Typical Automotive Harness Topologies

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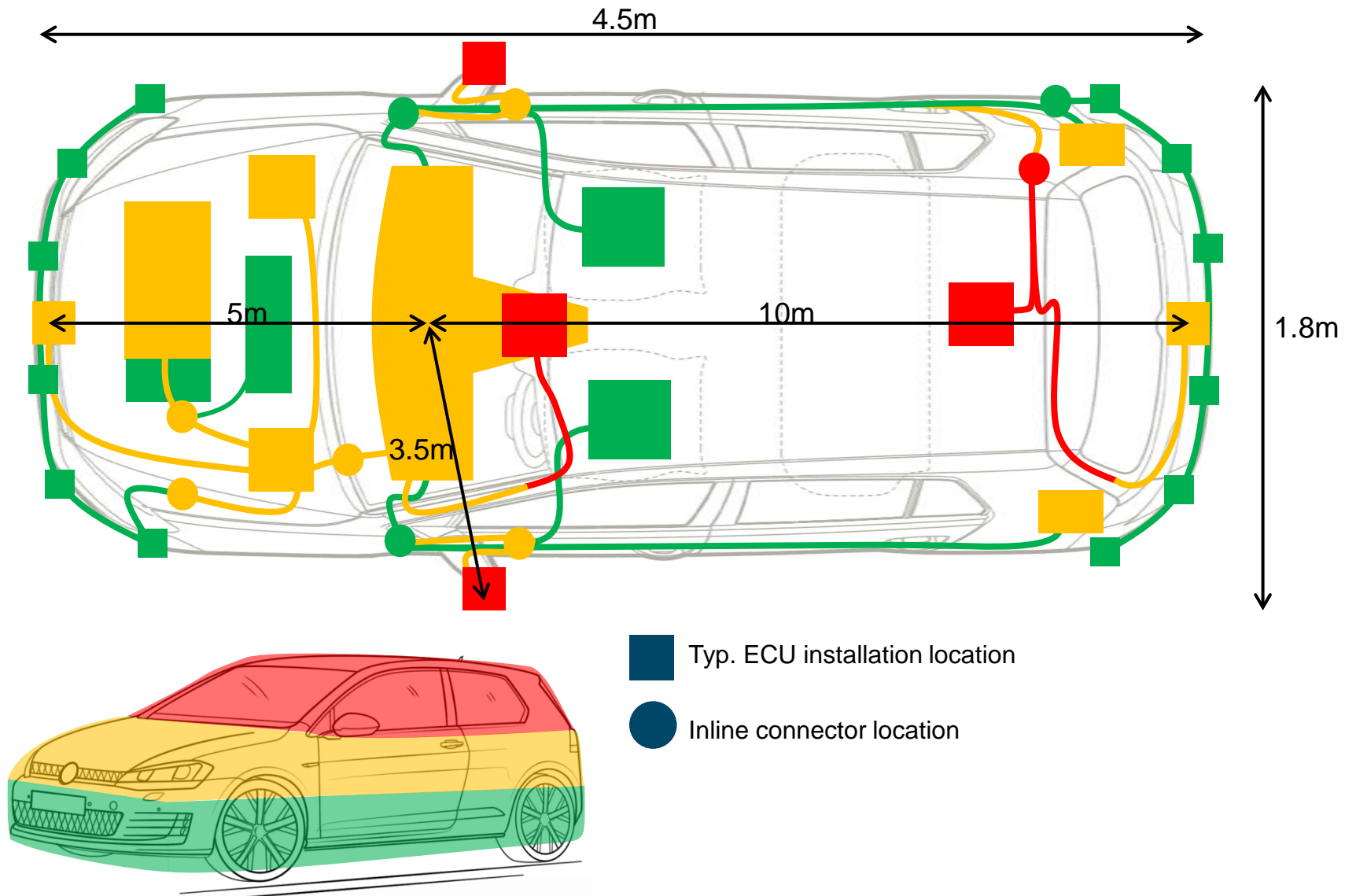
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Agenda

- Goal of the presentation
- Harness Topology for small and compact cars
- Typical antenna position for small and compact cars
- Harness topology for midsize and large passenger limousine sedan / wagon
- Typical antenna positions for midsize and large passenger limousine sedan / wagon
- Harness topology for sports car
- Conclusion

Goal of the presentation

- Understanding where ECUs (Electical Controll Unit = networking node) typically located in some different cars

- Understanding where the cables are, how long they are and how many connectors are in the harness

