

Sector Brief: Automotive



ISO 26262 ISO 21434 A-SPICE

+ Coding Standards: MISRA CERT CWE

The ISO 26262:2018 Road Vehicles – Functional Safety standard Part 6 governs how software for Automotive Safety Integrity Levels A-D is developed and verified.

Part 8 section 11 “Confidence in the use of software tools” defines criteria for setting tool confidence levels and the means of tool qualification.

CANTATA

CANTATA HYBRID
Certification Engine for Google Tests

QAMISRA

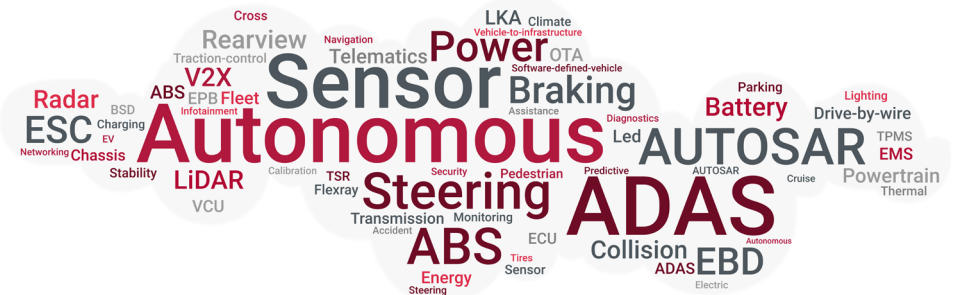


Cantata (including Cantata Hybrid) and QA-MISRA have been certified by SGS-TÜV Saar GmbH against ISO 26262 Part 8 as suitable for the verification of safety-related software up to the highest level (ASIL D).

Tool Certification kits for each are available free of charge.

Automotive applications

QA Systems software verification tools are used across all automotive software domains.



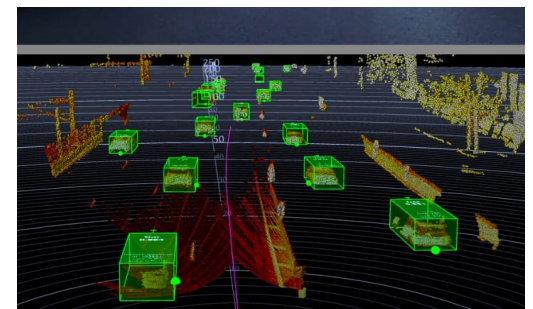
Automotive application software

“Cantata has proved successful and increased unit testing efficiency. Cantata from QA Systems offers an ideal solution for the creation and execution of unit and integration tests, including coverage analysis.”

Senior Expert - ASW Test Strategist,
Robert Bosch Engineering GmbH

“Wrapping and custom code insertion capabilities in Cantata were a major benefit in achieving full code coverage of the harder to reach areas of defensive programming.”

Director of LiDAR Software,
Innoviz Technologies



LiDAR sensor onboard an autonomous vehicle

“Cantata provided all the necessary functionality for testing software modules, including stubbing and wrapping for isolated class testing, ensuring 100% code coverage with entry-point and condition coverage. This thorough testing was vital for system reliability and safety. Additionally, Cantata enabled repeatable, self-documenting tests, simplifying performance verification throughout the project and ensuring compliance with the safety standards.”

UK Highways Agency, Case Study.

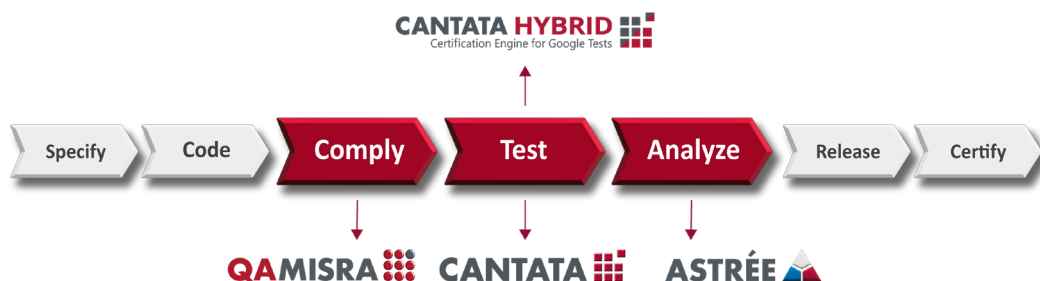


Network ATM Supervisory Subsystem (NASS) by the Highways Agency

Standard Compliant Verification

Automotive
Customers include:

QA Systems static analysis & software testing tools support standard compliant verification in linear flow as below:



QA Systems tools can be used for standard compliant verification to the automotive standards (below) and coding standards: MISRA, CERT and CWE.

ISO 26262

The ISO 26262:2018 Road vehicles – Functional safety, is a risk-based safety standard governing Automotive Safety Integrity Levels (ASILs) from A up to D. The verification techniques defined within the standard are highly reliant on automation tools qualified or certified as suitable for use (QA Systems tools are). QA Systems tools Cantata (for unit and integration testing) and QA-MISRA (for MISRA coding standards compliant static analysis) address Part 6 Product development at the software level, in sections 5 to 11 and Tables 6 to 15. The Cantata ISO 26262 Standard Briefing and QA-MISRA Safety Manual detail how these QA Systems tools can satisfy the objectives of the standard.

ISO 21434

The ISO 21434:2021 Road vehicles – Cybersecurity engineering, specifies engineering requirements for cybersecurity risk management of electrical and electronic systems in road vehicles. QA-MISRA static analysis enforcement of the CERT secure coding practices & Common Weakness Enumeration (CWE) security vulnerability are valuable for complying with ISO 21434.

ASPICE

The **A**utomotive **S**oftware **P**rocess **I**mprovement and **C**apability **D**etermination (v4.0), provides both a process reference and assessment model for the maturity level of development processes ranging from levels 0 up to 5 and degrees of achievement attributes from 'Not' to 'Fully'. QA Systems tools are particularly focussed on supporting Software Development SWE.4 & SWE.5, along with the supporting (SUP) and management (MAN) processes.



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Bosch Engineering GmbH



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