

Sustainable mobility: road safety as a global duty

- Sustained mobility also means safe mobility
- Protection of the lives and health of millions of people – including through improved road safety

Seven challenges for sustained mobility

Reduction
in pollutant emissions

Reduction in
emissions
of greenhouse gases

Noise reduction

**Sustained
mobility**

**Improvement in
road safety**

Improvement in
mobility opportunities for
the population

Reduction in the
mobility differential between
poor countries and wealthy
industrial nations

Reduction in traffic
jams and congestion



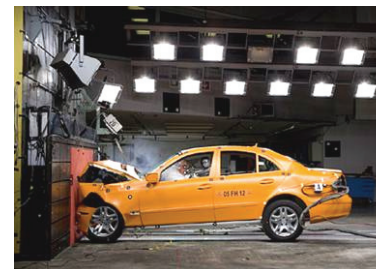
The Mercedes-Benz philosophy: Integral concept for maximum real-life safety



Safe driving:
Avoid danger,
warn and assist in
good time



PRE-SAFE®:
Dangerous situation:
Anticipatory
occupant protection



During an accident:
Provide appropriate
protection



After an accident:
Help and enable
rapid assistance

Active safety



Passive safety

Car-to-Car communication: exchange of information prevents accidents

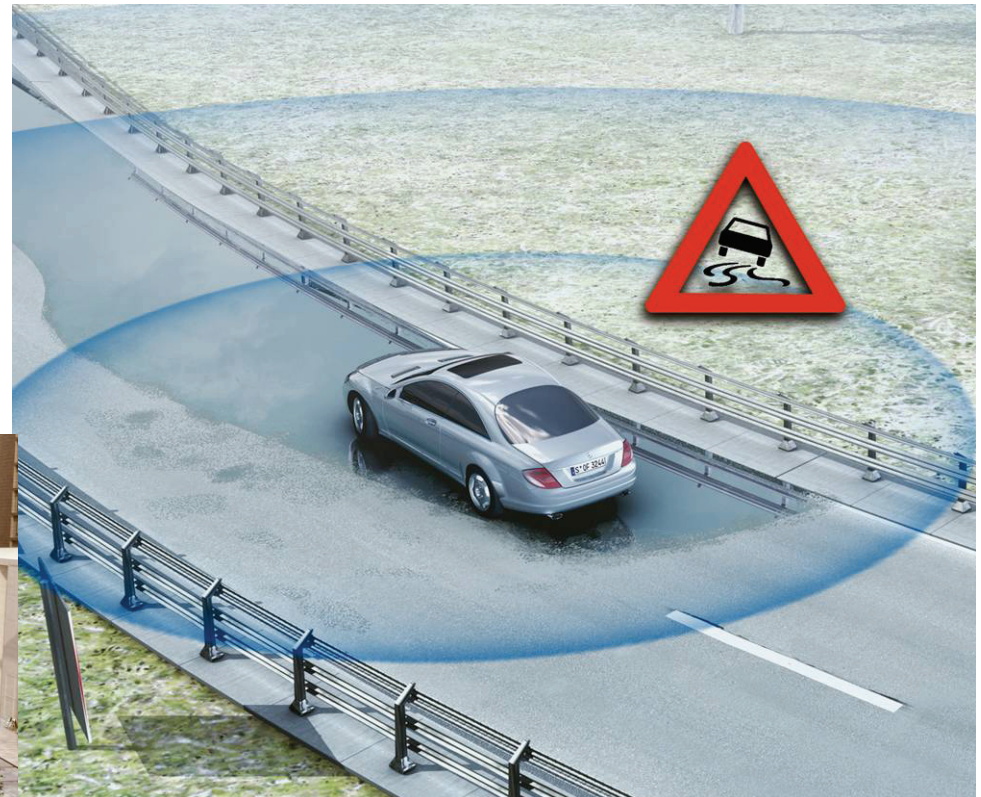
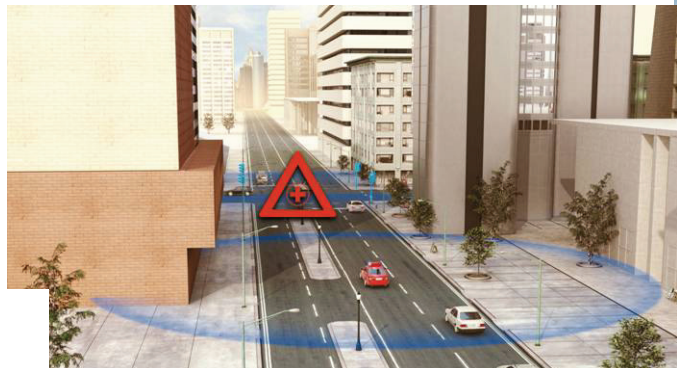
- Vehicle-to-vehicle communication extends the information horizon beyond the range of sensors and the driver's range of vision
 - Data transferred by wireless LAN technology



