

Submitted by the experts from



C L E P A

*European Association of
Automotive Suppliers*

Informal document **GRRF-78-31**
78th GRRF, 16-19 September 2014
Agenda item 11(b)

Vehicle Safety - (R)Evolution of Driving Assist Systems

Jochen Schäfer
Heiner Hunold

Which Driver Assist Systems are already available today?



**Lane Change Assist
Blind Spot Detection**



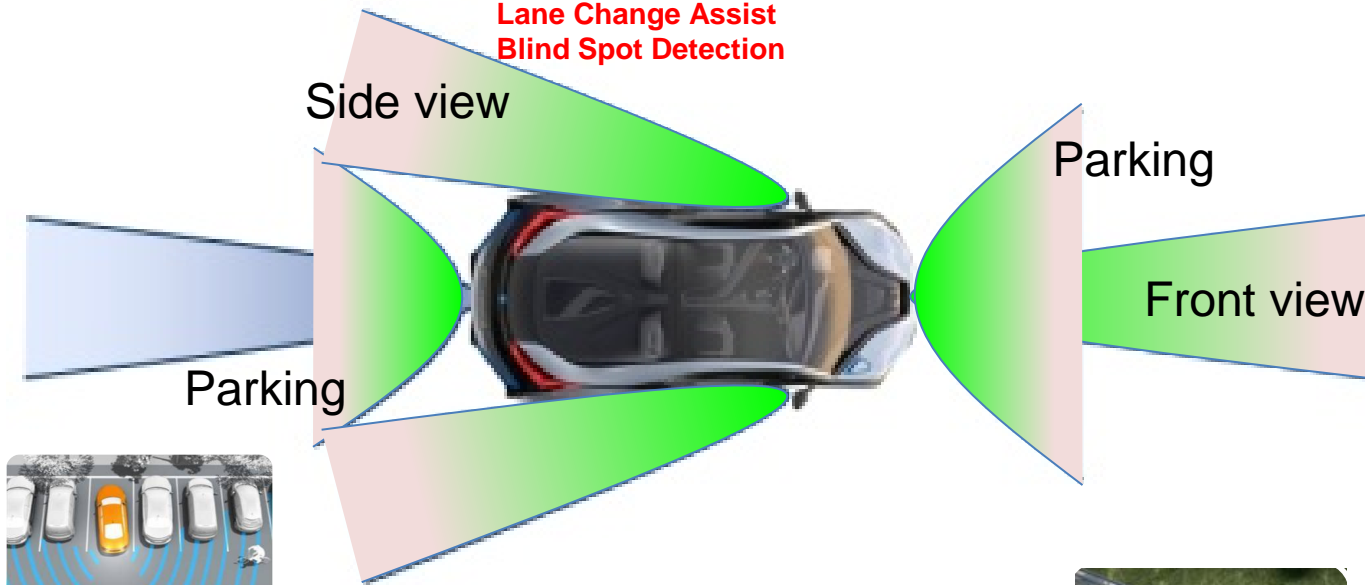
ACC



AEB



Sign Recogn.



**Automated Parking
Rear Cross Traffic Alert**



Traffic Jam Assist



LDWS

Which Driver Assist Systems are already available today?



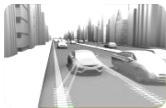
ACC



AEBS



Sign Recogn.