- The presentation is based on current generation cars which not use 802.3ch

- Future generation of cars might have similar topologies

- Concrete use cases for 802.3 are not shown in the presentation

Harness topology for small and compact size cars

4.5m

5m

10m

3.5m

1.8m

■ Typ. ECU installation location

● Inline connector location

Typical antenna positions for small and compact size cars

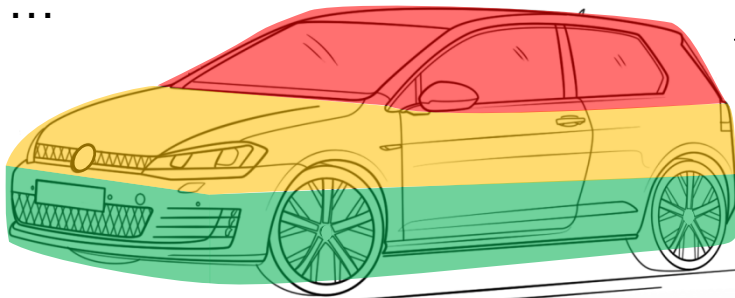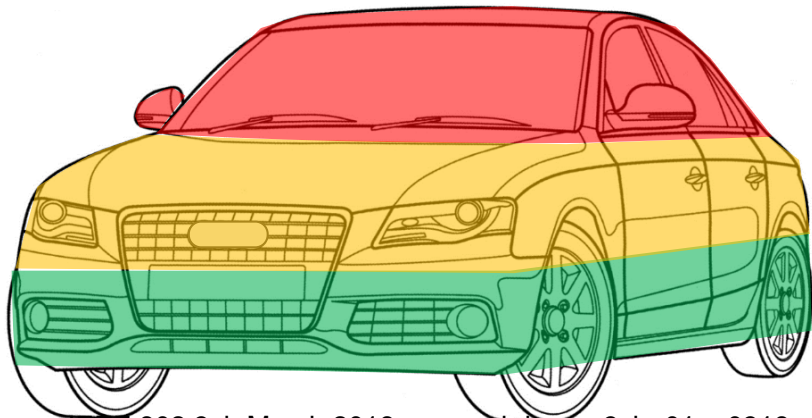Roof antenna for:
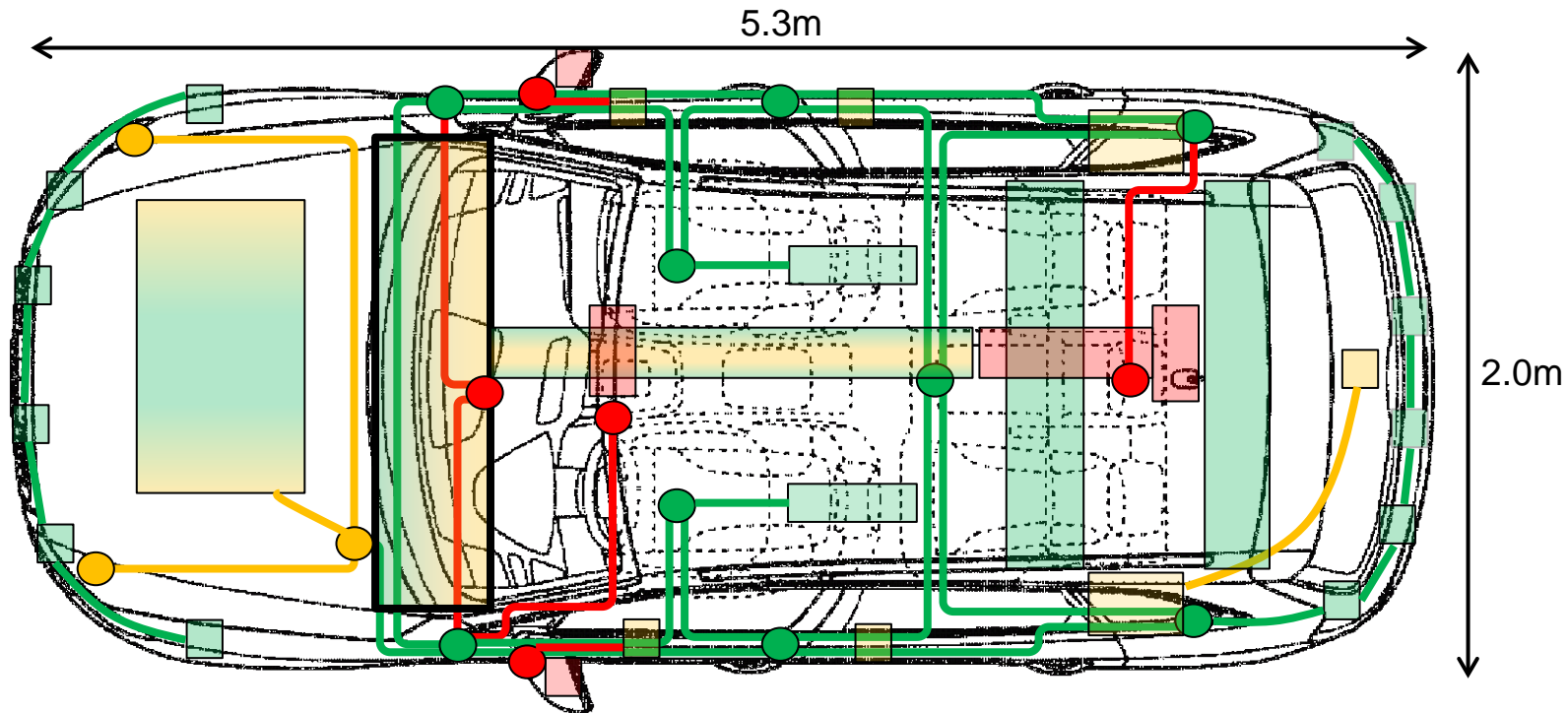
GPS, GSM, UMTS, LTE,
802.11ac, 802.11p
Bluetooth, BT-LE,
Remote Control

