellence in Safety is a recognition to the model that obtained the highest safety index in the year, without taking into account the selling price.

The Gold Car is the one that obtained the best Price-Safety index of all the segments.

### PRIZE REGOGNITION

The Safest Car has been in Argentina for 12 years and has established itself as the most objective of the local automotive industry, since it is not governed by personal feelings or opinions.

The automotive factories take real dimension of the importance of obtaining this distinction, and the examples thus demonstrate it since in numerous advertising of products they have added the Sticker of Safer Car as a symbol that guarantees the reliability of the vehicle.

CESVI ARGENTINA member insurance companies launched promotions with discounts on insurance premiums for vehicles that obtained the aforementioned distinction.

At the award event, attended insurance companies, automotive terminals, national and provincial authorities, the specialized press, such as the graphic one, television and the digital one.

The award has the support of the Ministry of Transportation of the Nation, the National Road Safety Agency and the LatinNCAP



52 media have published articles

69 press releases

30 mentions in Twitter

18 mentions in Facebook

28 mentions in Instagram

Own networks

Facebook: 4 posts

Twitter: 17 posts

Instagram: 1 post

LinkedIn: 4 posts

## Certification of laboratories of CESVI ARGENTINA

On March 11 and 12 of this year, CESVI ARGENTINA received the maintenance audit according to the IRAM 301: 2005 / ISO 17025 standard by the Argentine Accreditation Body (OAA). On this occasion, all the trials within the scope of the laboratory were evaluated. These accreditations allow CESVI to ensure the quality of the results of its testing laboratories. Also, these turn out to be a requirement to be able to offer a service to the Automotive Industry and Car Spare Part Company.

### Crash test of repairability and damage of vehicles at 15 km / h. (protocol R.C.A.R.)

The test Crash Test R.C.A.R. has been certified with the reference standard since 2012, and throughout these years our main customers have been Renault Argentina and PSA (Peugeot and Citroën of Argentina). After the results of these tests, we have made proposals for improvements in their vehicles to automotive companies such as: Honda Argentina, Nissan, Toyota Argentina, Ford Argentina and Volkswagen Argentina. Among these improvements are: re-calibration of the airbag systems, efficiencies of the bumper beam, cutting zone of structural parts, as well as review of spare parts prices by the automaker in the parts damaged in the tests



### Protective helmets for vehicular use (tourism class):



- Resistance of the retention system. (IRAM-AITA 3621: 2011)
- Flammability speed. (IRAM-AITA 3621:2011)
- Resistance to roll off (IRAM-AITA 3621:2011)
- Resistance to the penetration of the viewfinder. (IRAM-AITA 3621: 2011)
- Impact absorption. (IRAM-AITA 3621: 2011)

The testing laboratory of helmets of tourism class has been certified since 2012, and our main client is the National Institute of Industrial Technology (INTI). This entity is responsible for certifying the helmets, issuing a Code of Homologation of Safety Auto parts (CHAS) so that the helmets can be marketed in Argentina.

### Protective helmets for vehicular use (competition Class)

- Impact Absortion (IRAM-AITA 3621:2011)
- Resistance to the compression system. (IRAM-AITA 3621: 2011)
- Resistance to deformation. (IRAM-AITA 3621: 2011)
- Resistance to roll off. (IRAM-AITA 3621: 2011)
- Flammability speed. (IRAM-AITA 3621:2011)
- Resistance to the penetration of the viewfinder. (IRAM-AITA 3621: 2011)

The testing laboratory for competition helmets has been certified since 2015, being our main client INTI.

Behaviour of the structure of the passenger compartment of vehicles subjected to a rear impact between 35 and 38 Km / h

- ECE R32 Appendix 4
- ECE R34 Appendix 4
- NBR 15240
- NBR 15241

In 2014 an extension of scope of our laboratory was requested to carry out tests according to the mentioned standards. Our main customers are Renault Argentina and PSA (Peugeot and Citroën Argentina). This trial arose as a need of the Argentine Automotive Industry to obtain the Homologation of its vehicles in Brazil.

Anti-Trap system test (windows, roofs and doors).

- ECE R21



After a request from Renault Argentina, in 2018 it was possible to extend the scope of the laboratory again and the trial was certified as part of the aforementioned regulation.

By the end of 2019, the update evaluation is scheduled with the new version of ISO 17025:2017.

During the entire implementation and accreditation period of ISO 17025, the laboratory quality standard was raised. As a result, more efficient, orderly and more technically reliable work methods are generated.

## Safety Road lecture – FUNDACIÓN MAPFRE and CESVI BRAZIL

As part of the month of road safety program of actions for the UN, the CESVI BRAZIL team was invited by Fundación MAPFRE to give a talk to 50 professionals from Sodexo Brazil Commercial fleet.

Alessandro Rubio, engineer from the research and development area of the research centre, gave a presentation on "The reality of traffic in Brazil: the severity and economic and social impact of accidents in the country." In addition to numbers and indicators of this sad situation, good traffic practices were presented, in line with the United Nations Decade of Road Safety Action goals.

The speech addressed the three main pillars of road traffic safety - the road, the driver and the vehicle.

The presentation had technical contents and videos explaining the care when traveling along roads and highways, in addition to exposing the conditions of our infrastructure.



Team of CESVI BRAZIL, FUNDACIÓN MAPFRE and SODEXO BRAZIL

Also, in continuity to the content, was exposed the importance of the safety equipment that

equip the current models and the care in the driving of vehicles with these new technologies.

Finally, the lecture included information about the risks of driving distraction with the use of smartphones and the proper use of occupant and child restraints, explaining a little about the high risk of injuries when not used or used in an inadequate way.

Through this type of action CESVI BRAZIL fulfils its mission of providing technical and informative content for the reduction of accidents and fatalities in traffic

**ROAD SAFETY DECADE**  
**A world overview on the evolution of the plan proposed by the UN**

CESVI BRAZIL carried out a study that compiled the partial data of the United Nations Decade of Road Safety Action proposed by the UN.

In that study it was shown that about 3,700 people die every day on the world's roads, which is equivalent to 1.3 million lives lost each year, according to WHO. In addition, 50 million people are injured or disabled after an accident. The poorest countries are the most affected, with 93% of deaths occurring in low-income or middle-income countries, which

includes Brazil.

