



全国汽车标准化技术委员会

National Technical Committee of Auto Standardization

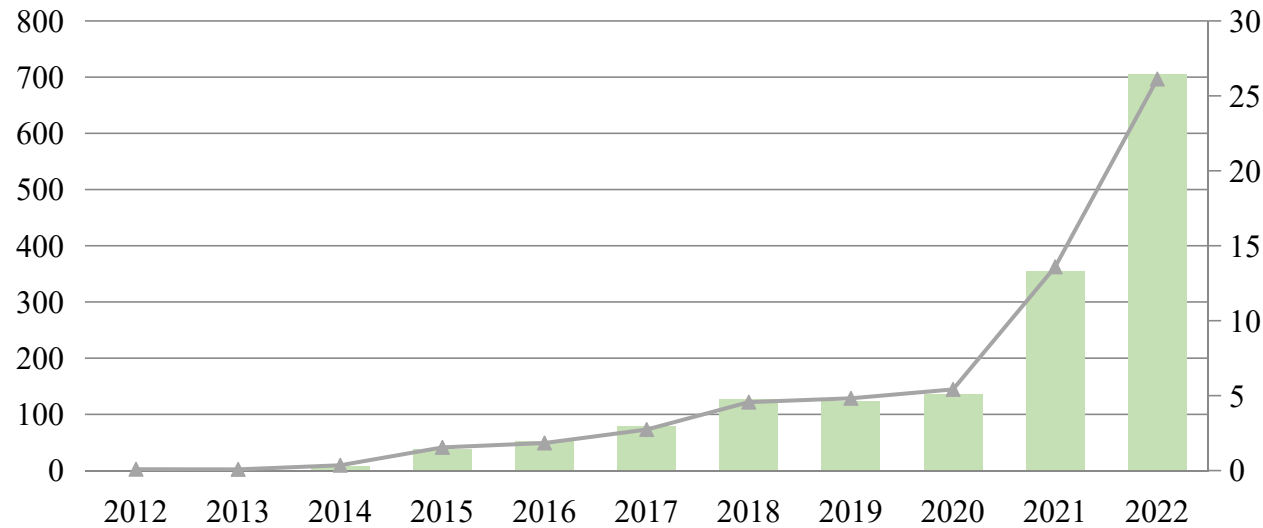
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# **Current Status of Electric Vehicle Charging Communication and Cybersecurity Standards in China**

# Number of electric vehicles and charging facilities in China

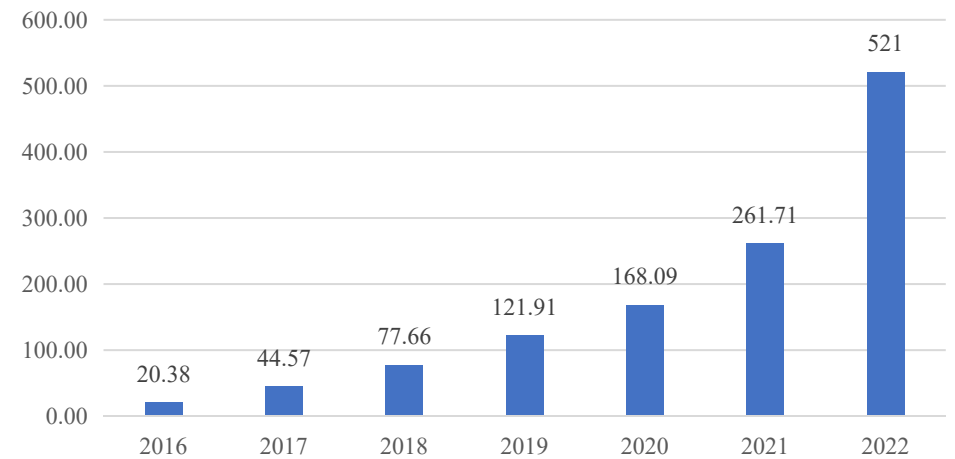
As of July 2023, there were 16.2 million electric vehicles (EV) and 6.928 million electric vehicle charging facilities (EVSE) in China.