…

Rear window antenna for:

FM Radio
AM Radio
DAB+ Radio
TV

…

Harness topology for midsize and large passenger limousine sedan / wagon

5.3m

2.0m

■ Typ. ECU installation location

● Inline connector location

Typical antenna positions for midsize and large passenger limousine sedan / wagon

Roof antenna for:

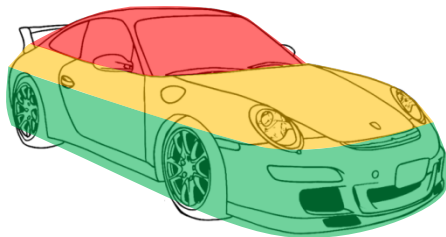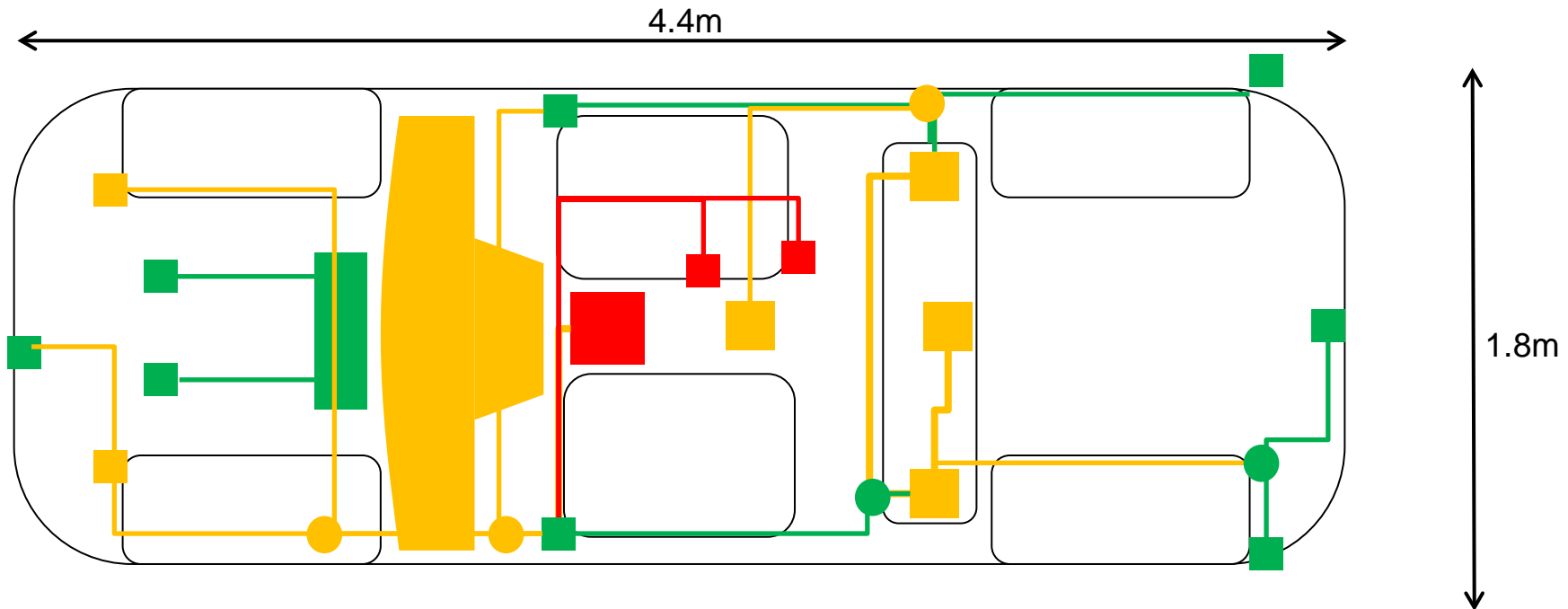GPS, GSM, UMTS, LTE, 802.11ac, 802.11p Bluetooth, BT-LE, Remote Control

