

Report on the 56th JASIC Asia Expert Meeting in Malaysia  
(on R125, R130, R131, R139, and R140) (Draft)

Finalized: \_\_\_\_\_, 2019

Drafted: July 29, 2019

Dates: Tuesday, July 16, 2019, 9:00-17:00

Wednesday, July 17, 2019, 10:00-12:00

Place: Meeting Room, JPJ

Participants:

Malaysia:

Road Transport Department (JPJ):

Mr. Zamakhshari Bin Hanipah, Deputy Director General

Mr. Azzaharin Allias, Automotive Engineering Division

Ms. Nurulatiqah Binti Ali

Industries concerned:

Mr. Nuril syafiq Bin Sidek Proton

Attendance from Nissan, Perodua, Isuzu,

and others. About 25 people in total.

Japan:

NTSEL:

Mr. Koji Urate, Type Approval Engineer, Automobile Type Approval Test Department;

Mr. Kenichi Yamamoto, Type Approval Engineer, Automobile Type Approval Test  
Department

JAMA:

Mr. Yukihiro Shiomi, Chairman of Brakes and Running Gear Subcommittee

Mr. Takeshi Fukui, Member of International co-operation committee

JASIC:

Mr. Nakatani, Chief representative of JASIC Jakarta Office

Mr. Utami

Mr. Tsuburai

Ms. Mori

Overview:

- Explanation was given of what each of the regulations R125, R130, R131, R139, and R140 is about and how tests are performed.
- Malaysia reported the progress of work on regulations-related field. The country has already joined the 1958 Agreement and adopted the UNRs on the agenda. The purpose of this expert meeting was to learn about the tests and regulations more in specific terms.
- Malaysia requested Japan to extend continued support as they plan to hold these meeting over broader subjects.

**Day 1: Tuesday, July 16, 2019**

**1. Opening Speeches**

**1.1 Welcome address by Mr. Zamakhshari Bin Hanipah, DDG, JPJ**

It is an honor for us to host this expert meeting here today. We have already joined the 1958 Agreement and are working to harmonize international and domestic regulations. The Ministry of Transport is working to finalize safety measures by 2020, while developing and improving safety regulations. I hope this meeting will help improve automotive safety in Malaysia.

**1.2 Greeting by Mr. Nakatani, JASIC Jakarta Office**

I would like to thank everyone for attending this meeting and special thanks Mr. Zamakhshari for his attendance. In recent years, more and more vehicles are equipped with many latest technologies. At today's meeting we plan to explain what electronic control-related regulations are about and how their tests are performed. I hope this meeting will

help you to deepen your understanding on the matter. We would like to continue contributing to the activities of JPJ for harmonization of regulations and maintain our relationship of trust.

## **2. Legislative Situation on Braking in Malaysia**

Mr. Azzaharin Alias from JPJ gave a briefing on the situation in Malaysia:

We have already joined the 1958 Agreement and adopted the UN regulations on brakes. In Malaysia, we have already the following regulations in place:

R130 on Lane Departure Warning Systems (LDWS): Application optional.

R131 on Advanced Emergency Braking Systems (AEBS): Application optional

R139 on Brake Assist Systems (BAS): Application optional

R140 on Electronic Stability Control (ESC) systems: Application mandatory for new models from July 1, 2018 onward, but we still accept those under R13H. From 2020 onward, we plan to start approval under R140.

As to conventional braking regulations (L: R78, M1: R13H, N1: R13H or R13, and M2, M3: R13), they have been made mandatory since January 1, 2012.

For brake linings, they must conform to R90 or MS1164. Suppliers must acquire certification.

Driving visibility For forward field of vision, R125 has been mandatory since 2017.

## **Q&A**

Q: Do the brake linings need to be approved for both R90 and MS?