LDWS



Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection

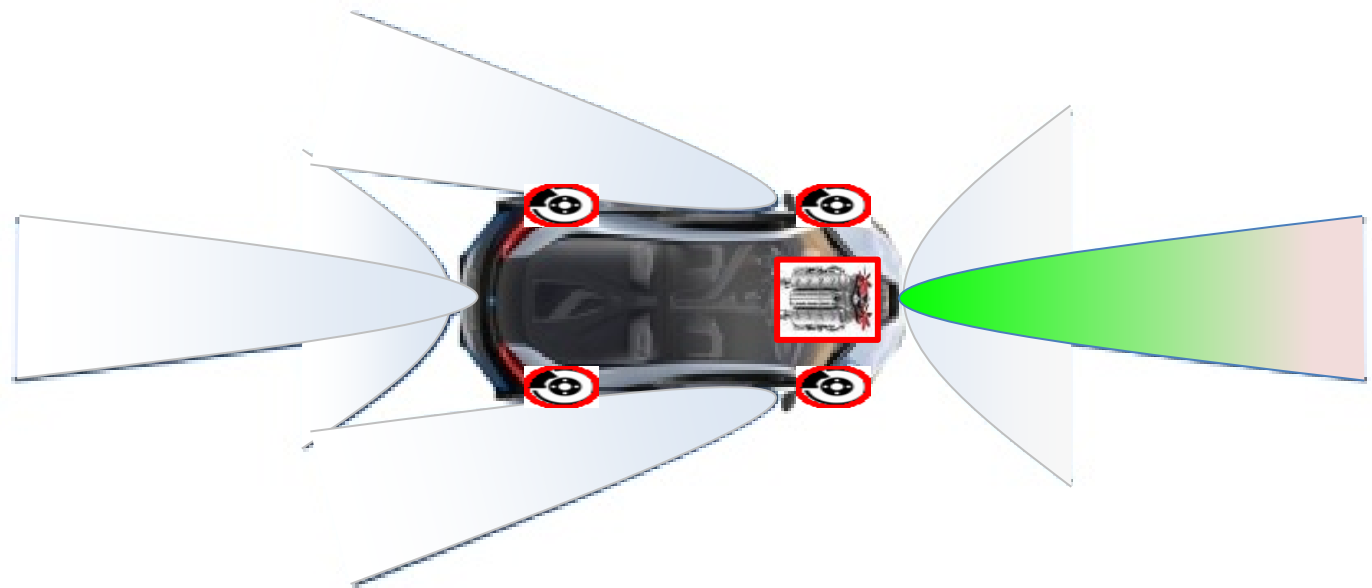


Traffic Jam Assist

Adaptive Cruise Control (ACC)

Sensor Configuration

Control Systems



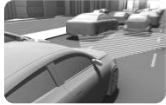
Which Driver Assist Systems are already available today?



Advanced Emergency Braking System (AEBS)

Sensor Configuration

Control Systems



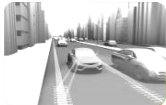
ACC



AEBS



Sign Recogn.



LDWS



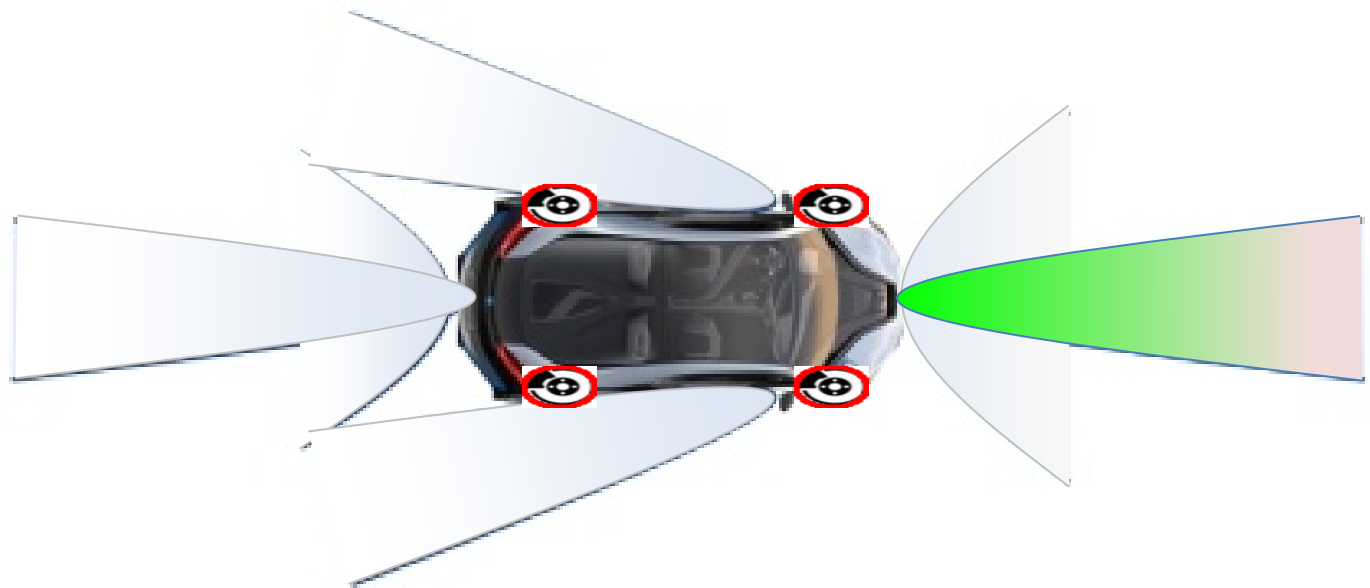
Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection



