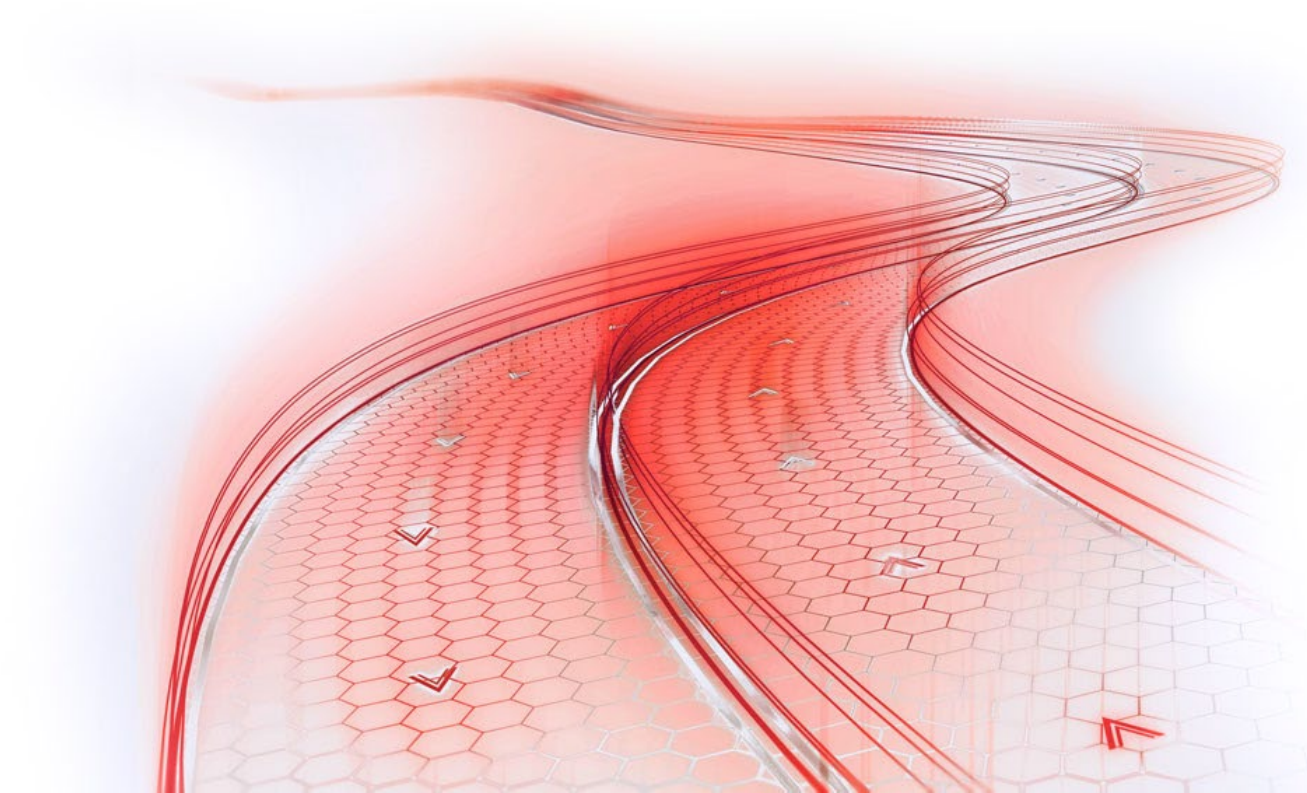




NHTSA NPRM SBR

October 26th, 2023

NHTSA, Washington DC



Our Automotive Solutions

BodySense™
Disables the airbag for empty seats and children in child seats

Seat Belt Reminder Sensor – SBR
Front



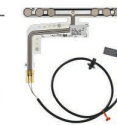
VitaSense™
Addresses vehicular heatstroke



Hands Off Detection - HOD
Detection of driver's hands on/off the steering wheel

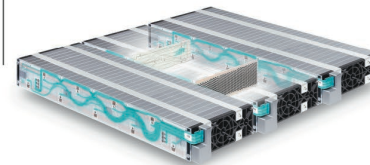
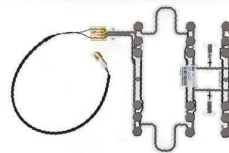