Information horizon	Traffic information
Telematics	Wide projection
Complex sensors + telematics	Local projection
Simple sensors	Local

Car-to-Car communication: exchange of information between cars

- Principle of "decentralised danger warning":
 - Vehicles which detect dangerous situations transmit warnings to other cars
 - Warning messages are forwarded from one vehicle to another
- "Cooperative Awareness":
 - Exchange of information including traffic signs, traffic lights etc.
 - Warning if emergency vehicles are nearby

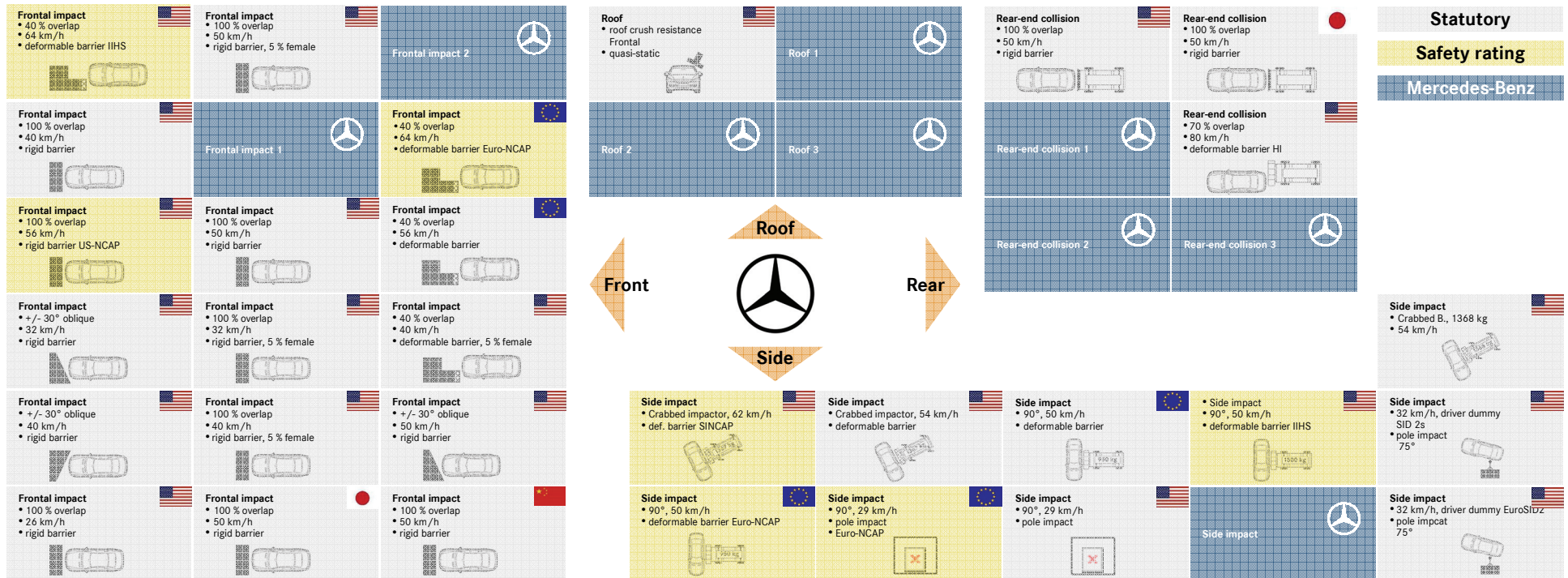


Car-to-Car communication: enhanced safety in many situations

- **For example black ice or fog:**
 - Cars transmit danger warning automatically
 - Drivers in the nearby area can react immediately and avoid accidents