Traffic Jam Assist



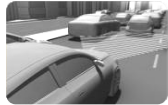
Which Driver Assist Systems are already available today?



Road Sign Recognition

Sensor Configuration

Control Systems



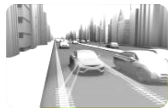
ACC



AEBS



Sign Recogn.



LDWS



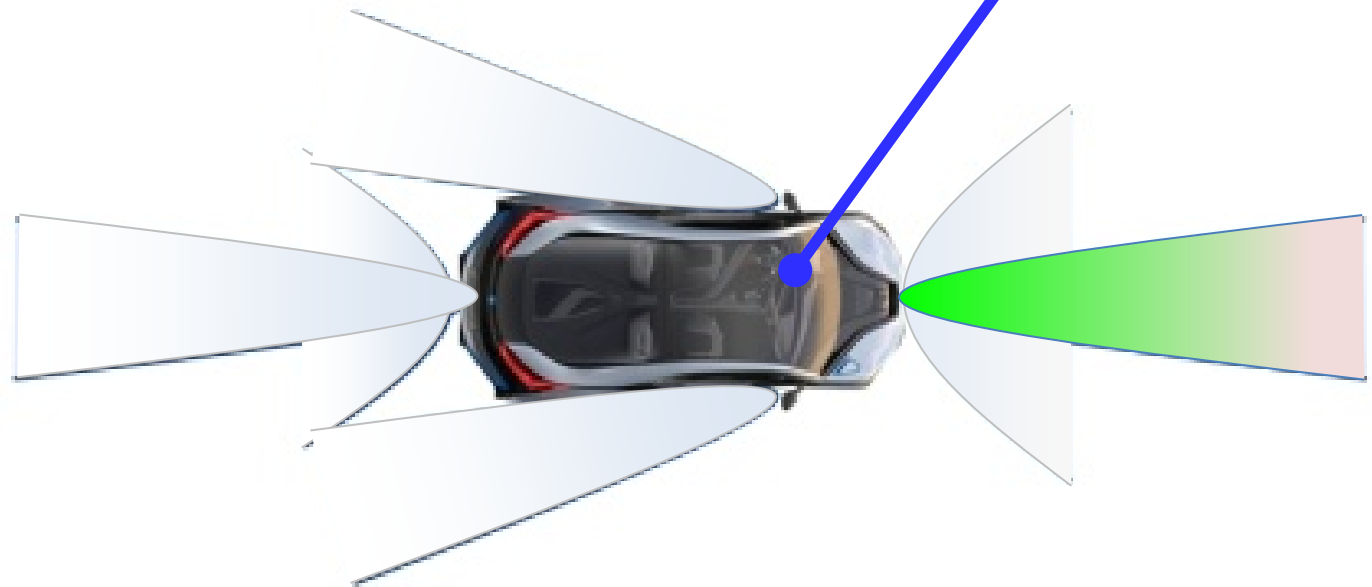
Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection



Traffic Jam Assist



Optional: Speed Adaptation in ACC

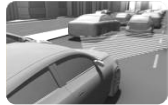
Which Driver Assist Systems are already available today?