Of all road traffic deaths in the world, pedestrians and cyclists account for 26% and motorcyclists and passengers for 28%. The risk of death in traffic continues to be three times higher in low-income

countries than in high-income countries with higher rates in Africa (26.6 per 100,000 population) and lower rates in Europe (9.3 per 100,000 population).

In the analysis of the data, it was identified that according to the most recent WHO global report on road safety, published in December 2018, there was no reduction in road traffic deaths in any low-income country between 2013 and 2016. In fact, the number of deaths worldwide has increased in 104 countries, while only 48 countries (25 high-income and 23 middle-income countries) have seen a reduction.

In the Brazil scenario there was little progress, but they were important to contribute to the control of the number of fatalities in traffic, such as:

2008 - The legislation established more rigor against those who drink and drive - rules that have been hardened since the implementation of legislation.

2010 - Through a resolution of the Brazil National Traffic Council, it becomes mandatory to use the child seat in vehicles for children up to 7 years.

2012 - Videos and clinical exams will serve as evidence of drunken driving. The refusal to take the test can give a penalty for the driver.

2016 - The ethylometer test entered as a equipment to identify the drunk driver with punishments for the drivers who drink and drive, or even those who refuse to breathe into the equipment. Besides the penalty, it is also possible to apprehend license.

2018 - The penalties have become harder for a driver who drives drunk and who kills or injures someone. However, the country still has a lot to go forward. It is pointed out in the report that Brazil is the third in absolute numbers of traffic fatalities, with 38,651 deaths, behind only India, with 50,785 fatalities, and China with 58,022. Considering the ratio of deaths per 100,000 population, with a rate of 19.7 deaths, Brazil ranks 9th. All this generates an economic impact of 199 billion for the country (3% of GDP – Gross Domestic Product).



## CESVIMAP, deep in the autonomous car project

CESVIMAP is taking an active part in the analysis of autonomous vehicles, studying their technology and safe manoeuvrability in urban environments. To this effect, it has set up various collaboration agreements with research institutes in leading universities in this subject area; the first of these agreements, with the Universidad Politécnica of Madrid, has allowed the automation of an electric car by performing what is called the low-level layer, which enables electronic control so that the vehicle can move autonomously. Further to this, the Universidad Carlos III of Madrid has performed the high-level layer, installing the sensors to read the surroundings onto that same CESVIMAP car. Artificial vision cameras, radars, and various lidars of up to 32 beams on the upper and front part are the architects for the autonomous evaluation of the vehicle to check possible obstacles on the road surface.



CESVIMAP is taking an active part in the analysis of autonomous vehicles

Currently we are involved in the evaluation of functioning in closed circuits, which enables definition of the tests to be performed under real driving conditions in order to detect possible problem situations related to their large-scale roll-out.

## CESVIMAP in collaboration with the CarBoRep Project

The lack of qualified personnel in the automobile bodywork repair area is behind the CarBoRep (Car Body Repair) Project. The Welding Institute, TWI, had identified this need and, after market research, it was keen to solve the lack of specialised knowledge in vehicle bodywork repair.

CarBoRep is an Erasmus project, coordinated by TWI, and the European Welding Federation, EWF, the Instituto de Soldadura e Qualidade, ISQ, and CESOL, the Spanish Association of Welding and Joining Technologies are also involved in the project, with the collaboration of CESVIMAP. CarBoRep is a project designed to improve the professional qualifications of workers involved in bodywork repair. So, training has been created which is harmonised across Europe, which will deliver this knowledge so that steel, aluminium and compound material vehicle bodies can receive quality repairs. The objective is to introduce the figure of the European Vehicle Body Repair Technician.



The project was started in 2016, and for these three years that it has been running, materials have been being prepared which bring together experience in training and the knowledge and industrial qualification of the welding institutes of Spain, Portugal and the United Kingdom, added to the EWF's large network of contacts - with over 30 member countries.

This project, of great interest for automotive after sales, is getting an enthusiastic reception. Over the upcoming months, various events will be undertaken in each of the project member countries, and invitations to these events will be given to companies in the sector, organisations responsible for training and qualification, as well as to any interested party.

The impact of a harmonised European training study plan in this area is large. Having qualified personnel in the manufacturing industry leads to better adaptation when facing the constant market changes, to greater innovation and to greater product quality and development.

### CESVIMAP, INESE Blue Award for its virtual appraiser training project

CESVIMAP has received the Inese Blue Award for its virtual appraiser training project. The award was collected by José Manuel Inchausti, CEO for IBERIA regional area, and José María Cancer, CESVIMAP general manager.

The INESE Blue Awards, from the publishing group specialising in the insurance sector, recognises the most innovative projects undertaken by insurance companies related to innovation and improvement in internal processes which bring value to the company; new approaches and customer loyalty techniques and other projects which generate value in the service which the insurance sector brings to the general public and to businesses.

The awards were presented at the Foro de Alta Dirección Aseguradora, the inaugural event in Insurance Week 2019.

José María Cancer, CESVIMAP manager, thanked all the staff at CESVIMAP for their involvement in the rolling out of this project and, in particular, those behind this training innovation.





The Government of the State of Mexico and the AMIS have signed an agreement to use the tabulator of towing and rescue services developed by Cesvi Mexico

On-site Cesvi Mexico, the Mexican Association of Insurance Institutions, AMIS and the Ministry of Transportation of the State of Mexico, have signed a collaboration agreement for the use of tabulator services towing and rescue to improve the quality of service and transparent in the collection to the citizens.



It must be said that Cesvi Mexico has already developed a similar system for the federal government and the one that will now be implemented after the agreement will focus on the characteristics of the services at the state level.

It is important to clarify that the State of Mexico practically surrounds Mexico City so that several roads are of local jurisdiction, so the crane services are granted by companies other than the federal ones.

In addition, the vehicular park of the State of Mexico is the largest in the country with 5.2 million cars circulating daily.

Cesvi México trained Federal Enforcement

Cesvi Mexico taught the ninth Diploma of Facts of Road Traffic and collaborated in the training of elements of the Federal Police (gendarmery). This course was developed in the Superior Academy of the City of San Luis Potosí, SLP.



The diploma course was taken by more than 80 agents from different ranks of the Regional Security Division, in subjects of criminal investigation, physical and mathematical knowledge in the investigation, reconstruction of traffic events, among other aspects that meet international quality standards.

