



DO-178C DO-278A

+ Coding Standards: MISRA CERT CWE

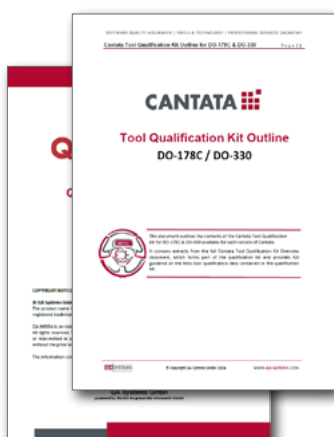
The RTCA standards: DO-178C 'Software Considerations in Airborne Systems and Equipment Certification' and DO-278A 'Guidelines for Communication, Navigation, Surveillance, and Air Traffic Management (CNS/ATM) Systems Software Integrity Assurance' govern how software in Design Assurance Levels E up to A are developed and verified.

DO-178C & DO-278A section 12.2.3 refers to DO-330 for the Tool Qualification Process.

CANTATA

CANTATA HYBRID
Certification Engine for Google Tests

QAMISRA



Cantata (including Cantata Hybrid) and QA-MISRA are qualifiable as TQL-5 tools against DO-330:2011 'Software Tool Qualification Considerations' using DO-178C Qualification kits, available for each tool.

Avionics & Defence applications

QA Systems software verification tools are used accross all avionics and defence domains.



Military Aviation

Aircraft: A400M, C130J, Jaguar, Gripen, EFA, JSF, Apache, NH90

Systems: Digital mapping, Flight Control, Mission Planning, Infra-red Search & Track, Stores Management.



JAS39 Gripen Fighter Aircraft

Civil Aviation

Boeing: SFD, HUD, FADEC

Airbus: Landing gear, Engine controllers, Vibration Monitors



Airbus A380 Aircraft

Defence Systems

Missiles (e.g. Storm Shadow)

Digital Automotive System Control Units for tanks & Armoured vehicles, Submarine acoustic warfare systems.



Storm Shadow



Challenger 2 Tank

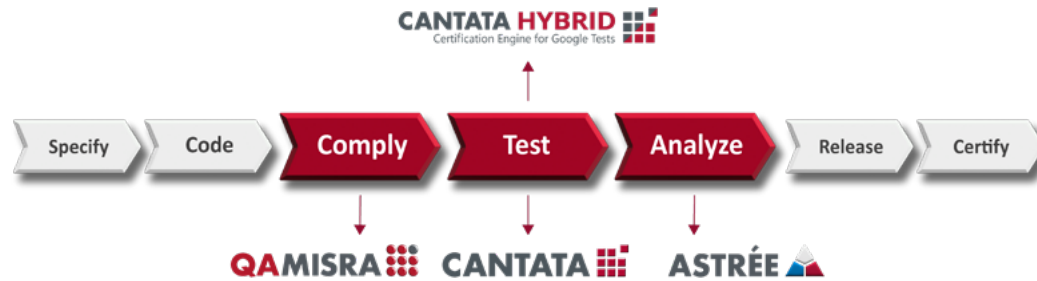
"Cantata allows us to test against requirements in a structured way and gives us the confidence that we have not missed anything!"

Global Tool Manager,
Saab Defence & Security

Standard Compliant Verification

**Avionics
& Defense**
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 RTCA avionics standards (DO-178C for airborne software, DO-278A for ground based systems and DO-326 set for airworthiness security). They can also be used for compliance to the many national & international defence software standards (e.g. DefStan 00-55, FACE, AOP-52 etc); and to coding standards: MISRA, JSF (for safety), CERT and CWE (for security).

DO-178C & DO-278A

The DO-178C 'Software Consideration in Airborne Systems & Equipment Certification' standard published by RTCA and by EUROCAE as ED-12C and the DO-278A 'Guidelines for Communication, Navigation, Surveillance, and Air Traffic Management (CNS/ATM) Systems Software Integrity Assurance' [ED-109A] are very similar. They classify risk-based Design Assurance Levels (DALs) from E up to A. The verification techniques defined within the standards are highly reliant on tools qualifiable (according to DO-330) as suitable for automating the verification objectives. QA Systems tools have been qualified many times as TQL-5 tools on DAL A systems using the Tool Qualification Kits.

The DO-178C tool qualification process ensures *"the tool provides confidence at least equivalent to that of the process(es) eliminated, reduced, or automated"* Section 12.2 refers out to the separate DO-330 standard to define the Tool Qualification Process.

Cantata (for unit and integration testing) addresses Chapters 6.4, 5.6, 11, 12 and Tables A6 & A7 in Annex A. QA-MISRA (for coding standards compliant static analysis) addresses various verification objectives, in particular the objectives in section 6.3.3 & 6.3.4.

The Cantata DO-178C Standard briefing and QA-MISRA Safety Manual detail how these QA Systems tools can satisfy the verification requirements of this standard.



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