(unit: 10000) EVs volume of production and proportion of total production per year (%)



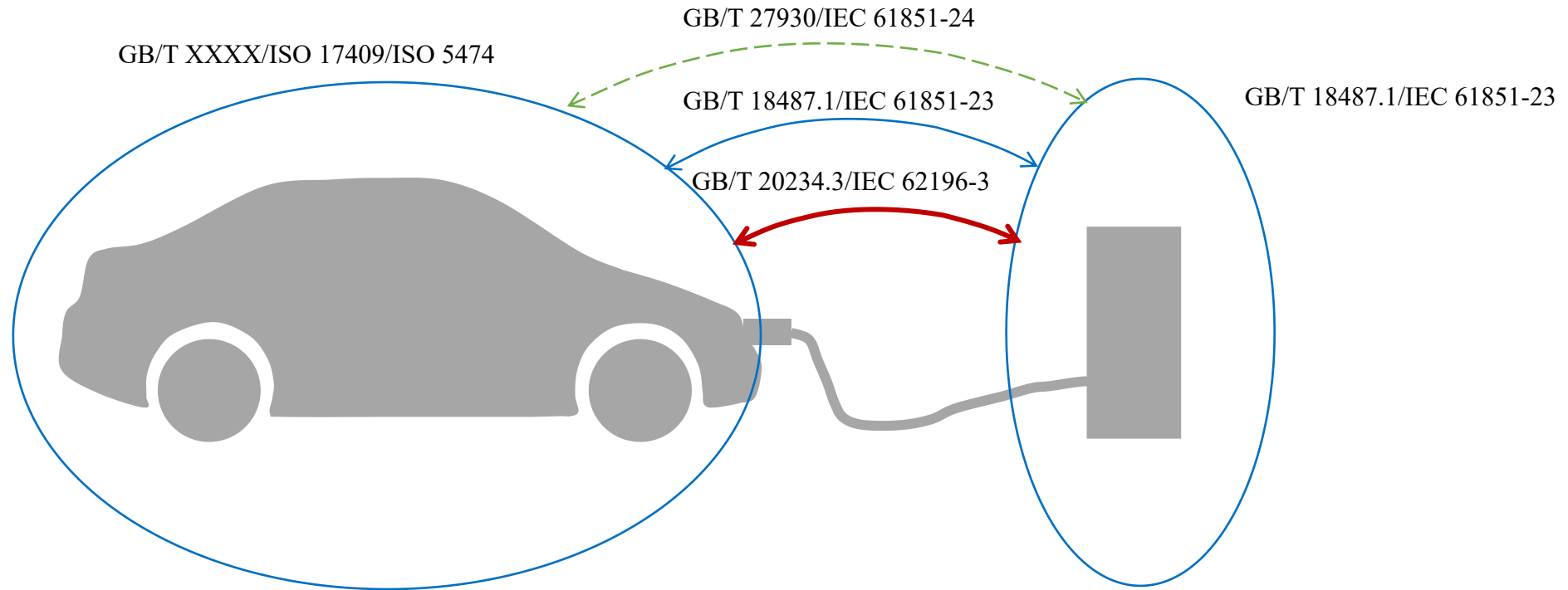
Total number of charging facilities

(unit: 10000)



# China conductive charging system(DC)

- China's DC charging system uses digital communication to transmit information between the electric vehicle and the electric vehicle supply equipment. The AC charging system treats the vehicle as an electrical equipment and does not use digital communication.
- The Chinese DC charging communication protocol is System B in IEC 61851-24.



