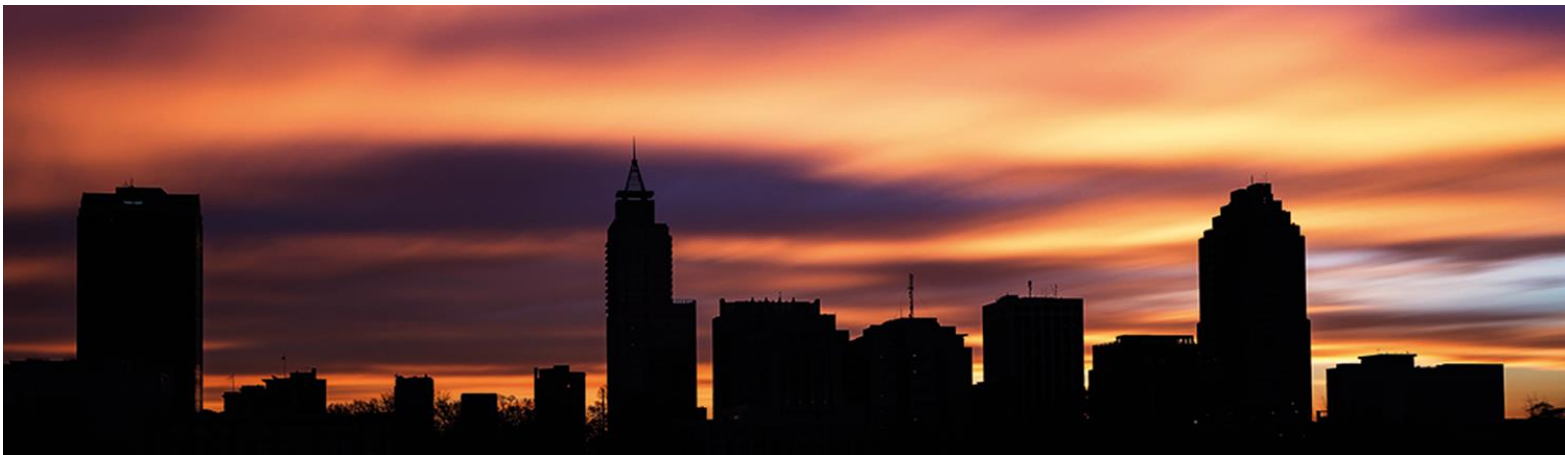


SMMT EMC WG Proposals for R.10-07 Roadmap

UK 7 - VEHICLE RF IMMUNITY TESTING - Autonomous modes

18th February, 2019



Vehicle RF Immunity Test

Today's Testing

- Picture shows today's whole vehicle RF immunity test
 - Shielded chamber
 - Dynamometer
 - Tested with key functional systems operating
- How to extend test for autonomous vehicles?
 - Autonomy relies on multiple complementary sensor technologies (camera/lidar/radar)
 - Sensor data fused and objects created/tracked
 - Plausibility checking; artificial intelligence

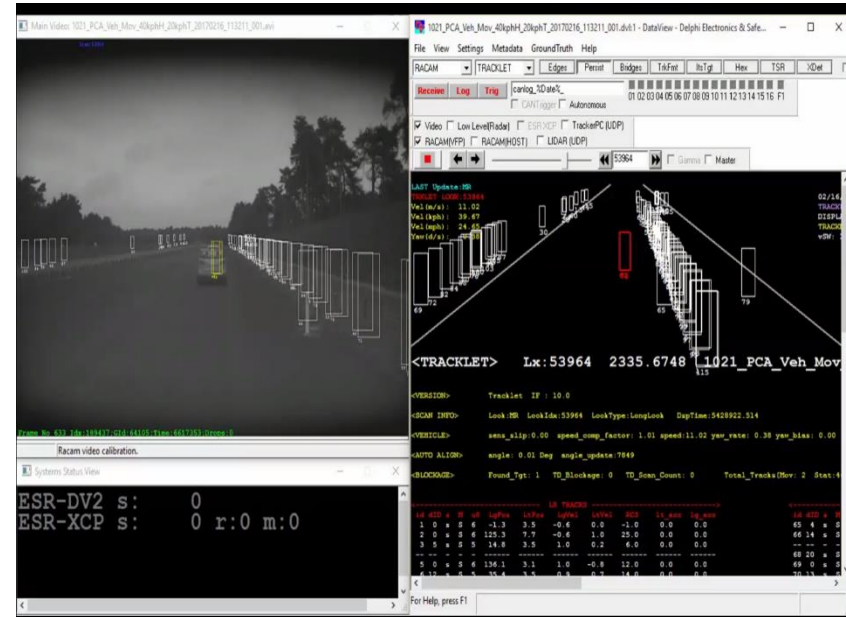


AUTONOMOUS VEHICLE WON'T BE FOOLED INTO
OPERATING IN AN EMC CHAMBER

Vehicle RF Immunity Test

Future Testing – Autonomous sensing mode

- Proposed new testing mode
 - Vehicle in EMC chamber 0 kph wheel speed
 - Various physical objects around vehicle in EMC chamber
 - Monitor object data that is reported to the vehicle from fused sensor data
 - Verify that object data not affected by RF Immunity



Vehicle RF Immunity Test

Future Testing – Autonomous sensing mode

- Autonomous actuation modes
 - Test the primary motion control actuators of the vehicle
 - Cruise control mode – powertrain actuation system
 - ABS tests – braking actuation system
 - These test modes are virtually the same as today's test modes
 - Verify that actuation systems not affected by RF Immunity

Vehicle RF Immunity Test

Summary and Recommendation

- Today's testing won't transfer directly to autonomous vehicles
 - Autonomous vehicle won't be fooled into operating in an EMC chamber
- Recommend that testing for autonomous vehicles is decoupled:
 - Autonomous sensing mode
 - Autonomous actuation modes

Thank you for your attention

The Society of Motor Manufacturers and Traders Limited

71 Great Peter Street, London SW1P 2BN

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