Lane Departure Warning System (LDWS/LKAS)

Sensor Configuration

Control Systems



ACC



AEBS



Sign Recogn.



LDWS



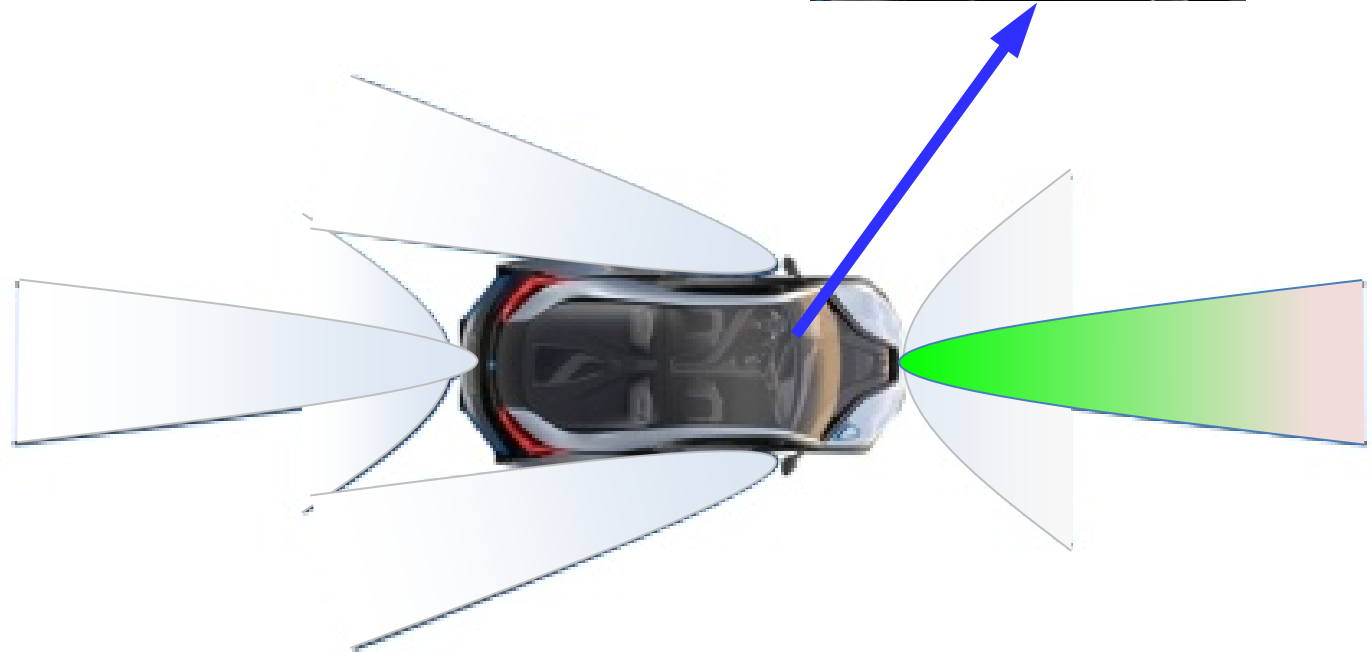
Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection



Traffic Jam Assist



Which Driver Assist Systems are already available today?



Parking Systems

Sensor Configuration

Control Systems



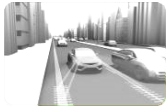
ACC



AEBS



Sign Recogn.