Miguel Guzmán, Director of Road Safety at Cesvi Mexico and lead instructor, expressed his pleasure that the authorities continue to trust the Centre and continue inviting them to be part of the training program for law enforcement.

He recalled that already in 2018 Cesvi had collaborated in the training of personnel of the Ministry of Defence so that the trained officers received their respective certification as experts in traffic events.



## Are aftermarket dashboard cameras with ADAS features a good retrofit solution to increase safety?

Australia's fleet of vehicles is more than ten years old in average, therefore it will take quite a while for a wider distribution of ADAS on our roads. Hence, the IAG Research Centre did a short study about the potential use of aftermarket dashboard cameras with ADAS functionality which could be a good retrofit solution for older vehicles to increase safety whilst driving.

The following cameras were tested:

- NanoCam NCP-DVRADAS / Kapture KPT-900
- Navman DriveDuo 2.0
- Gator GHDVR410
- Garmin Dash Cam 55

### Test Setup

The scope of this investigation was to test the function, reliability and robustness of dashboard cameras containing ADAS features to:

- Gain first-hand experience in using and understanding of dashboard cameras containing ADAS features.
- Become familiar with using of dashboard camera's ADAS systems.
- Identify the capabilities of dashboard camera's ADAS systems.
- Discover whether the dashboard camera's ADAS systems operate to a safe and acceptable level.

The following testing method was applied:

- All dash cameras were unboxed, and contents were recorded and compared to discover which device offers a more complete package.
- A visual inspection was then conducted, and each device was then investigated to discover the device's hardware and software features.
- Each device was then tested through on road testing having each device placed in the same location in the same vehicle, driven on the same route and in the same weather conditions to ensure a true direct comparison.
- All features were trialled, and results recorded. Each feature was also rated on a scale of 1-5.

### Summarised Findings

Upon testing these dash cam devices for their advanced driver assistance systems, it was found that for the most part these features are a good reminder for drivers when driving at higher speeds and on longer journeys to be kept aware of potential hazards such as lane departure and potential collisions. Although these systems are a good reminder, they are by no means meant to be relied upon and do not substitute being aware and constantly monitoring traffic conditions.

The primary features being tested were the lane keep assist and the forward collision warning systems, as all of the devices that were tested have these features. All additional features that some devices contained were also tested.

The majority of the systems that were tested do have reasonable warning features but for the most part seemed to warn the driver either too late or with not enough emphasis on the severity of the situation ahead. Almost all of the forward collision warning systems warned the driver with insufficient time for a distracted driver to react to the potential hazard and for the most part did not work at lower speeds when in traffic where it is more likely to be a helpful feature.

The lane departure warning, for the most part, seemed to activate more readily than the forward collision warning systems. This feature did generally work quite well but did rely upon the correct alignment of the camera to the lane markings on the road. If the camera was not aligned correctly the warnings seemed to be more sensitive and biased to one side of the vehicle, which therefore would sound the warning more often and be less accurate.

Most other features of these devices worked reasonably well and functioned as intended but with some notable mentions being several of the speed camera / red light camera alerts and the front car movement detection.

The overall conclusion of our testing was that these advanced driver assistance systems within the tested devices are an interesting feature to have if equipped but are by no means at the level of the built-in systems available as factory-fit in new vehicles.



## IIHS toughens award criteria for 2019

The Insurance Institute for Highway Safety (IIHS) announced 57 initial winners of its 2019 TOP SAFETY PICK and TOP SAFETY PICK+ awards in December. Since then, about 20 more vehicles have earned one of the awards. The first-tier “plus” award winners earn the highest rating for passenger-side protection in a small overlap front crash and have good-rated available headlights, while winners of the second-tier award qualify with an acceptable or higher rating in the newest IIHS crash test and in the night-time headlight evaluation. The two groups are about evenly split. All vehicles in this elite group earn good ratings in the Institute’s five other crashworthiness evaluations and have an available automatic emergency braking system that rates advanced or superior for front crash prevention.



This marks the sixth time that IIHS has raised the bar for the TOP SAFETY PICK+ award since introducing it in the 2013 model year to recognize vehicles that offer a superior level of safety. The TOP SAFETY PICK accolade launched in the 2006 model year to help consumers identify vehicles with the highest ratings. Over the years, IIHS has added to and strengthened criteria for both awards to encourage manufacturers to ramp up safety advances. For more information, visit <https://www.iihs.org/ratings/top-safety-picks> and <https://www.iihs.org/news>.

## Automakers report progress on standard AEB

Ten automakers have reported equipping more than half of the vehicles they produced between Sept. 1, 2017, and Aug. 31, 2018, with automatic emergency braking (AEB). This is the second update of manufacturer progress toward equipping every new passenger vehicle with the crash avoidance technology by Sept. 1, 2022.



IIHS evaluations of AEB systems are based on the RCAR recommended procedure.

The 10 manufacturers include many high-volume automakers such as Honda, Nissan and Toyota. Three manufacturers — Mercedes-Benz, Tesla and Volvo — report 93 percent or higher conformance with the voluntary commitment, with Tesla at 100 percent.

Based on reporting by the 20 manufacturers that made the commitment, about half of the vehicles produced during the period were equipped with AEB. Toyota is the frontrunner in terms of the total number of vehicles produced with AEB. The automaker equipped 2.2 million (90 percent) of its 2.5 million vehicles with AEB. Nissan has the second-highest number produced with AEB — 1.1 million (78 percent) of 1.4 million vehicles. Honda is third highest with 980,000 (61 percent) of 1.6 million vehicles produced with AEB.

These data are reported as part of a voluntary commitment by 20 auto manufacturers to equip virtually all new light-duty cars and trucks with a gross

vehicle weight of 8,500 pounds or less with a low-speed AEB system to help prevent or mitigate front-to-rear crashes. Brokered in 2015 by the National Highway Traffic Safety Administration (NHTSA) and IIHS, the commitment is intended to get the safety technology into the vehicle fleet faster than requiring it via a federal rulemaking. Manufacturers submit yearly progress reports to the public docket until they fully conform to the voluntary agreement. Consumer Reports supported the commitment and agreed to assist in monitoring automaker progress. To qualify under the agreement, vehicles must have both a forward collision warning system that meets NHTSA’s

criteria on the timing of alerts and an AEB system that earns at least an advanced rating in IIHS track tests. The IIHS evaluations are based on and consistent with the RCAR recommended procedure for evaluating AEB. The baseline performance measures are a speed reduction of at least 10 mph in either the IIHS 12 or 25 mph tests, or a speed reduction of 5 mph in both tests.