LiDAS™
Life Detection Assistance System



Seat Belt Reminder Sensor – SBR
Rear

Driver Presence Detection - DPD



Battery Management Components

NHTSA NPRM SBR Update proposal

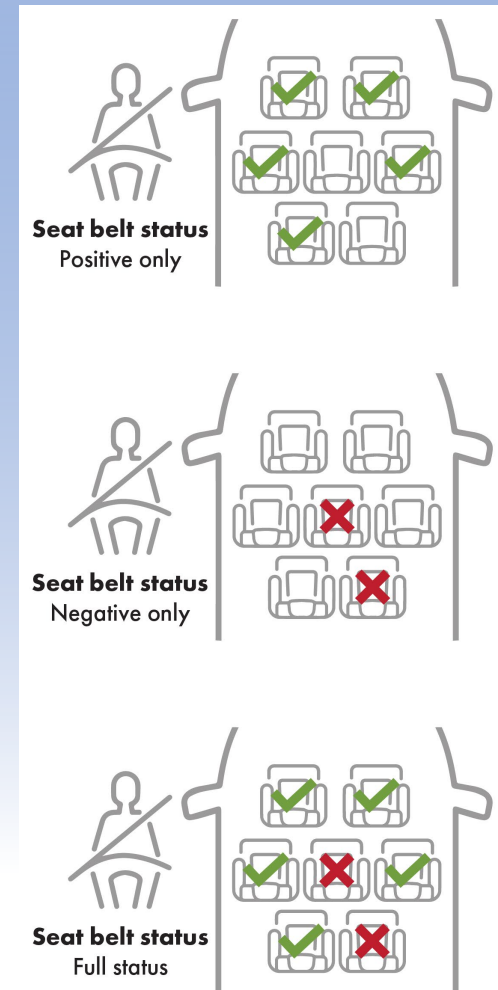
- On September 07th 2023, NHTSA has published a regulatory proposal in the Federal Register to update and upgrade the requirements for Seat Belt Reminder systems, docket nr. NHTSA-2023-0032 ([Regulations.gov](https://www.regulations.gov))
 - Comment period until November 6th
- 3 key aspects:
 - Extend the required warning duration for the driver SBR
 - Legally required audible warning today is only 4-8 seconds (visual: 60 seconds)
 - Audiovisual warning at start of journey and when unbuckling (unlimited duration)
 - Require SBR warning for the front passenger seat (96.6% of MY 2022 already have SBR function)
 - Audiovisual warning at start of journey and when unbuckling (unlimited duration)
 - Require SBR warning for the rear passenger seats (46.9% of MY 2022 already have SBR function)
 - Visual information to driver at start of journey and audiovisual warning when unbuckling
- Roughly a similar approach as in today's UN R16, but nevertheless with some important deviations!

Front Row Seats



Rear Seats

- NPRM differentiates three different types of visual belt status information
 - Positive only (belts in use)
 - Negative only (belts not in use)
 - Full status (belts in use and belts not in use)
- For "positive only" systems, only belt status monitoring is required
- For "negative only" or "full status" systems, NHTSA proposes to require occupant detection in addition
 - Motivation: for empty seats, the driver could be annoyed by getting the "negative" information.
 - Occupant detection allows to suppress the "negative" information if the seat is empty, and the driver only gets the "negative" information for an unbelted occupied seat
- UN R16 allows any kind of warning and only mandates belt status monitoring, typically used for "positive only" systems
 - Various NCAPs give incentives for Advanced rear seat SBR with occupant detection



NPRM Wording on Rear Seat Occupant Detection (page 61694)

Occupant Detection Requirements

Occupant Detection Approaches Currently Used for Rear Seat SBR Systems



Rear Seat Occupant Detection Sensors



Current Rear Seat Occupant Detection Availability in US and Other Markets

Impact on SBR Fitment

Benefits of Adding Age Range 6 to 10 Years Old for Rear Seats?