LDWS



Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection



Traffic Jam Assist



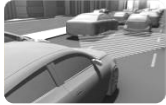
Which Driver Assist Systems are already available today?



Lane Change Assist (LCA)

Sensor Configuration

Control Systems



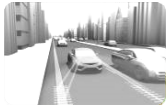
ACC



AEBS



Sign Recogn.



LDWS



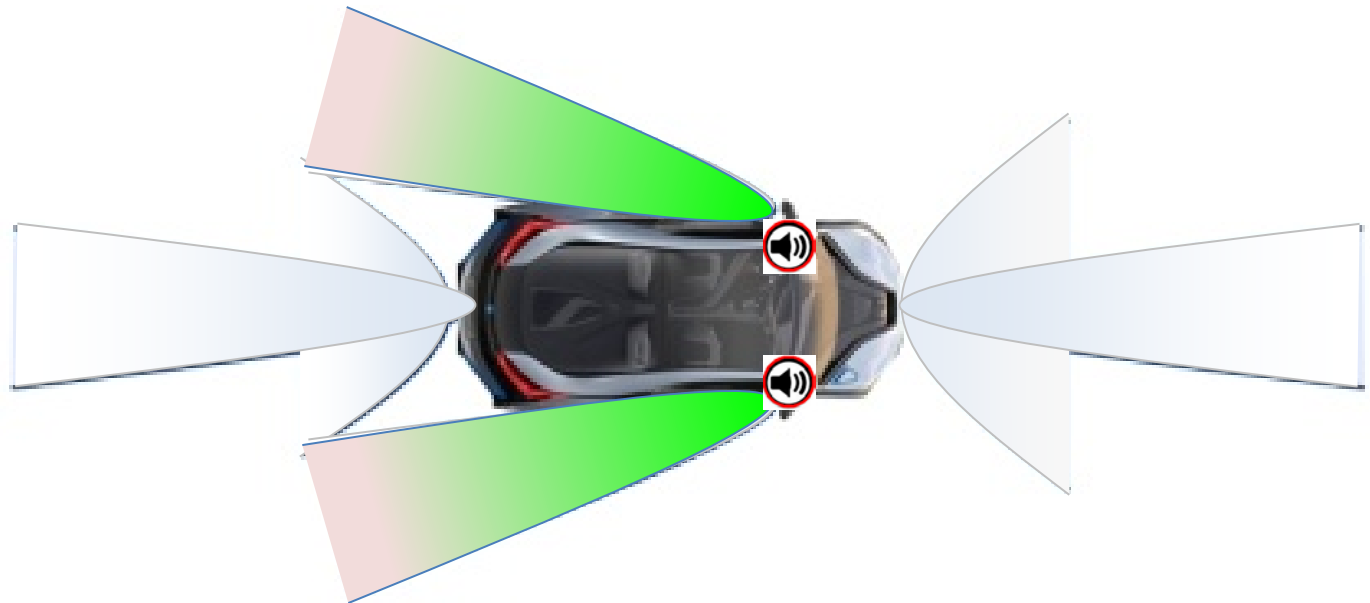
Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection



Traffic Jam Assist



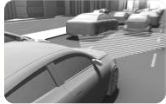
Which Driver Assist Systems are already available today?



Traffic Jam Assist (TJA)

Sensor Configuration

Control Systems



ACC



AEBS



Sign Recogn.