For more information, visit <https://www.iihs.org/news>

### Repair costs stay low for aluminium F-150

Ford's switch to aluminium for the body of the F-150 pickup hasn't resulted in higher repair costs, in part because the company is pricing the aluminium parts lower than steel ones, analysts at the Highway Loss Data Institute (HLDI) have found. However, while the cost for repairs hasn't risen, the time required for them appears to have gone up, and that could lead to higher insurance costs.



An aluminium-body F-150

When Ford began building its iconic truck out of aluminium instead of steel, consumers had questions about the effect it would have on safety and their wallets. At the time, IIHS high-speed crash tests showed safety wasn't adversely affected, while a separate experiment showed repair costs were. Damage to an aluminium-body F-150 from a low-speed crash turned out to be more expensive to fix than damage to an older, steel-body F-150 put through the same crash.

Now HLDI has an update based on real-world claims data. In the four years since Ford introduced the aluminium-

body truck, the change in material hasn't resulted in more costly insurance

claims. That's likely a result of Ford's efforts to hold down the price of aluminium replacement parts and simplify repairs. At the same time, Ford has raised the prices of steel parts for older models.

However, despite the findings on claim severity, HLDI uncovered some evidence of other, hidden costs. It takes longer for loss information to accumulate for F-150 claims, and that is likely an indication that repairs are taking longer.

In addition, HLDI found that collision claim frequency is 7 percent higher for the aluminium F-150 compared with control vehicles. It's not clear what has caused that increase, but the aluminium-body truck may be more easily damaged than the steel one.

For more information, visit <https://www.iihs.org/news>.

## Training courses aiming to brush-up the knowledge of auto insurance adjusters

In 2017, JKC started providing advanced training courses targeting long-time auto insurance adjusters, who mostly had not taken training courses for some time since the ones they took in their earlier years. At that time in Japan, technology on auto repairs, such as body structures & materials and repair tools, was moving rapidly and they needed such updated training courses to meet the changing needs of progressive repair industry. These training courses aimed to enhance the adjusters' expertise and repair knowledge, such as damage diagnostic skills, understanding latest mechanical structures and repair techniques of newly introduced models.

Contents of current training courses provide the latest repair knowledge including following subjects.



- Body structures and damage diagnosis methods developed under the Toyota New Global Architect (TNGA). TNGA are Toyota's newly introduced modular unit body auto-mobile platforms that support various Toyota and Lexus models starting with the fourth generation.
- Repairability of parts with the use of tinted clear coatings
- Repairability of outer panels using new materials, such as high tensile steel and aluminium
- Mechanical structure and calibration of latest electric equipment installed in new vehicles



Meanwhile, our customer survey showed more than 90% satisfaction rate by the adjusters who took our courses and we have received from them many positive feedbacks such as “I was able to increase technical knowledge by observing the actual repair work and understanding the latest repair methods”, “I was able to deepen my understanding on aluminium panel repair, which was very useful when negotiating insurance claims with repair shops”, “I was able to clearly understand the difference between special and conventional painting processes”, “Use of videos during the training courses was very effective, and training contents were directly linked with actual practice”.

We will continue to provide a better and useful curriculum in our training courses and contribute to enhancing the technical skill sets of auto insurance adjusters in Japan.

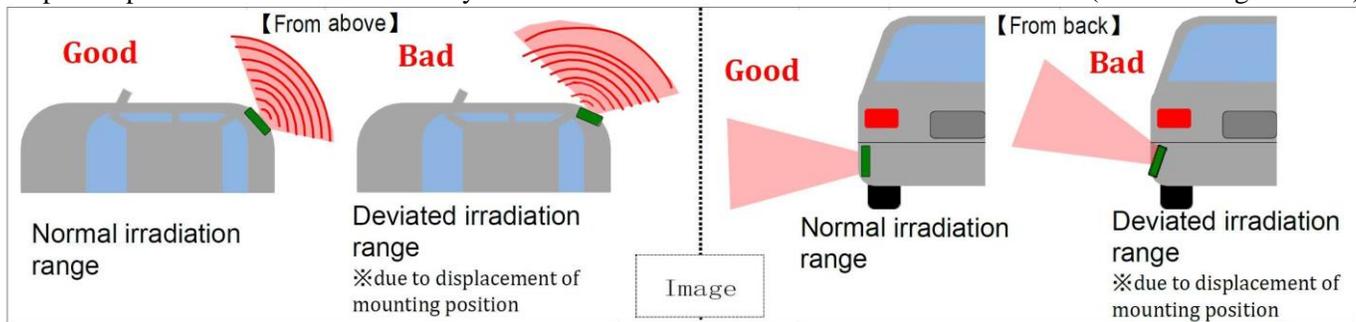
## Body repair and its influence on BSM functions

Recently, many discussions are going on about bumper repairs using putty and painting, and whether or not such repair method will adversely affect the functionality of Blind Spot Monitor (BSM). Displaced position of millimetre wave sensor (hereinafter called “sensor”) during bumper repair can have a big influence on the range of radar irradiation, which made us decide to start looking into this issue.

In Japan, BSM sensors are usually placed under a bracket on the underside of the body to detect vehicles approaching from behind and in the adjacent lane. In other countries, there are some vehicle types whose sensors are mounted on the backside of the bumper.



Displaced position of the sensor is likely to affect its effectiveness of radio wave irradiations (See the images below).



BSM’s irradiation range may be affected during auto repairs in various situations, such as “replacing quarter and back panels”, “conducting a repair around the sensor’s mounting position” and “repairing damaged back panel or frame parts.” However, there are few car makers that describe how to confirm the proper mounting position of the sensor. Even if there is a written instruction in the manual, it tends to be very difficult for the repair shops, such as adhering to requirements described in a minute scale unit of 0.1 mm and requiring vehicles to be placed directly to the ground.

