Bitte decken Sie die schraffierte Fläche mit einem Bild ab.

Please cover the shaded area with a picture.

(24,4 x 13,2 cm)
Upcoming Regulations and Standards
Motivation for Regulation is to Ensure Road Safety

Cybersecurity

Lawmakers:
UNECE Regulations

R.155 - UN Regulation on Cybersecurity

Industry Solutions:
ISO Standardization

ISO/SAE 21434 Road vehicles – Cybersecurity Engineering

SW Update
Upcoming UNECE Regulation on Cybersecurity
Accelerate Automotive Cybersecurity in the Industry

Vehicle Categories
Cybersecurity Management Systems
Vehicle Type
Adoption 06/2020
In Force 01/2021
Threats and Mitigations
Affected Markets

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UN Regulation on Type Approval with regard to Cybersecurity

Requirements on CSMS and Vehicle Type

Goals

Organizational structure and processes

Design of vehicle architecture and implement mitigations

UN Regulation on Cybersecurity

› Processes for Development, Production and Operations
› Risk Management
› Sufficient Resources and Staffing
› ISO/SAE 21434 as CSMS Reference Implementation

› Consideration of Cybersecurity for vehicle types
› Comprehensive list of Cybersecurity Threats and Mitigations to be considered

Vehicle Manufactures require a Cyber Security Management System (CSMS) Certificate of Compliance (CoC)

Vehicle Type A
Vehicle Type B

Vehicle Type N
UNECE Requirements on Cybersecurity Management System
ISO/SAE 21434 can Prepare Value-Chain for Compliance
ISO/SAE 21434 Road vehicles – Cybersecurity Engineering
Industry Solution for Cybersecurity Challenges

- Cybersecurity Management
- Development
- Threats and Mitigations
- Incident Management
- Risk Management
- Supply Chain
- Truck Manufacturer
- Tier-1 Supplier
- Tier-2 Supplier
- Certification Bodies
- Regulatory Bodies
- Accademia

Involved Nations

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UNECE Requirements on Cybersecurity for Type Approval
ISO/SAE 21434 can Support the Exchange of Documentation

**Regulation**
- Cyber Security Management System (CSMS)
- Certificate of Compliance
- Vehicle Type A
- Vehicle Type B
- Vehicle Type N
- ...  

**Standardization**
- Reference Implementation of a CSMS
- ISO/SAE 21434
- Evidences based on ISO/SAE 21434 Work Products
UNECE Requirements on Cybersecurity for Type Approval
Minimum Required Mitigations for Potential Threats

**Sources**
- ENISA Report „Cybersecurity and Resilience of Smart Cars“
- UK DfT Cybersecurity Principles
- NHTSA Cybersecurity Guideline
- IPA „Approaches for Vehicle Information Security“
- UNECE Cyber security guideline (ITS/AD)

**Threats**
- Description of threats
- Examples of vulnerabilities or attack method

**Mitigations to Threats (in-Vehicle)**
- Vehicle Communication Channels
- Update Process
- Unintended human actions
- External connectivity
- Targets/Motivation of attack
- Data loss
- Physical Manipulation

**Example**
Vehicle shall verify the authenticity of a message it receives.

**Mitigations to Threats (Out-Vehicle)**
- Back-end servers
- Unintended human actions
- Physical loss

**Example**
Server shall sign messages send to the vehicles.

**Example**
Man in the middle attack/session hijacking

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**Upcoming Regulations and Standards for Cybersecurity**

**Timeline**

- **UNECE**
  - Regulation on Cybersecurity in force

- **EU:**
  - Regulation in force for all new vehicle types

- **Japan:**
  - Regulation in Force for all new vehicle registrations

- **2021 Jan**
  - Release of ISO/SAE 21434

- **Q2/2021**

- **2022 Jul**
  - EU: Regulation in force for all new vehicle registrations

- **2024 Jul**

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