LDWS



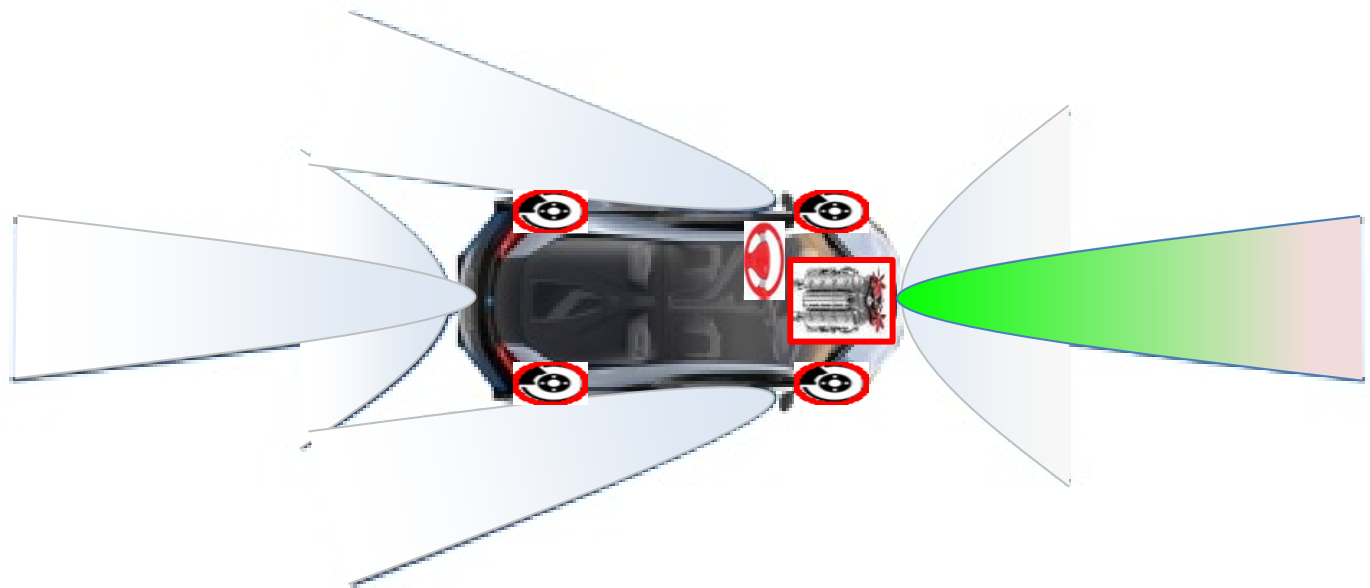
Automated Parking
Rear Cross Traffic Alert



Lane Change Assist
Blind Spot Detection



Traffic Jam Assist

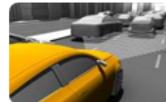




The Systems of the Future?



AEBS



ACC



Sign Recogn.