In addition, in cooperation with Japanese car makers, we plan to study further on BSM, including the extent of adverse influence on the irradiation range during auto repairs, ways to make angle adjustment to the sensor in case irradiation range failed to meet the necessary requirements so that we can provide useful technical information to the auto insurance adjusters and repair shops.



## Evaluation of Park Distance Warning systems (Part 2/2)

According to statistics provided by RCAR<sup>1</sup> parking and manoeuvring accidents became increasingly relevant in third party damage liability and first party or motor own damage claims. Up to 40 % of all claims are parking and manoeuvring accidents who caused up to 30 % of all claim costs.

Within a research project, KTI has conducted studies to determine the performance of ultrasonic-based Park Distance Warning (PDW) systems. In the previous RCAR newsletter (January 2019) KTI has already published the first part of its studies regarding a static test setup. This second part considers further tests being performed in a dynamic test setup.

### Dynamic test setup

The dynamic test setup bases on RCAR's Reverse AEB procedure and enables to determine the responsiveness of ultrasonic-based PDW systems.

In this study, three different vehicles<sup>2</sup> were approaching a bollard and a pillar target with different speeds<sup>3</sup> as well as from different distances and positions, the pillar target was varied in its orientation additionally (see Fehler! Verweisquelle konnte nicht gefunden werden.). For target recognition, same criteria (acoustic and / or optical warning) have been applied as in the static test setup. The values represent the distances when the PDW systems detected the appropriate target for the first time. If the value represents zero, target detection without a collision was not possible.

While part (a) of Fehler! Verweisquelle konnte nicht gefunden werden. shows the results of dynamic tests for the bollard target, part (b) and (c) show the results for the pillar target. Considering the front of the vehicles, in sum the PDW system of the BMW shows a significantly deviating performance comparing to the AUDI and VW ones – for both targets, distances and positions. In conclusion, following major findings with regard to pillar and bollard target detection in dynamic scenarios have become clear:

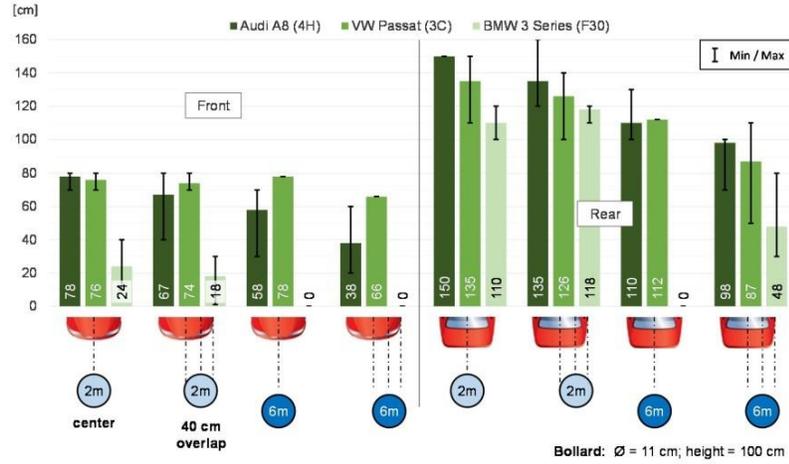
- PDW systems show better performance in close distance for all targets and in all scenarios. One of the reasons for this is that a closer distance leads to lower speed and thus to a higher response time.
- Rearward orientated PDW systems show a better performance than forward-orientated ones for bollard and pillar targets in all scenarios.
- 45°-orientated pillar targets are hardly to detect compared to their 0°-orientated ones.
- Compared to their position, bollard targets and 0°-orientated pillar targets are being detected easier in centred position than in overlap position, whilst 45°-orientated pillar targets show opposite behaviour.
- In summary, the orientation of the pillar target has the strongest influence on the performance of the PDW system compared to distance and position, which has the least.

<sup>1</sup> 'Position paper regarding parking and manoeuvring accidents'; version 1.0; June 2015; <http://rcar.org/>

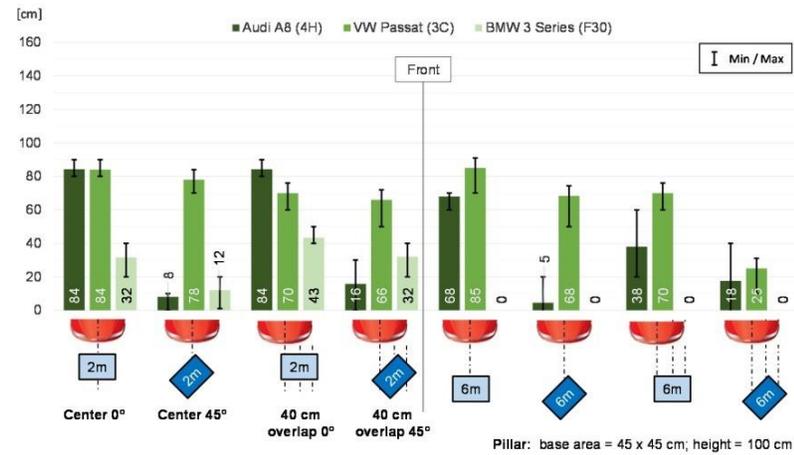
<sup>2</sup> AUDI A8 (4H), BMW 3 series (F30), VW Passat (3C)

<sup>3</sup> Applied test speeds: 2 - 3 km/h for 2 m distance; 6 - 7 km/h for distance of 6 m