Test Procedure

IEE Comments on Other NPRM Proposals

Effective Dates

Summary and Conclusions

Addendum with additional comments and for Q&A discussions

Comments on NPRM Statements

Comments on NPRM Statements

Comments on NPRM Statements

Comments on NPRM Statements

Other Comments

Share of Unrestrained Occupants Among Fatalities

Child Seat Characteristics

SBR Warning Overview

- Differences NHTSA NPRM vs. UN R16

		NHTSA NPRM	UN R16
Driver	start of journey	Audiovisual: indefinite	Audiovisual ≥ 30 sec
	unbuckling		
Front passenger (5% female)	start of journey		
	unbuckling		
Rear seats	start of journey	Visual ≥ 60 sec	Visual ≥ 60 sec
		Belt status detection: "positive only" info	Belt status detection: any warning info Presence detection optional (≥ 5%-female)
		Belt status and presence detection (≥ 6-year-old): "negative only" and "full status" info	
	unbuckling	Audiovisual ≥ 30 sec	Audiovisual ≥ 30 sec

Advanced Seat Belt Reminders – Rear Seats are Next!

Euro NCAP SBR Fitment Statistics

Advanced Rear Seat SBR Worldwide

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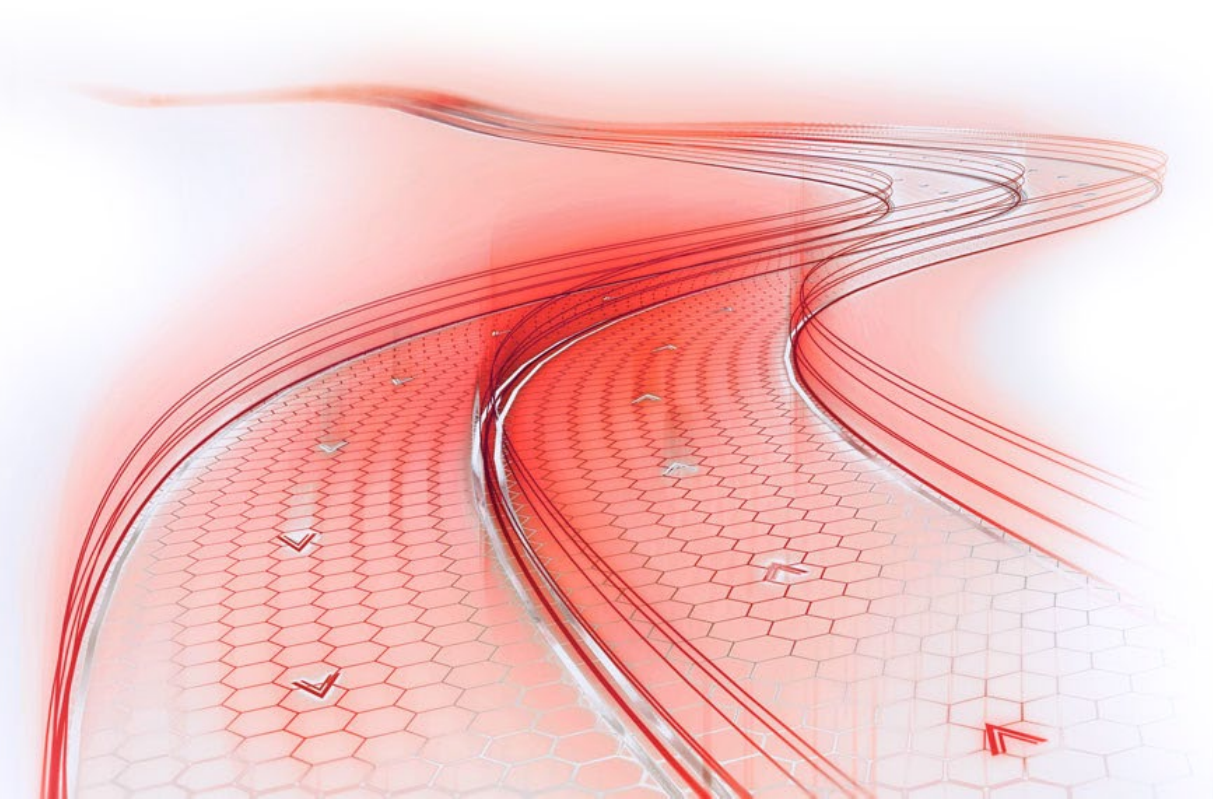
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Thank you for your attention!