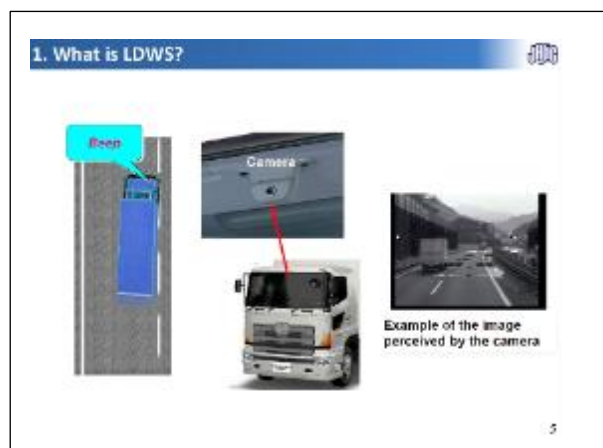
A: Either R90 or MS is fine.

## **3. Expert Meeting**

### **3.1 Technical requirements for lane departure warning systems (LDWS) of R130**

Mr. Shiomi from JAMA explained the technical requirements of the UN regulation:

- The purpose of this regulation is to define the lane departure warning systems (LDWS) that vehicles of categories M2, M3, N2, and N3 are equipped with and are mainly used under monotonous expressway driving conditions.
- These systems assist drivers by warning them whenever they are distracted or drowsy and unintentionally deviating from their lane.
- Lane departure warning systems (LDWS) refer to systems that warn drivers whenever their vehicle is unintentionally drifting away from their lane.
- For white lines, regulations in major countries are reproduced in Annex 3.
- The system uses a camera to check the white lines ahead and warns the driver whenever tyres are about to cross the white lines. It uses two of three types of warning: audible, visual or vibration. The system is activated when the vehicle runs at a speed of 60 km/h or higher.
- If the vehicle is faulty, it must give other road users a fault warning signal in flashing yellow light.



## Q&A

Q: What are the categories concerned?

A: This concerns LDWS used on expressways only and applies to vehicles of categories

M2, M3, N2 and N3.

Q: How does it work?

A: With a camera, the system constantly checks if the vehicle keeps in the lane and assists it as the need arises.

Q: Does it also detect if the driver is under influence?

A: No, it doesn't do such a thing. That's called "alcohol interlock", but a different system.

Q: How far ahead of the vehicle the camera is watching when detecting the vehicle departing the lane?

A: The camera is monitoring the tyres and the lane markings, and when it finds a tyre getting on a marking, it's also watching a little ahead.

Q: What is a haptic warning?

A: Here, "haptic" refers to vibration you feel in your hands or other areas of body. Some manufacturers use vibration of the steering wheel.

Q: The line is straight and the tyre is at an angle. How do you measure the departure?

A: When the tyre goes 0.3 meters beyond the line, the system activates and gives the driver an alarm.

Q: The failure alert is a visual alert in yellow. Don't you need to have it blink?

A: To alert the driver to a failure, you need to keep telling them, so we find it better that the indicator stays on, no blink.

Q: Is there any requirement for the calibration of the camera?

A: In this regulation, there's no such requirement for calibration. For regulations involving complex systems, such as those on automated driving, yes, we discuss camera calibration.

Q: If there is a fog, the transmission ratio is up to 20% in Malaysia. How about in the UN regulation?

A: There is no such provision in the regulation.

Q: How far AEBS is spread in Japan?

A: I can't cite the number of vehicles, but the system is becoming a common feature in Japan and I think about half of the new cars now are being equipped with it.

Q: I understand that it concerns large-sized vehicles. How about passenger cars?

A: Currently, there are no requirements for passenger cars, so each manufacturer

voluntarily fit them as a free gift.

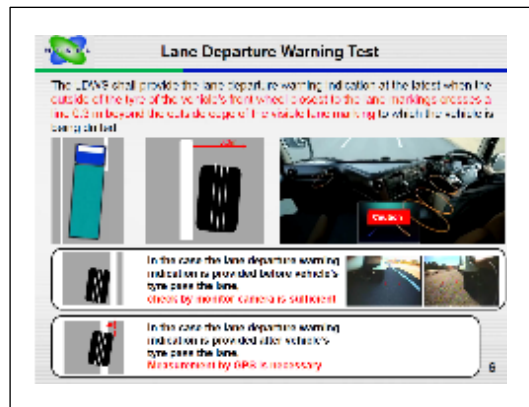
Q: Can we use GPS?

A: There is no requirement for lateral directions.

