Proposal for UN Regulation on AEBS for M1/N1

MLIT, Japan
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Sep. 2008, GRRF
First proposal for a new UN Regulation on AEBS
Initial Scope: M2, N2, M3, N3  (Future target: M1, N1)

July 2013
Entry into force of UNR131(AEBS) 00 series and 01 series
Scope 00series: N2 above 8 tons, M3, N3
01series: M2, N2, M3, N3
Spread of technology on AEBS for passenger vehicles

Source: [Upper-left]Fuji Heavy Industries Ltd. Homepage, [Upper-right]Volvo Car Japan Co., Ltd. homepage
[Lower-right]Toyota Motor Corporation homepage, [Lower-right]Mercedes-Benz Japan Co., Ltd. homepage
CPs’ targets on AEBS for passenger vehicles

**Japan**  Motor Vehicle Safety Policy (from FY2016 to FY2020)
To prevent accidents arising from human errors by utilizing advanced safety technology, e.g. AEBS

**EU**  Draft amendment General Safety Regulation (for CARS2020)
To make AEBS mandate for M1 and N1 categories to avoid collisions with vehicles (moving obstacle by 2020, stationary obstacle by 2022) and pedestrians (by 2024)

**USA**  Commitment on Automatic Emergency Braking
To make AEB a standard feature on light duty vehicles and trucks 8,500 lbs. GVWR or less no later than 2022 voluntarily by twenty automakers representing more than 99% of the U.S. market
CPs’ roadmaps of NCAP on AEBS for passenger vehicles

**Japan**  JNCAP 2016 Roadmap
2014  moving/stationary obstacle
2016  pedestrian detection

**EU**  Euro NCAP 2020 Roadmap (March 2015)
2014  moving/stationary obstacle
2016  pedestrian detection

**USA**  Federal Register (November 5, 2015)
2018  moving/stationary obstacle
(By IIHS 2013  moving/stationary obstacle)
Road traffic accidents in Japan (2015)

**Accidents**
- M1: 73%
- N1: 8%
- Other/Unknown
- Truck (other N)
- Motor cycle (L)
- Bus (other M)

**Fatal accidents**
- M1: 52%
- N1: 11%
- Other/Unknown
- Truck
- Motor cycle
- Bus

Source: 2015 Road traffic accident statistics (ITARDA)

Number of accidents: 536,899  
Number of fatal accidents: 4,028
M1/N1 accidents in Japan (2015)

Accidents of M1/N1

- Rear-end Collision: 38%
- Single Vehicle: 24%
- Turning Right: 9%
- Crossing Collision: 24%
- Vehicle to Pedestrian: 10%

Fatal accidents of M1/N1

- Vehicle to Vehicle: 37%
- Vehicle to Pedestrian: 41%
- Single Vehicle: 22%

Source: 2015 Road traffic accident statics (ITARDA)

Number of M1/N1 accidents: 434,328
Number of M1/N1 fatal accidents: 2,516
Effectiveness of AEBS for M1,N1 in Japan (2015)

**Effectiveness for Moving/stationary obstacle**
Number of M1/N1 accidents of Rear-end collision per 1,000 vehicles decrease by 70%.

- **Non-compliant with AEBS**: 1.74 cases/thousand vehicles
- **Equipped with AEBS**: 0.5 cases/thousand vehicles, 70% OFF

*AEBS designed for avoiding Rear-end collision of Vehicle to Vehicle*

**Effectiveness for Pedestrian**
Number of M1/N1 accidents of Vehicle to Pedestrian per 1,000 vehicles decrease by 33%.

- **Non-compliant with AEBS**: 0.24 cases/thousand vehicles
- **Equipped with AEBS**: 0.16 cases/thousand vehicles, 33% OFF

*AEBS designed for avoiding Rear-end collision of Vehicle to Vehicle*

Source: Created from data of 2016 Vehicle Safety Measure Study Committee, Japan

- Vehicle non-compliant with AEBS (55.6 million units, Rear-end collision: 96,755 accidents, 43 fatalities, VtoP: 13,253 accidents, 626 fatalities)
- Vehicle equipped with AEBS as standard (0.8 million units, Rear-end collision: 419 accidents, 0 fatalities, VtoP: 128 accidents, 6 fatalities)
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**Proposal**: Revision of UNR131 (Advanced Emergency Braking System) to establish new requirements of AEBS for M1/N1

**Scope**
To extend to M1, N1

*Based on test procedures of JNCAP/Euro NCAP*

**02 series**  Moving obstacle/Stationary obstacle for M1/N1
Timeline:  2020 for new types of vehicles  
2022 for new vehicles

Test procedure*:

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Start speed</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving</td>
<td>60 km/h</td>
<td>Avoid impacting a moving target (20km/h)</td>
</tr>
<tr>
<td>Stationary</td>
<td>50 km/h</td>
<td>Avoid impacting a stationary target</td>
</tr>
</tbody>
</table>

**03 series**  Pedestrian detection for M1/N1
Timeline:  2024 for new types of vehicles  
2026 for new vehicles

Test procedure*:

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Start speed</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving</td>
<td>50 km/h</td>
<td>Avoid impacting a cross-moving target (5km/h)</td>
</tr>
</tbody>
</table>
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Next step

• At the 83th GRRF, Japan has submitted the draft ToR of the new IWG (GRRF-83-18).

• If the other CPs kindly support it, we would like to hold preparatory meetings before the 84th GRRF. (e.g. during the week of ACSF-IWG) to discuss and refine the draft of ToR.

• Japan welcome CPs and stakeholders' participation to the preparatory meetings.
Thank you for your attention.
Rear-end collision with moving vehicles (2009)

Total economic loss (million yen)
(= Killed or seriously injured people x Economic loss)

Accumulated economic loss %

Source: Created from data of FY2013 Advisory committee of new car assessment of Japan
Rear-end collision with stationary vehicles (2009)

Total economic loss (million yen)
(= Killed or seriously injured people x Economic loss)

Accumulated economic loss %

Source: Created from data of FY2013 Advisory committee of new car assessment of Japan
Collision with cross moving pedestrians (excl. rush out), daytime (2009)

Total economic loss (million yen)

(= Killed or seriously injured people \times Economic loss)

Accumulated economic loss %

Source: Created from data of FY2015 Advisory committee of new car assessment of Japan