

Hydrogen @ HOERBIGER

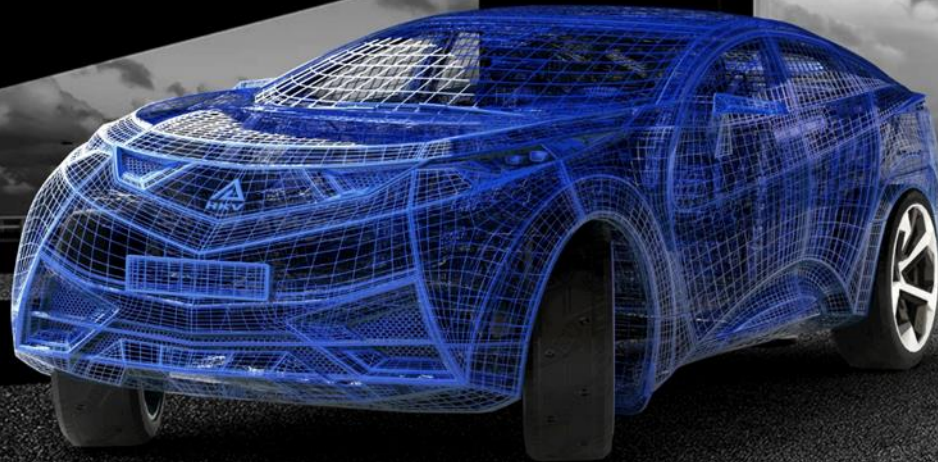


8. MARKTPLATZ ZULIEFERER

Wasserstoff- und Brennstoffzellentechnologie

Sicherheitsgerichtete Kommunikationsschnittstelle

HOERBIGER Elektronik GmbH
June 15th, 2023

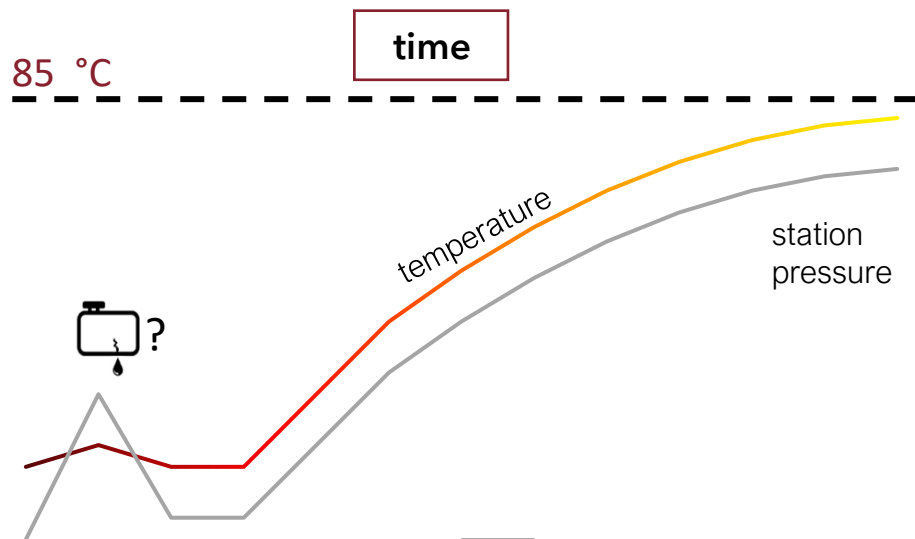




RDI REFUELING DATA INTERFACE

ISSUE

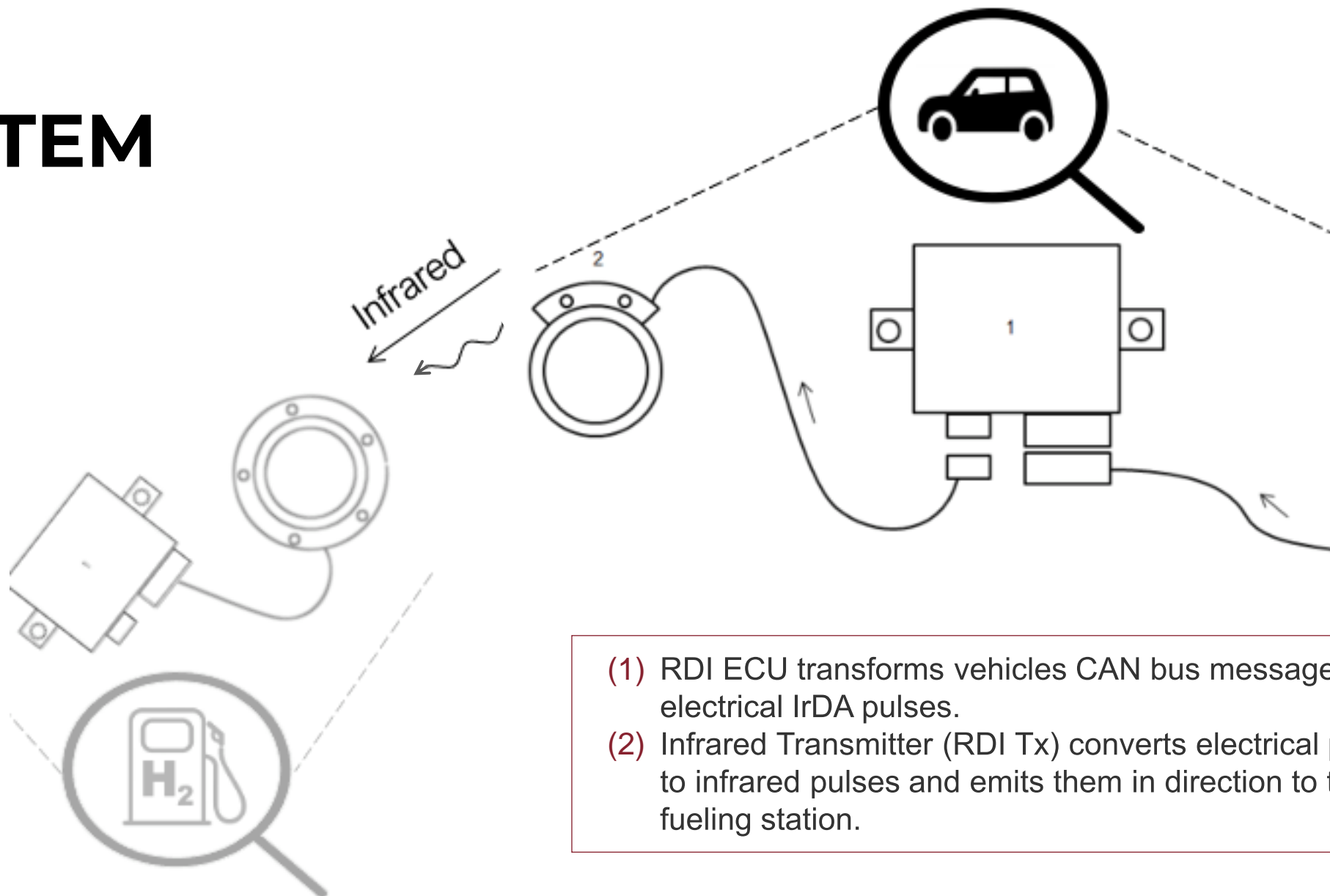
RISING TEMPERATURE



Reduce refueling time up to 90%
State Of Charge ~100%



RDI SYSTEM



- (1) RDI ECU transforms vehicles CAN bus messages to electrical IrDA pulses.
- (2) Infrared Transmitter (RDI Tx) converts electrical pulses to infrared pulses and emits them in direction to the fueling station.



VSCI VEHICLE STATION COMMUNICATION INTERFACE

VSCI

FOCUS AREAS

Identity



Vehicle to Dispenser Pairing

Trust



Two-way Trust

Security



Securing the Connection
to avoid external access

Safety-Critical Communication

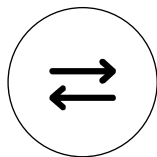


Static, Dynamic & Real-time data

WHY VSCI ?



SAFE COMMUNICATION CHANNEL

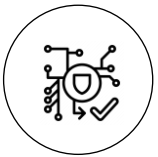


BIDIRECTIONAL COMMUNICATION



FAST REFUELING OF HEAVY-DUTY VEHICLES

HYDROGEN FUELING SAFETY



- NFC H² refueling is a safety critical process
- NFC Refueling must account for risks with its communication



- NFC Risk concept covers standards (ISO 26262 / IEC 61508)
- NFC Four stage process to mitigate risks:
 - 1) Identity
 - 2) Security
 - 3) Trust
 - 4) Safety Critical Communication



- NFC Deliberate approach to safety critical communications



NFC COMMUNICATION



Limited range establishes safety w/ close-proximity comm.

