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Automotive Cybersecurity

Security in the automotive industry has traditionally been related to anti-theft measures, however increasing connectivity and automation of modern vehicles means that security needs to encompass protecting external interfaces and on-board electrical and electronic systems against attack or misuse.

It is a widely held view that if a system cannot be shown to be secure then it cannot be considered safe. Industry approaches to automotive cybersecurity such as SAE J3061 promote a design-led, 'defence in depth' approach to engineer security into systems from the outset.

An important aspect of cybersecurity is to assess vehicles for vulnerabilities, both to monitor and improve the security of existing products as well as to provide an input to the design of new products.

Assessments need to be conducted in a trusted and ethical fashion using controlled and protected environments.

Automotive Cybersecurity Services

We provide our customers with automotive cybersecurity services covering the full product development lifecycle. These can be tailored as required and can be provided either as standalone cybersecurity engineering packages or integrated with our functional safety and systems engineering services.

HORIBA MIRA are actively involved in the development of international standards on automotive cybersecurity, providing experts to ISO TC22/SC32/WG11 and the ISO/SAE joint working group on cybersecurity engineering.

Our automotive cybersecurity services include:

- Technical seminars and training courses
- Review of automotive cybersecurity processes, templates and tools with recommendations for improvement based on the latest industry best practices (e.g. SAE J3061)
- Engineering consultancy, including implementation of recommended practices of J3061
- 'Concept phase' activities, including generation of feature definition, threat analysis and risk assessment, definition of cybersecurity goals and cybersecurity concept development
- 'Product development' activities, including threat modelling, vulnerability analysis (for example attack trees) and technical cybersecurity concept development
- Support verification activities, for example conducting cybersecurity design reviews
- Generation of cybersecurity assurance cases
- Cybersecurity validation
- Vehicle and component level vulnerability analysis
- Security analysis and penetration testing, covering wireless interfaces, wired / physical interfaces, in-vehicle networks, ECU hardware and software

Our cybersecurity services are underpinned by our research and development into the evolving automotive threat landscape, vulnerability analysis tools and techniques and penetration testing methods.

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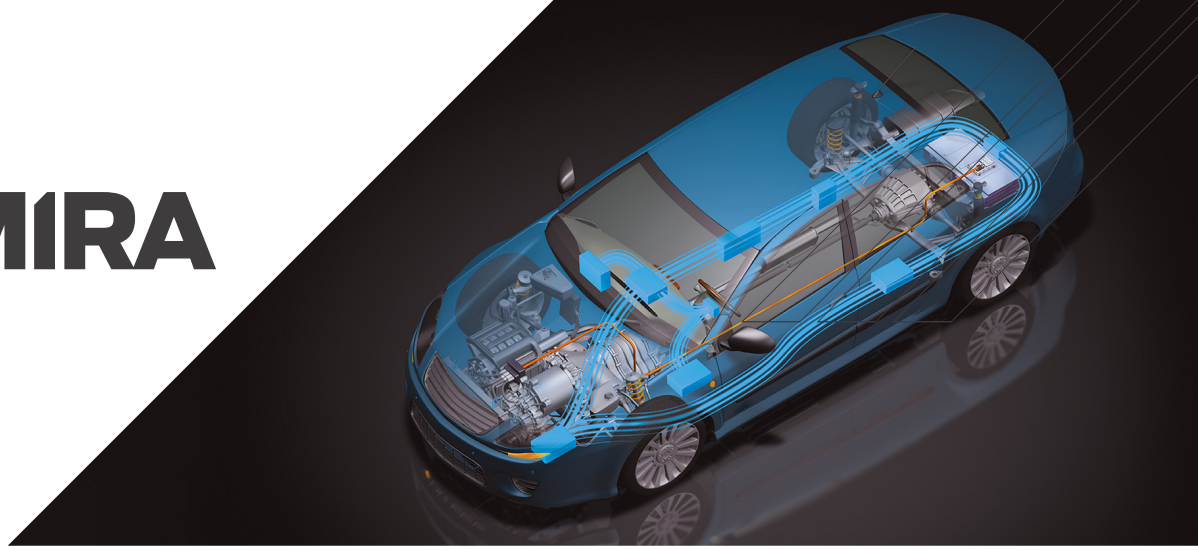

Proving Ground

We provide independent functional safety and automotive cybersecurity testing support to customers within our secure Proving Ground.

- Safe proving ground environment in which to replicate real-world situations away from the public highway
- Ability to conduct ‘real-life’ tests in a dynamic environment
- Communications facilities including private cellular networks, GPS denial of service

Automotive Cybersecurity Testing Facilities

- Screened rooms and workshops to conduct controlled tests on wireless interfaces
- Dedicated penetration testing laboratory equipped with state-of-the-art hardware and software security analysis tools

Training Facilities & Technical Seminars

We offer a range of functional safety, automotive cybersecurity and systems engineering courses tailored to support the needs of our customers.

More information about our range of training courses and instructions on how to book can be found on our website:

https://shop.horiba-mira.com/training-courses

Dr. David Ward

Senior Technical Manager of Functional Safety, is the UK Principal Expert in the ISO working group that develops ISO 26262.

Dr. Ward is also part of the working group responsible for the development of SAE J3061–Cybersecurity Guidebook for Cyber-Physical Vehicle Systems and the joint ISO/SAE working group developing the new cybersecurity standard.

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