**(a) Comparison of position and orientation for bollard**



**(b) Comparison of position and orientation for pillar in front**



**(c) Comparison of position and orientation for pillar in rear**

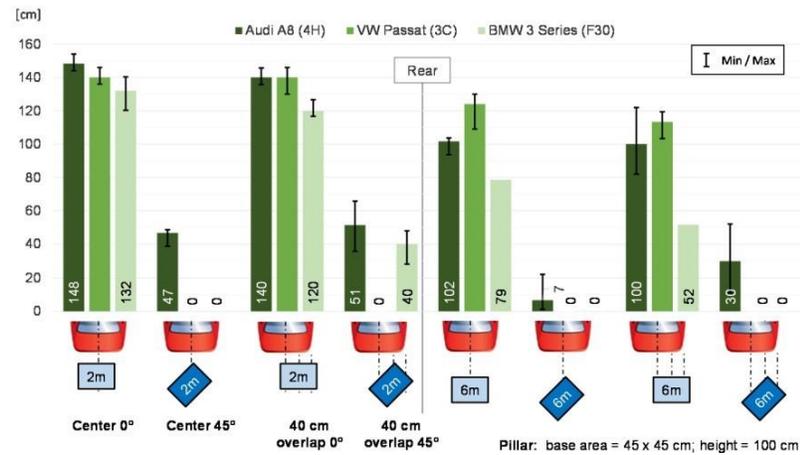


Figure 1: Results for bollard and pillar of static-dynamic test

## Conclusion and outlook

Dynamic test setup results, as presented in this article, do not contradict KTI's research results from static test setup (RCAR newsletter 01/2019; part 1/2). In addition to previous findings, obstacle (target) recognition also depends on the distance between ego-vehicle and target and thus the speed difference ( $\Delta v$ ). Results for target geometry, target positioning, and considered front and rear scenarios align with static test setup results. Again, system performances in terms of obstacle (target) recognition show a significant spread between the tested vehicles.

KTI findings support evidence-based results published in RCAR's 'position paper regarding parking and manoeuvring accidents' and highlight the heterogeneity of state-of-the-art passenger vehicles' parking assistance systems. Furthermore, conducted tests underline the scenarios described in RCAR's 'procedure for assessing the performance of Reverse Autonomous Emergency Braking (R-AEB) systems in rear collisions. First findings underline the necessary consideration of further collision constellations (e. g. forwarding parking collisions and / or vehicles side sections) as well to cover real world cases and scenarios.

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## MRC Malaysia Collaborative Research in ANCHOR II project with ASEAN NCAP and ASEAN universities

MRC Malaysia's research team is collaborating with the local universities in submitting proposals to participate in the ASEAN NCAP Collaborative Holistic Research (ANCHOR II) projects. These proposals will enhance MRC's image and increase credibility and institution of know-how.

The MRC team, represented by Head of Research, Hairul Abdul Majid and Research Analyst, Akmal Hakeem Maamor, has initiated the collaboration with Faculty of Mechanical Engineering, Universiti Teknikal Malaysia Melaka (UTeM) and Faculty of Engineering Technology, Universiti Malaysia Pahang (UMP).



Kick-off meetings of ANCHOR II projects. Left: with ASEAN NCAP and researchers from Universiti Teknikal Malaysia Melaka. Right: with researchers from Universiti Malaysia Pahang.

The proposal title for collaboration with Universiti Teknikal Malaysia Melaka and Bina Nusantara University, Indonesia is "Comprehensive Assessment on Advanced Driver-assistance Systems (ADAS) Vehicle Safety Assist Technology based on South-east Asia Environment, Road Conditions and Driving Behaviours" and has been selected with rank #8 of 22 proposals.

The proposal title for collaboration with Universiti Malaysia Pahang, Universitas Andalas, Indonesia and Ho Chi Minh City University, Vietnam is "Effect of Blind Spot Detection Technology on Lane-Change Crashes" and has been selected with rank #1 of 22 proposals.

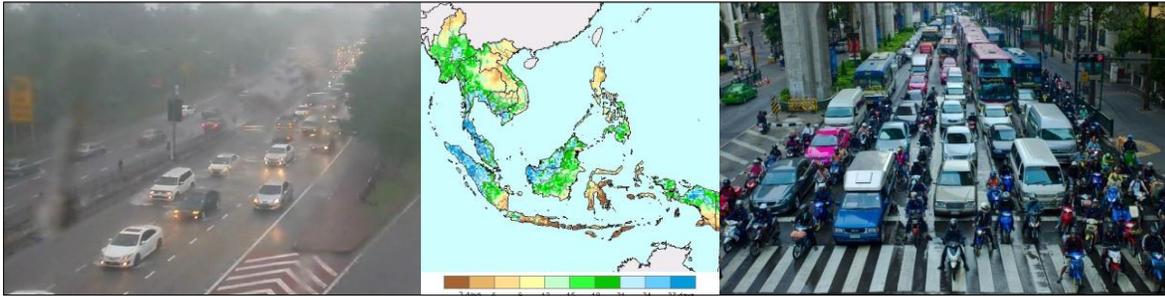
Both proposals have been selected and awarded on April 1, 2019 and shall be completed by end of March 2020. This international collaborative research effort is funded by FIA Foundation, Global NCAP and OEMs, and managed locally by SAE Malaysia as the secretariat on behalf of ASEAN NCAP.

## Comprehensive Assessment on Advanced Driver-assistance Systems (ADAS) Vehicle Safety Assist Technology based on South-east Asia Environment, Road Conditions and Driving Behaviours

Advanced Driver-Assistance Systems (ADAS) is a valuable active safety assist technology developed to help drivers avoid on-road collisions, hence significantly improving road safety. Safety assist technology help to reduced fatality occurrence due to human negligence while driving such as error at intersections and when making turns, failure to yield right of way, failure to comply with signs and signals, failure to see objects, improper turns and lane changes, low driving skill level, inexperience and unnecessary risk taking behaviours, traffic violations, reckless driving, driving under influence of alcohol and drugs, poor visibility, physical fatigue and defective eyesight.

Recently, more latest model vehicles are sold in South-East Asia countries equipped with many ADAS systems such as Lane Departure Warning (LDW), Lane Keep Assist (LKA), Automatic Emergency Braking (AEB), Adaptive Cruise Control (ACC) and Satellite Navigation (SAT) system such as from BMW, Mercedes, Proton, Toyota, Honda, Hyundai etc.

ADAS systems performance have been tested based on protocol as governed by many established standards such EuroNCAP, Japan NCAP, Australian NCAP and NHTSA. Nevertheless, there is yet any test protocol established in ASEAN NCAP to evaluate the ADAS performance tailored to South-East Asia environmental and road conditions.