Enable secure and convenient identity verification

Incorporate robust security measures w/ encryption and authentication

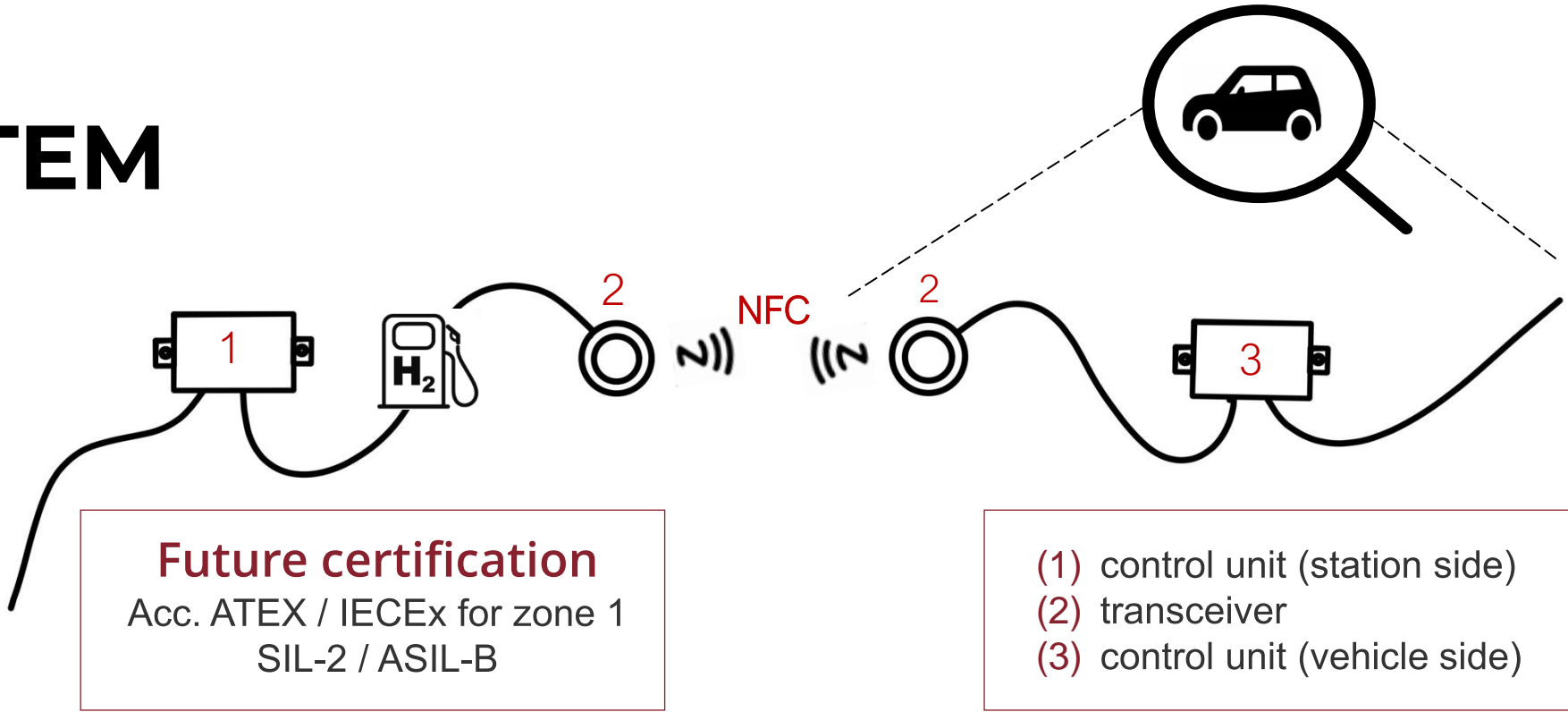
Fosters trust in comm. through secure protocols and authentication mechanism

Interference Mitigation w/ 13.56 MHz frequency range

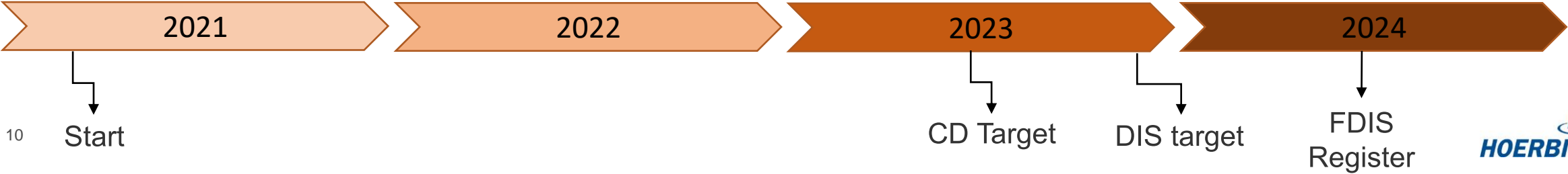
Real Time Data cause of low latency, small data packages, reliable connection and minimal transmission overhead

No maintenance required

VSCI SYSTEM



ISO 19885
schedule



Thank you for your attention

Questions are welcome

Contact



Product Management H2

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