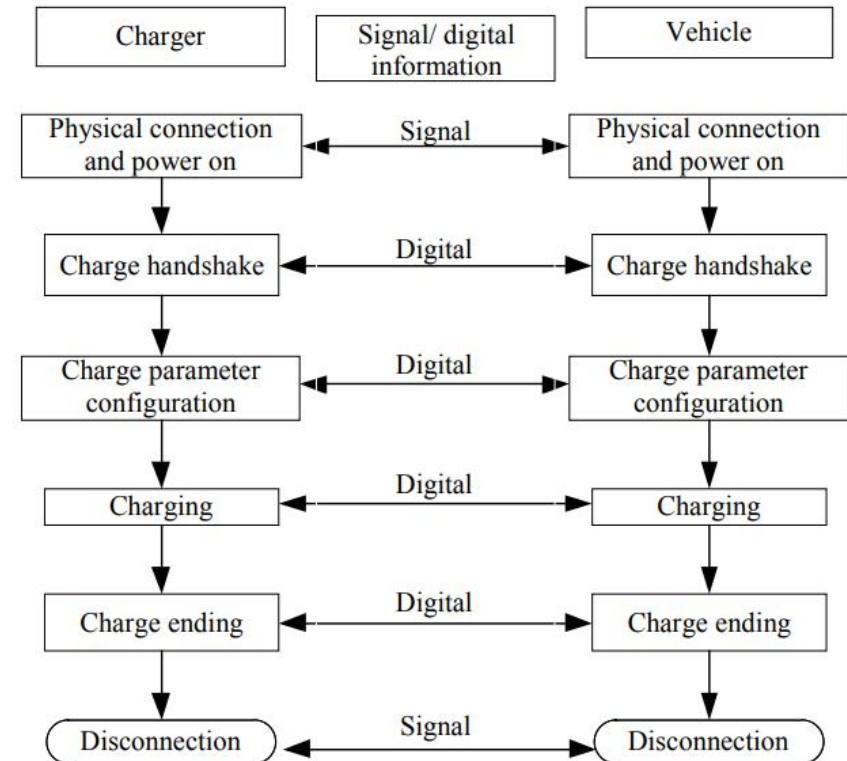
- ←--→ Communication protocol
- ←→ Control pilot function
- ↔ Charging coupler

GB/T 27930-2015 Communication protocols between off-board conductive charger and battery management system for electric vehicle

➤ GB/T 27930-2015 adopts controller area network CAN, with a data transmission rate of 250kbps. The communication process used is serial, completing the current stage and moving on to the next stage.

Communication system	Communication protocol	CAN 2.0 B, ISO 11898-1
	Transmission rate (kbps)	250
	Cycle	10/50/250/500/1 000 ms ± 10 %