### 3.2 Method for testing a lane departure warning system (LDWS) under R130

Mr. Urata from NTSEL gave a briefing on the requirements and procedures for the test method:

- The test is conducted on a dry, flat surface of asphalt- or concrete-paved roads.
- The white lines used in the test must conform to the requirements for the lanes used by Contracting Parties as prescribed in Annex 3.
- The test starts at  $65 \pm 3$  km/h. Keeping the prescribed speed, you gently drift the vehicle either leftward or rightward, so the vehicle crosses the lane marking at a deviation speed of 0.1 to 0.8 m/s. The test is repeated at different deviation speed of 0.1 to 0.8 m/s.
- Failure detection tests are performed.



### Q&A

Q: How do you measure the speed?

A: To measure the speed, we use GPS. It is easy to measure the speed of both the test vehicle and the moving target.

Q: Is there a point specified at which to measure the deviation speed?

A: In practice, there is no specific definition, and the regulation states that it must be in the range of 0.1 to 0.8 m/s. They say 0.1, 0.5, and 0.8, but we measure 0.1 and 0.8 in Japan.

Q: Can we use a sensor?

A: There is no requirement for the yaw rate.

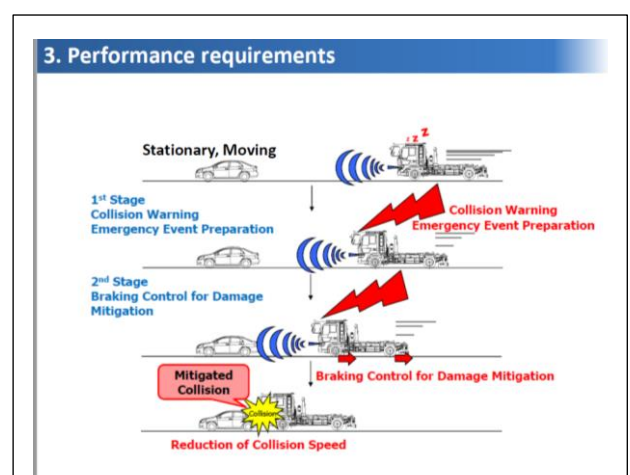
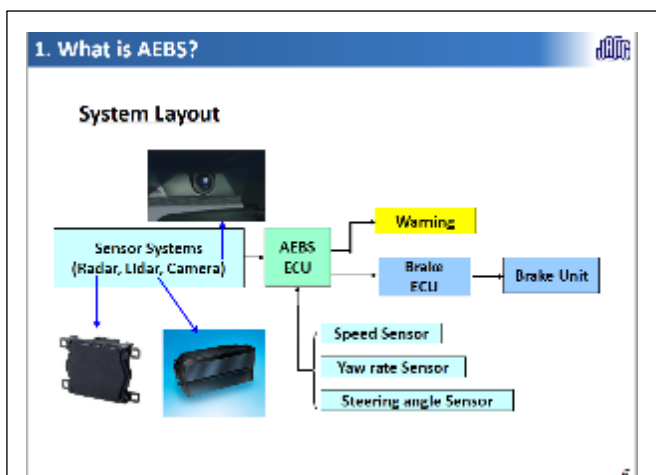
Q: Is yellow, the color of the failure alert, mandatory?

A: Yes, it's mandatory.

### 3.3 Technical requirements for advanced emergency braking systems (AEBS) under R131

Mr. Shiomi from JAMA made a briefing on the technical requirements of the UN regulation:

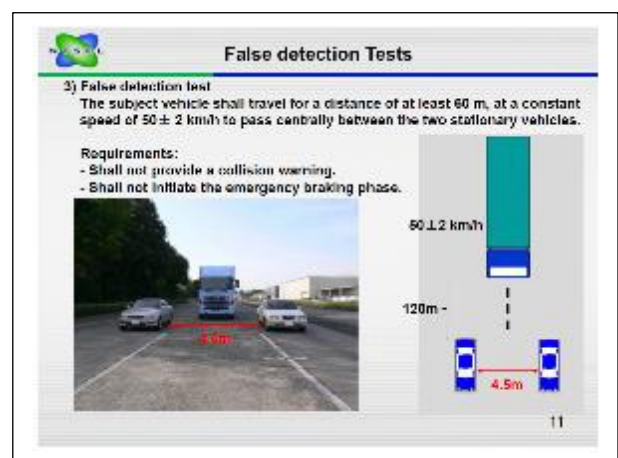
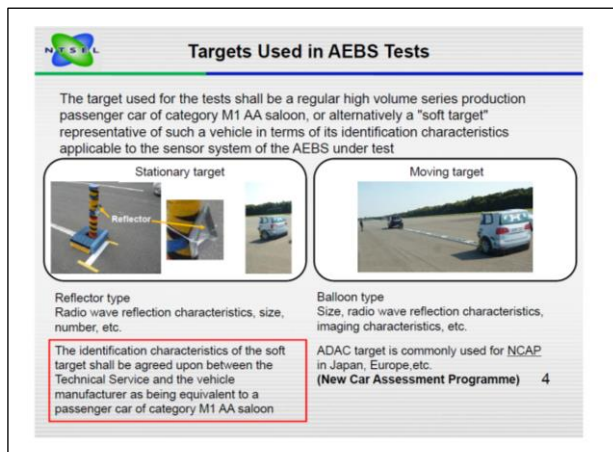
- The purpose of this regulation is to define the advanced emergency braking systems (AEBS) that vehicles of categories M2, M3, N2 and N3 are equipped with and are mainly used under monotonous expressway driving conditions.
- The system must automatically detect the risk of frontal collision of the vehicle with an obstacle ahead, alert the driver to the risk, and, if the driver fails to respond to the alert, activate the vehicle's braking system to slow down the vehicle to avoid the collision or mitigate the damage.
- The system must provide, at least, an acoustic or haptic warning to make even an inattentive driver aware of the emergent situation and may provide rapid deceleration.
- While the system is operating (during the warning and emergency braking phases), the driver may control and override the system at any time, for example by taking conscious actions such as steering or kicking down the accelerator.
- Definitions of terms.
- System layout and performance requirements for AEBS



### 3.4 Method for testing advanced emergency braking systems (AEBS) under R131

Mr. Urate from NTSEL gave a briefing on the requirements and procedures for the test method:

- Test distance and speed, sensor locations, etc.
- Description of targets.
- Warning and activation tests using stationary targets
- Warning and actuation tests using moving targets
- Failure detection tests
- Deactivation tests
- False detection tests



### Q&A

Q: Are details, such as the size and height of the stationary target, specified?

A: No, no such details are specified. The regulation only defines "the target" as a mass-produced passenger car of category M1 AA sedan.

Q: Can you use a high-rider as a target?

A: No, high-riders aren't suitable. It's better to use a normal passenger car. Even in a test



with a stationary target, using an actual vehicle is dangerous because you always risk colliding with it. As targets, we recommend soft targets. There's no detailed provisions for balloon types in the UN regulation, but there *are* for the NCAP tests. The Japanese NCAP have them defined already.

Q: Who's the manufacturers of GPS?

A: Oxford or V-box, made in the UK.

Q:

A: The warning is activated at least 1.4 seconds before the start of emergency braking phase. Activating the emergency braking phase is the requirement for the vehicle to decelerate at 4 m/s<sup>2</sup> or more. This is merely a design, target value, not a requirement that you should decelerate at 4 m/s<sup>2</sup> or more in actual circumstances.

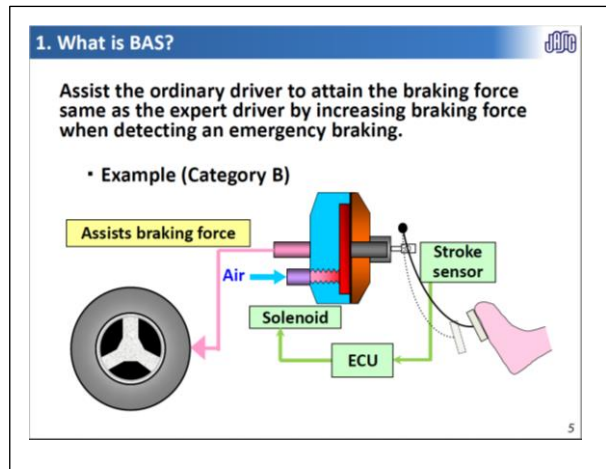
Q: When does the emergency brake start? And what does it mean, "two seconds before"?