…

Rear window, Side window antenna for:

FM Radio
AM Radio
DAB+ Radio
TV

…

Harness topology for sports car

4.4m

1.8m

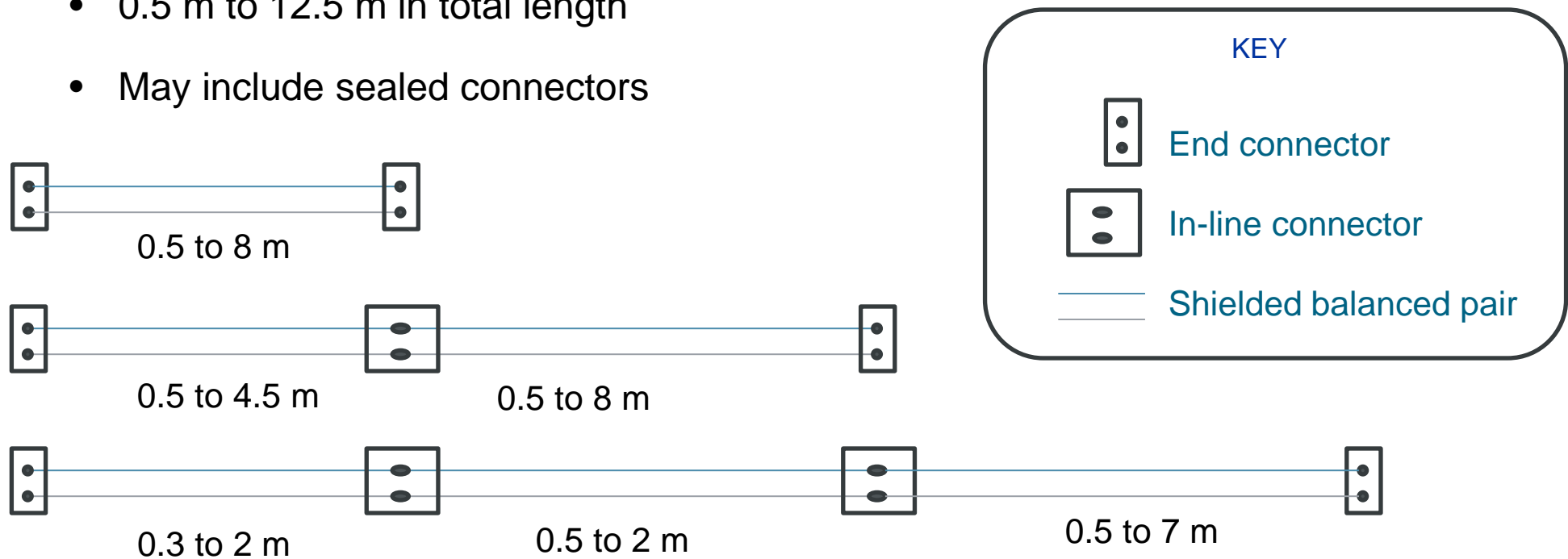■ Typ. ECU installation location

● Inline connector location

Sports cars typically have windshield antennas
for all radio and TV bands

Conclusion

Typical channels are:

- 0, 1 or 2 in-line connections

- 0.5 m to 12.5 m in total length

- May include sealed connectors

KEY

End connector

In-line connector

Shielded balanced pair

0.5 to 8 m

0.5 to 4.5 m

0.5 to 8 m

0.3 to 2 m

0.5 to 2 m

0.5 to 7 m

Thanks!