LDWS



Traffic Jam Assist



Lane Change Assist
Blind Spot Detection



Automated Parking
Rear Cross Traffic Alert



Highway Pilot



Valet Parking



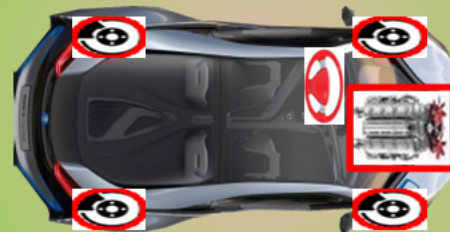
Highway Pilot



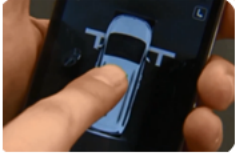
Highway Pilot

Sensor Configuration

Control Systems



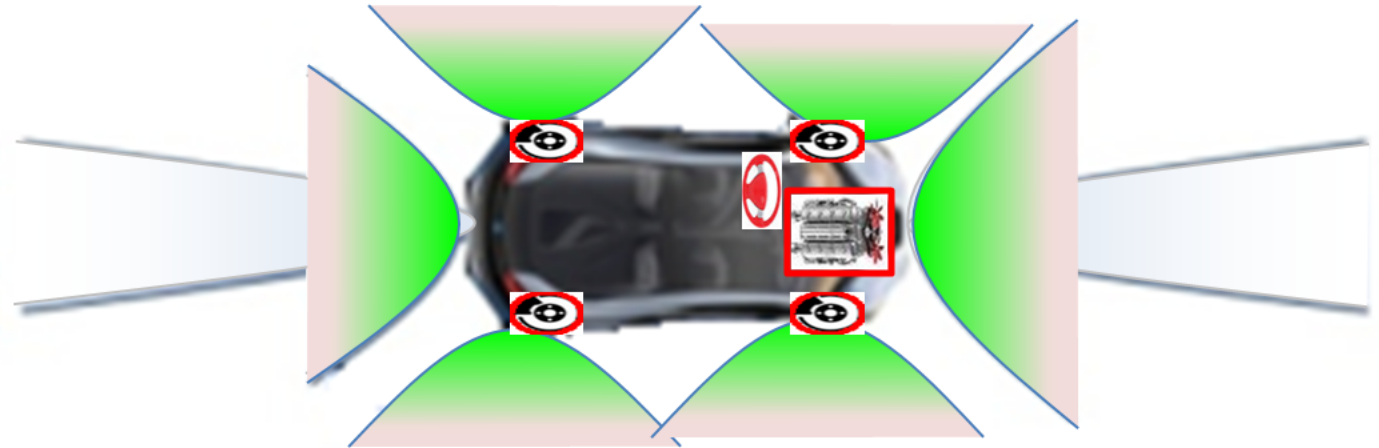
Valet Parking



Valet Parking

Sensor Configuration

Control Systems






Levels of Automatisation

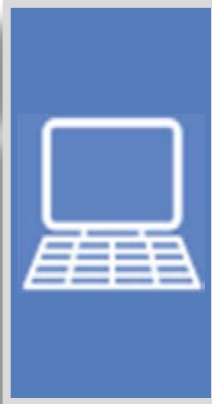


Permanent Monitoring by the Driver

Driver

Auto-
mation

| | Level 0 | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|--|-------------|----------|-------------------------|-----------------------------|----------------------|----------------------|
|  | Driver Only | Assisted | Partial Auto- mation | Conditional Auto- mation | High Auto- mation | Full Auto- mation |



Driver

System

or

Driver

System

System is driving, with more or less backup by the driver



... and which Levels have the
Systems mentioned before?

Possible with current Regulations ✓



Amendments of current Regulations are necessary



Driver

Auto-
mation

| | Level 0 | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|-------------|-------------|----------|-------------------------|-----------------------------|----------------------|----------------------|
| Driver Only | Driver Only | Assisted | Partial Auto- mation | Conditional Auto- mation | High Auto- mation | Full Auto- mation |



Sign Recogn.



ACC



Traffic Jam Assist



Highway Pilot



LDWS



AEBS



Valet Parking



Lane Change Assist
Blind Spot Detection



Automated Parking
Rear Cross Traffic Alert



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For Questions, please contact:

Jochen Schäfer (jochen.schaefer@de.bosch.com)

Heiner Hunold (heiner.hunold@continental-corporation.com)

Pierre Laurent - CLEPA (p.laurent@clepa.be)

Links to videos which have been basis for the presentation

ACC: http://www.youtube.com/watch?v=own_VaRZ9M8

AEBS: <http://www.youtube.com/watch?v=ehkDZS1hFnc>

Traffic Sign: <http://www.youtube.com/watch?v=FM1a2zS2Eec>

LDWS: <http://www.youtube.com/watch?v=GSzEi8dIFlc>
<http://www.youtube.com/watch?v=GdtVe1Pnayg>

Parking: <http://www.youtube.com/watch?v=HWMzP9HYNCQ>

Side Assist: <https://www.youtube.com/watch?v=DtmyjAN7KAY>

Traffic Jam: <https://www.youtube.com/watch?v=Sc8wvpya15A>

Highway Pilot: <https://www.youtube.com/watch?v=tbvTQuKpZNo>

Valet Parking: <http://www.youtube.com/watch?v=vaAnVpBW6gw>
<http://www.youtube.com/watch?v=QPH8j2mrepM>