A: (Citing the previous presentation) This is merely an example, but here it starts 2 seconds before the prescribed 1.4 sec before the start of emergency braking phase.

### **3.5 Technical requirements for brake assist systems (BAS) under R139**

Mr. Shiomi from JAMA made a briefing on the technical requirements of the UN regulation:

- A brake assist system (BAS) is a braking system that presumes that an emergency braking event has happened based on the characteristics of the driver's braking requests and, under such conditions, performs either of the following functions that:
  - (a) Assists the driver in achieving the maximum braking rate possible, or
  - (b) Is sufficient to trigger a full-cycle operation of the anti-lock braking system.
- A BAS has two systems as declared by the automaker: one being Category A that detects emergency braking situations based on the pressure at which the driver steps on the brake pedal and the other being Category B that detects emergency braking situations based on brake pedal speed. Detail explanation was given on each category.
- The system presupposes it is an ABS prescribed in R13H. Further, the system must satisfy the CEL standard specified in R13H.
- For the ECU unit, it must also be approved for radio disturbance under R10.



### 3.6 Method for testing brake assist systems (BAS) under R139

Mr. Urate from NTSEL, gave a briefing on the requirements and procedures for the test method:

- Test conditions: Road surface conditions, test vehicle's load conditions, etc.
- The characteristics of each BAS category and how they are tested



Q&A

Q: In R139 and in R13H, are the requirements for BAS the same?

A: In technical terms, the requirements are the same in both regulations.

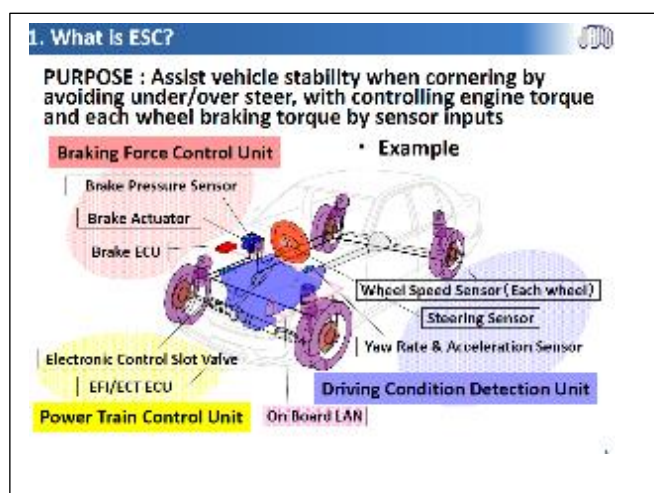
Q: Is there any relationship between R131, R139, and R140?

A: They are each an independent system and have no relationship from one to another.

### 3.7 Technical requirements for electronic stability control (ESC) systems under R140

Mr. Shiomi from JAMA made a briefing on the technical requirements of the UN regulation:

- Definition of ESC systems
- Vehicles concerned are those of categories M1 and N1 with a running order mass of over 1,735 kg.
- The system must satisfy the CEL standard specified in R13H.
- For the ECU unit, it must also be approved for radio disturbance under R10.
- ESC off telltales must meet the requirements of R121.
- For heavy duty vehicles, the EVSC as specified in R13 applies; EVSC may be tested by computer simulation.

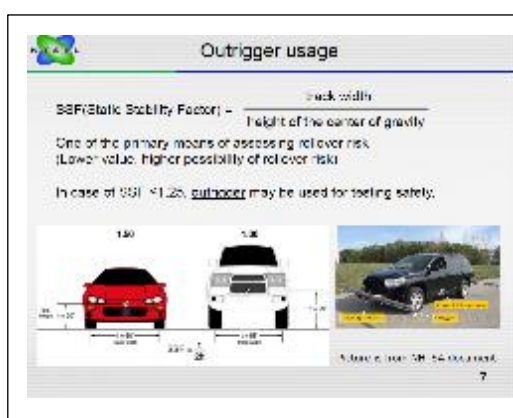


### 3.8 Method for testing electronic stability control (ESC) systems under R140

Mr. Urate from NTSEL, gave a briefing on the requirements and procedures for the test

method:

- Test procedure and test equipment: The vehicle is tested fitted with outriggers for safety.
- Recap of test conditions.
- Test equipment: A steering robot detects the steering angle.
- Telltales are checked.
- Explanation of how EVSC is tested.