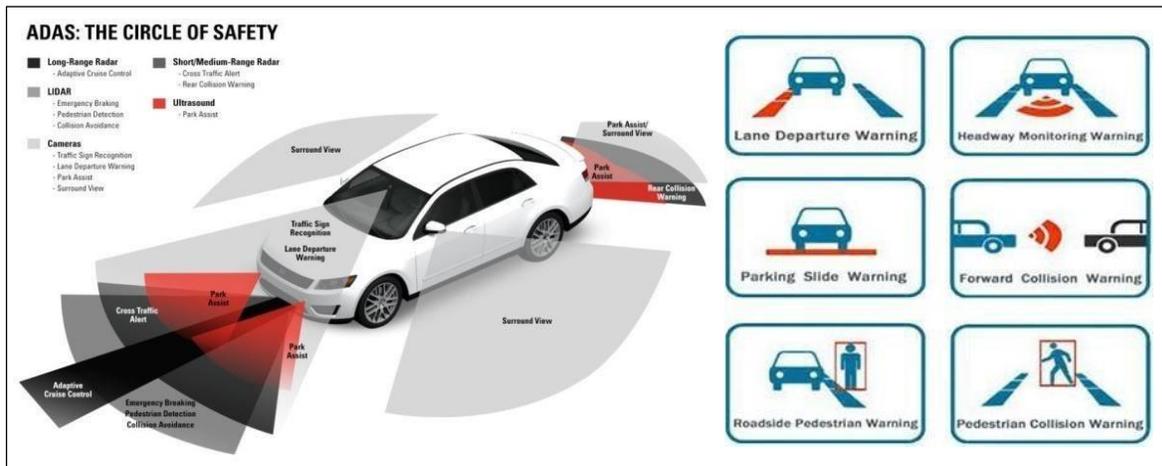


ASEAN regions experienced unique and have different environmental and road conditions as compared to other parts of the regions in the world, due to its geographical location nearby the equator and bordering sea. Many ASEAN countries were recorded to experience heavy rain up to 27 days within a month and subjected to many tropical yearly storms. Overall climate is wet and humid throughout the year.

Moreover, road conditions also vary to other regions. Road length in ASEAN countries is estimated stretching up to 27,300 km, covering motorway, primary and secondary roads, consist of many curves and winding roads, hillsides, road junctions and intersections due to its natural topography. Driving behaviour in ASEAN countries is also different compared to developed countries, due to varying regulations, driving style and varying type of vehicles dominating the market (2 and 3 wheelers are the majority).

Hence, as more ADAS equipped vehicle entered the ASEAN market, it is crucial that improvement need to be made on any ADAS system test protocol to be adopted by ASEAN NCAP which will include considerations of its countries actual environmental and road conditions. Based on the tailored ASEAN NCAP test requirement, actual ADAS system performance can be successfully evaluated with consideration of the environmental and road conditions parameters, to provide higher road safety performance to all type of ASEAN road users (2, 3 and 4 wheeler drivers, pedestrians, cyclists and others).

The objective of the project is to develop new test procedures for evaluating ADAS safety assist system, specifically Lane Departure Warning (LDW), Lane Keep Assist (LKA), Automatic Emergency Braking (AEB), Adaptive Cruise Control (ACC) and Satellite Navigation (SAT) systems based on South-East Asia environment, road conditions and driving behaviours. In addition, on-road evaluation of the develop test procedures using selected vehicle models sold in South-East Asia countries will be performed.



The scopes of the project are: -

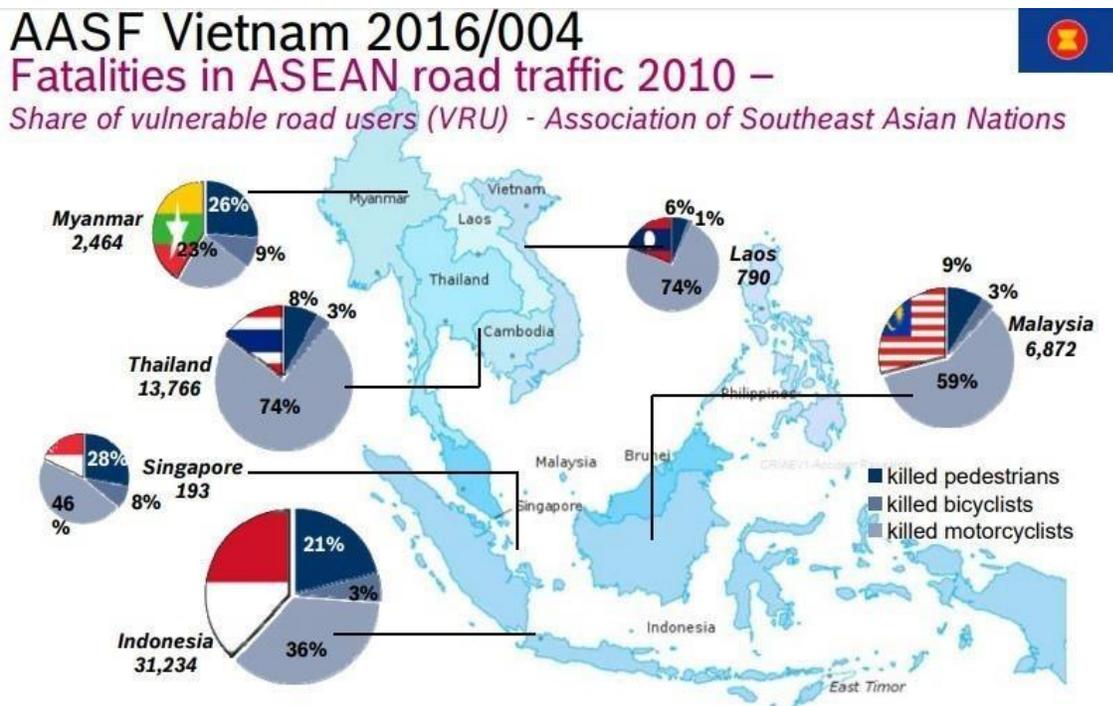
- To develop new test procedure for Lane Departure Warning (LDW), Lane Keep Assist (LKA), Automatic Emergency Braking (AEB), Adaptive Cruise Control (ACC) and Satellite Navigation (SAT) systems based on selected environment, road conditions and driving behaviours parameters.
- To design and develop on-road test facilities to run the test procedures based on the selected environment, road conditions and driving behaviours parameters.
- To perform on-road test for the ADAS systems using selected vehicle models.
- Data gathering using on-board Data Acquisition (DAQ) system and data analysis.
- Report writing and project presentation

## Effect of Blind Spot Detection Technology on Lane-Change Crashes

2018 global status on road safety report stated that South-East Asia recorded 2nd highest regional rate of road death higher than the global rate with 20.7 death per 100,000 populations (global rate 18.2 per 100,000 populations).