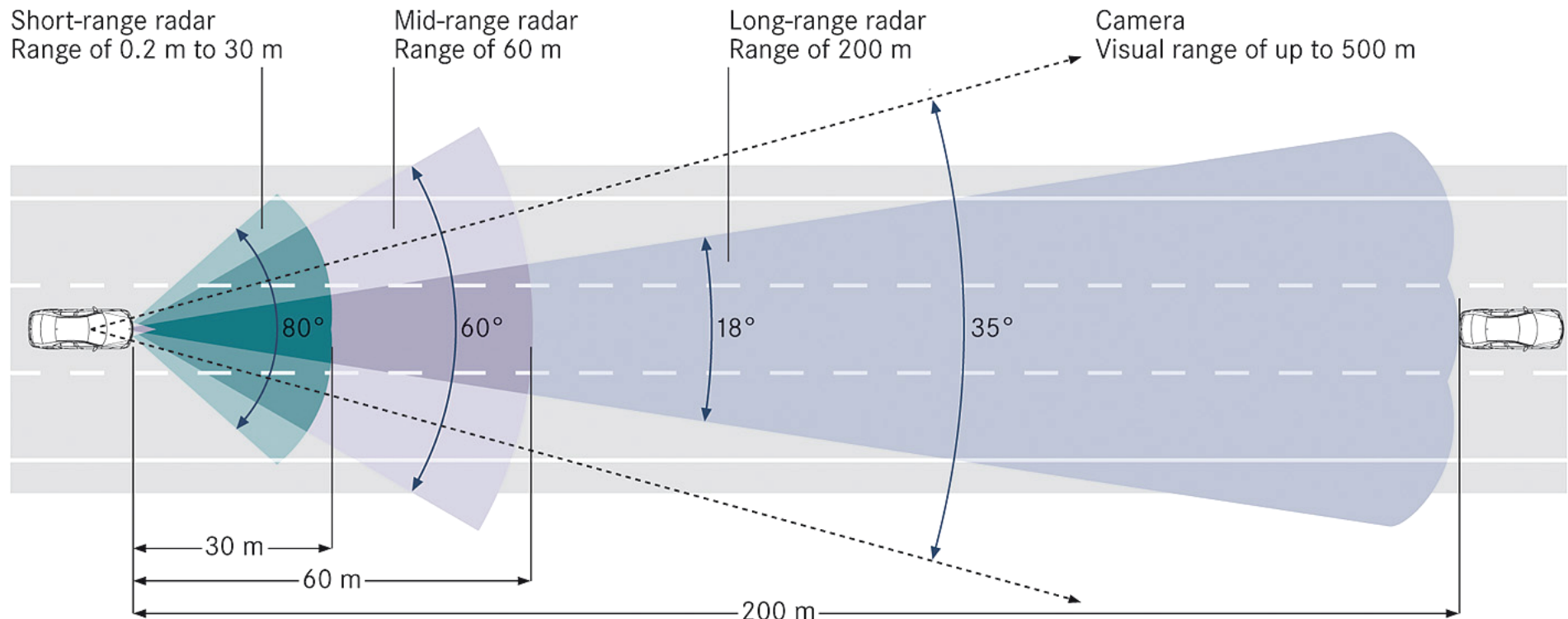


Crash Test Programme at Mercedes-Benz



Sensors: Looking ahead with radar and cameras

- Range of long-distance radar increased to 200 metres
- Camera with a detection range of up to 500 metres



Mercedes assistance systems: from Brake Assist to autonomous hard braking

- Ongoing further development of the assistance systems to prevent rear-end collisions and/or to reduce accident severity

1996

Brake Assist (BAS) Activated after reflex braking by driver



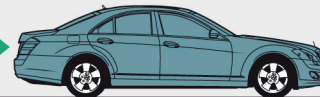
Full braking assistance
+ PRE-SAFE® activation (since 2002)



2005

Brake Assist PLUS (BAS PLUS) Activated when the driver brakes if there is a collision risk

Visual and
audible warning



Braking assistance in accordance with the
current situation + PRE-SAFE® activation



2006

PRE-SAFE® brake

Activated if the driver does not react



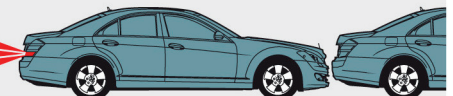
Autonomous partial braking
+ PRE-SAFE® activation