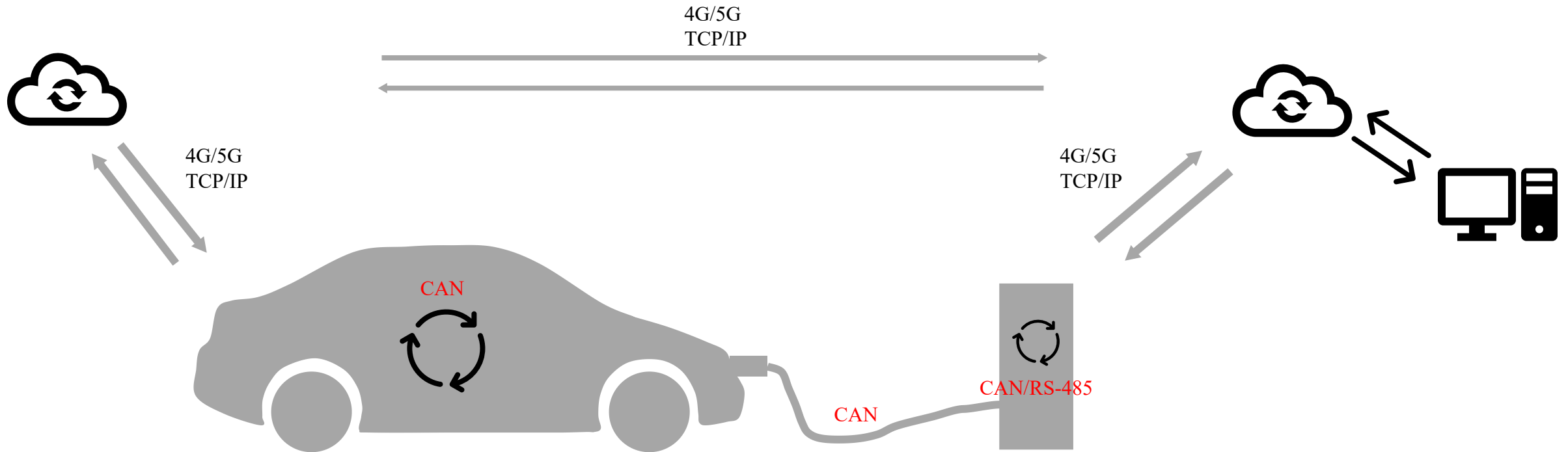
Physical layer and data link layer



Communication sequence diagram

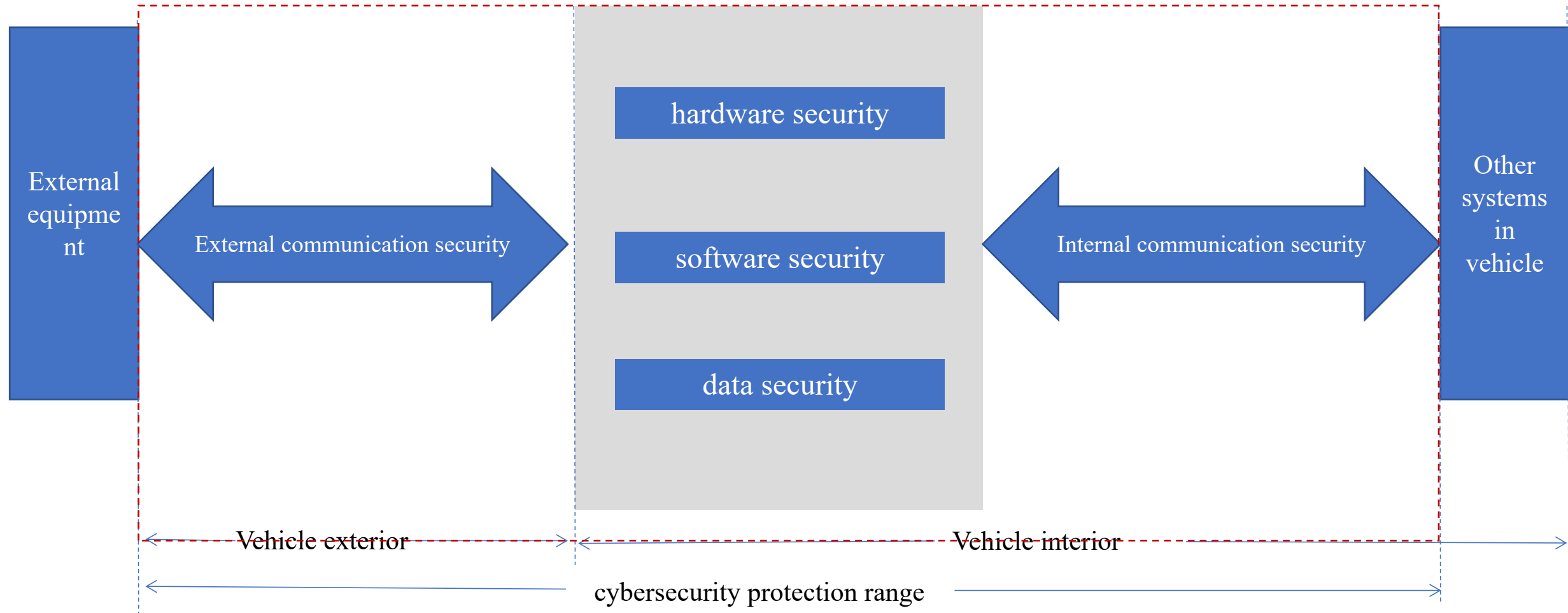
# China conductive charging system(DC)

- At present, CAN communication is commonly used in electric vehicles, charging equipment and charging systems, and a variety of Ethernet communication methods such as wired or wireless can be used between electric vehicles and vehicle enterprise platforms, between charging equipment and facility platforms, and between platforms to achieve reliable and safe transmission of charging information.



# Content of cybersecurity standards for electric vehicles charging

GB/T 41578-2022 'Technical requirements and test methods for cybersecurity of electric vehicle' mainly specifies the hardware security, software security, data security, and communication security of the electric vehicle charging system's interior system



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## Hardware security requirements

Chip packaging

Debug Interface

Bus isolation

## Software security requirements

Secure boot

Security log

## Data security requirements

Integrity

Confidential

## Communication security requirements

Internal communication security

External communication security

Communication connection security

Communication transmission security

access control security



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