South-East Asia rate of road death also increased compared to previous year (19.8 per 100,000 populations). The majority of road accidents death (43%) are among riders of 2 and 3 wheelers while 16% involved driver/ passenger of 4 wheeled vehicles.

7,610,826 unit motorcycles and 2,603,871 unit 4-wheelers are sold in ASEAN countries in 2018. For Malaysia, highest road accident deaths in 2018 involved motorcyclist (61.7%) and car driver/passenger (20.1%). Cause of road accidents are human negligence (80.6%), road conditions (13.2%) and vehicle condition (6.2%).



### **In the ASEAN region at least 27,000 people die while riding a motorcycle annually**

The objective of the project is to determine the difference on crash rate between the car with Blind Spot Detection Technology (BSD) and car without BSD involving motorcyclist. In addition, the difference on collision claim between the car with BSD and car without BSD technology will be determined.

The research will initially be conducted based on the Malaysian market of vehicle sales that equipped with Blind Spot Detection System (BSD) and will be expanded to cover vehicle models in Indonesian and Vietnamese market as well.



Preliminary vehicle models selected for this research are Toyota Camry (MY2019), Toyota C-HR (MY2018), Honda Accord (MY2018), Honda CR-V (MY2018), Honda Odyssey (MY2018), Mazda 3 (MY2018), Mazda CX-5 (MY2018), Volvo V40 (MY2018), Mercedes-Benz S400 (MY2018) and Hyundai Ioniq (MY2016).

Collection of police-reported crash data will be acquired for the reported accident from 2016 to 2018. The study will include crash data involving the lane change - the subject of vehicle was changing lanes or merging prior to crash. The crash involving opposite directions will be excluded.

Moreover, accident claims data from MRC Malaysia for the accident cases from 2016 to 2018 for the selected vehicle models will also be included and studied.

Concurrently, the researchers from Universitas Andalas, Indonesia and Ho Chi Minh City University, Vietnam will also do the data collection in their respective countries.

Data analysis will be carried out by using SPSS and ANOVA analysis (parametric data) which include dependent variable: crash involvement rates per year, claim rates per year and independent variable: BSD (with and without) per year.





Samsung delegates visit European institutions for 'Safe Speed 5030' in Urban Roads

Samsung Traffic Safety Research Institute (STSRI) has been promoting 'Safe Speed 5030' policy with the government-related agencies to reduce traffic accidents in urban areas and ensure pedestrian safety for years. To benchmark the best practices for stable setting the 'Safe Speed 5030', Dr. Sang-ock Kim and Dr. Jun-han Cho visited the Department for London and London Metropolitan Police in UK, International Pedestrian Federation in Switzerland, and the KFV (Kuratorium für Verkehrssicherheit) in Austria with the participating agencies such as the National Police Agency (NPA), the Ministry of Land, Infrastructure and Transport (MOLIT), Korea Transportation Safety Authority (KOTSA), and so on.

The purpose of this visit is to review the possible problems in the process of lowering the speed limit and minimize the trial and error that may occur during the institutionalization process. The speed limit criteria for improving the driver speed compliance rate, the introduction and operation of the speed limit management system, and the traffic safety techniques to prevent pedestrian accidents were also discussed. Finally, the status of the urban speed policy and the measures to be taken in the future in each country were reviewed such as the GIS-based speed management systems.

STSRI has carried out various researches related to the 'Safe Speed 5030' policy. Among them, the reports, 'A proposal on Setting the Boundary of Built-up Area' and 'Speed Limit Determination Criteria by Road Function' were reflected to the 'Safe Speed 5030' manuals. In 2019, STSRI plans to consult local governments, produce the Safe Speed 5030 white paper, and release the press for the significant results. Additionally, STSRI will continue to work to ensure that the system can be settled in a stable manner and expand to the local governments when the road traffic law for the 'Safe Speed 5030' policy is revised and the related manuals are distributed.



Benchmarking visits to European institutions for 'Safe Speed 5030'

## Defining Safe Automation – A Framework for Regulating

### Automated Driving

This article introduces the next iteration in defining safe automated driving being developed by Thatcham Research and UK Insurers.

By 2021 it is anticipated that everyday cars will be available with an automated driving system (ADS), that enables drivers to do other things whilst the car drives itself on the motorway. With 93% of accidents attributed to human error, the insurance industry strongly supports the introduction of safe automated driving technology to reduce the number of deaths and injuries on UK roads. However, to achieve this, the car must be capable of safely driving itself in all situations without relying on the driver.

Currently, there is a lack of clarity around what defines automated driving and the role of the driver when the car is in automated mode. To facilitate the rollout of safe automation, it is essential that regulations and detailed guidelines are in place.

International regulators are currently formulating technical requirements for ADS. These rules are likely to determine which vehicles are classed as being capable of automation in the UK. Vehicle manufacturers must make data available to identify which individual vehicles have automated driving capability, and whether the vehicle was in automated driving mode should a collision occur.

Driving systems that rely on the driver to maintain safety are not recognised by the insurance industry as being automated. There is a risk that these systems may be classed as automated and allow drivers to disengage from the driving task even though they may be required to take back control at short notice.

Assisted driving systems which help with speed and steering control are increasingly available on cars today. They have the capability to support the driver - but not to replace them. By 2021, however, it is anticipated that vehicles capable of automated driving in certain circumstances will be on the market. These systems will allow the driver to safely do other things such as watching films or writing emails whilst the vehicle drives. These first automated driving systems will be restricted to specific Operational Design Domains (ODD), for example Motorways. Initially they may only be capable of operating at lower speeds or in queuing traffic.

In order to be recognised as providing safe automation, the insurance industry has defined a framework that sets out key criteria that the ADS must meet to be classed as automated.

The high-level criteria for Motorway automation are set out in the illustration below.

The Association of British Insurers (ABI) and Thatcham Research will be issuing a detailed definition document for regulators in Q3 2019 following further engagement with OEMs and insurers. This will contain the framework for defining safe automation and detailed requirements for motorway automation to aid regulators in determining safe.

This document will be updated with further iterations to include detailed requirements for other driving domains: Parking, City and A-Roads.