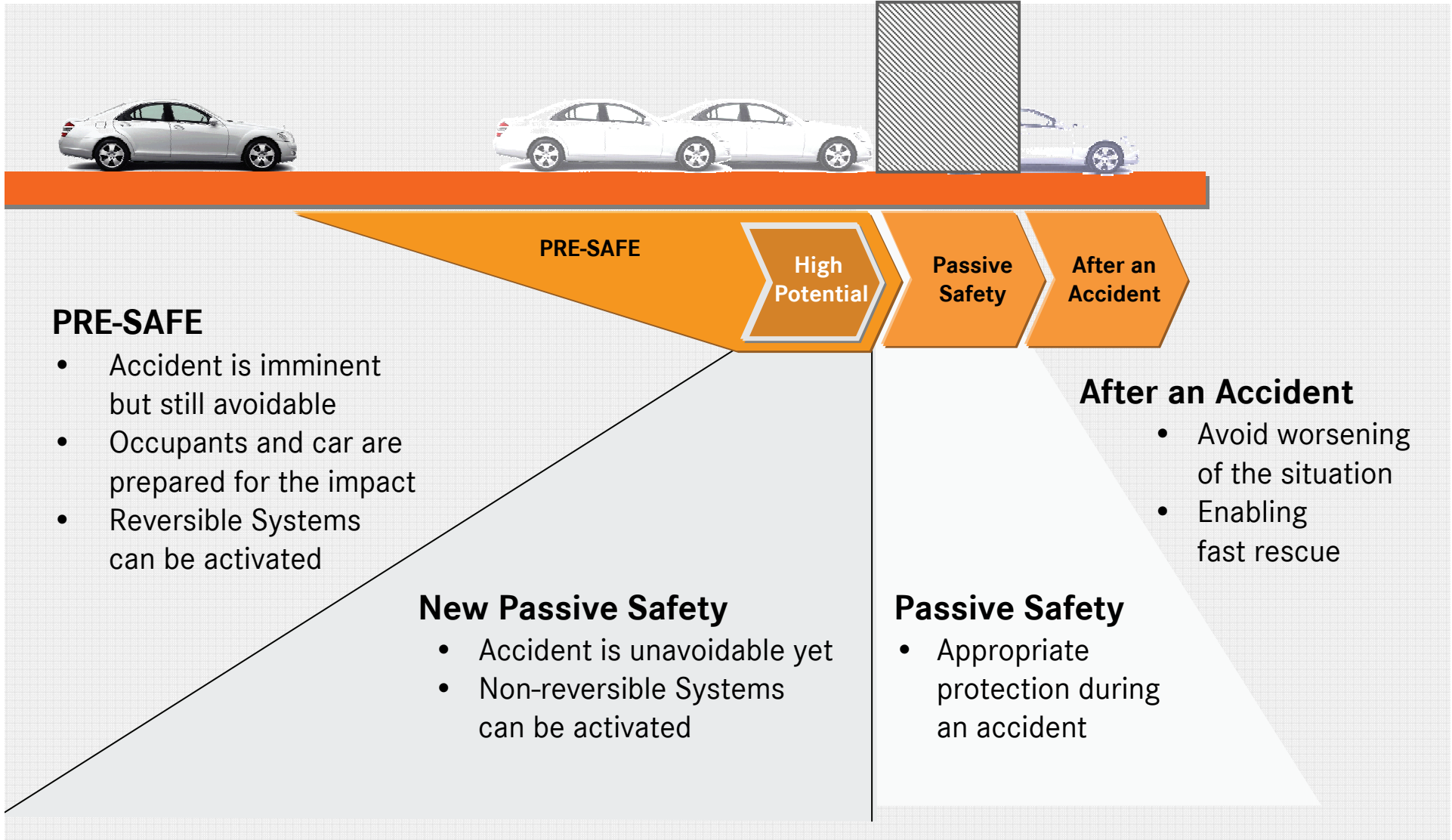
2009

PRE-SAFE® brake stage 2 Activation immediately before impact

Autonomous hard braking



New Passive Safety: High Potential of Protection



Driver-fitness safety: active safety requires human-centered approach



- Mercedes' top priority here is accident avoidance
- Accident risk also affected by driver's physical and mental condition
- Like driving safety, operating safety and perceptual safety, driver-fitness safety is a key aspect of active safety

Active safety

Driving safety

Axles, brakes, steering, control systems

Operating safety

Controls, operating systems, instruments, displays

Perceptual safety

Headlamps, tail lights, windows, rear-view mirrors

Driver-fitness safety

Seats, air conditioning, low noise, assistance systems

Driver-fitness safety: Perfect interplay between man and machine



Driver-fitness safety ...

- ... ensures a good mental and physical state of the driver.
- ... includes all technical measures designed to reduce stress on the driver and make driving easier in a logical manner.
- ... does not only involve physical fitness and performance but also includes mental factors that are also important to a driver's preparedness and ability to react.

Driver-fitness safety: four model generations of measurable progress

- **Heart rate** as an example of a strain factor:
 - Up to eight percent lower in current S-Class than in S-Class of 1979