## Q&A

Q: For vehicles of category N1, do we need to test them for both R13 and R140?

A: Doing either of the two suffices at the automaker's choice; Vehicles with 3.5 t hydraulic brakes must be tested under R13.

Q: We have already been approved for BAS and ESC under R13H-00 series. Do we still need to be approved under R140?

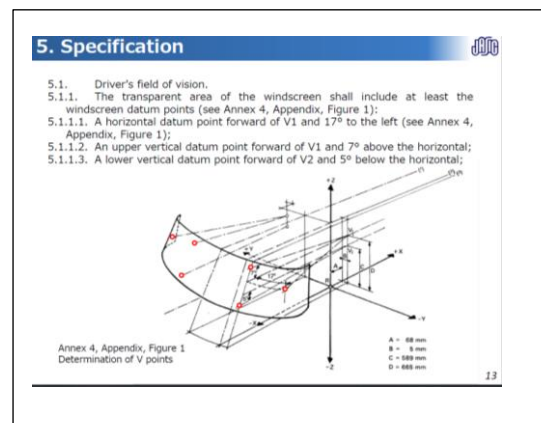
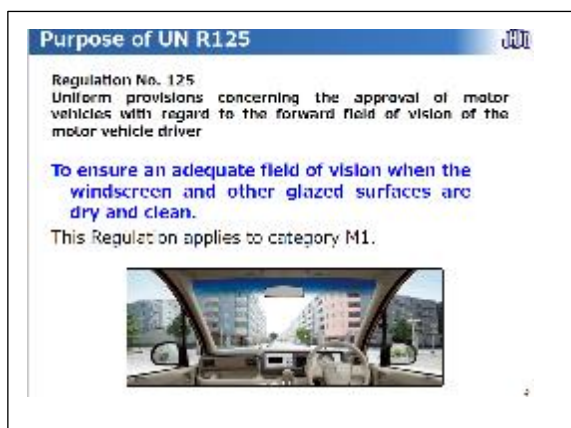
A: The technical requirements for BAS and ESC in the R13H-00 series are the same. If you are approved as the same type under transitional provisions of R13H, extension is approved even after September 2018. So, you don't need to get a renewed approval under R140 for the same types.

Day 2: Wednesday, July 17, 2019

### 3.9 Technical requirements for direct vision under R125

Mr. Fukui from JAMA gave a briefing on the technical requirements of the UN regulations:

- This Regulation applies to the 180-degree forward field of vision of drivers of category M1 vehicles.
- Its purpose is to ensure an adequate field of vision when the windscreen and other glazed surfaces are dry and clean.
- The technical discussion on R125 has been conducted in UN/ECE/WP.29/GRSG.
- In defining the reference points on the windscreen, you must measure the V point, R point, and H point. The measurement must comply to relevant provisions of R.E.3
- R125 also defines the A-pillar.



### Q&A

Q: Does the scopes of application include both categories M1 and N1?

A: No. It's only for vehicles of category M1.

Q: Does paragraph 2.12 on armored vehicles apply to categories M2 and M3, too?

A: No. This regulation is exclusively applicable to category M1. So, the provision on armored vehicles applies to the vehicles of category M1 only.

### 3.10 Method for testing direct vision under R125

Mr. Yamamoto from NTSEL gave a briefing on the requirements and procedures for the test method:

- Test environment and the definition of the test vehicle's running order.
- How to calculate different points that determine the field of vision, etc.
- In this presentation, it was explained how the reference points can be identified by placing a 3D measuring instrument in the driver's seat instead of a 3HD machine.



#### **4. Closing speech by Mr. Azzaharin Allias**

At the end of the meeting, Mr. Allias thanked the experts and other participants for their attendance. Malaysia would like to keep its relationship with JASIC and hold meetings next year on other topics.



Annex:

