

SECTOR Aerospace & Defence  
STANDARD DO-178B

# Case Study



Ultra Electronics



Challenger 2 Tank

## ABOUT THE COMPANY

Ultra Electronics specialise in the design, manufacture and support of electronic and electromechanical products and software systems for aerospace and defence markets worldwide.

Ultra businesses innovate constantly to create solutions for customers- often through highly specialised, disruptive technological innovation.

Ultra's deep understanding of its specialist capability areas combined with the knowledge of the customer environment is a key factor in delivering innovative solutions to meet customer needs.

<http://www.ultra-electronics.com>

***“We could learn from these people”***

## Critical Software Testing Requirements

Ultra Electronics needed test tools to comply with the strictest software testing requirements of civil avionics standard DO-178B Level A and UK Defence Standard Mil Std 00-55 projects. These mandated the unit testing of all code on the embedded target board and the achievement of 100% code coverage up to MC/DC. Ultra Electronics' requirements were summed up by Peter Devlin in just one word 'confidence'. He explained **'Ultra did not want to be the first company to use a tool, the supplier had to be a reputable firm'**.

## Supplier Selection

Peter Williams and Mansur Dewshi, the Software Engineering Manager, discussed in detail their testing requirements for DO-178B Level A, and came away impressed with what they saw of the tool development. Ultra's Zulfi Fazal and Basil Collins carried out a successful tools audit of in preparation for DO-178B level A certification for a Propeller Electronic Controller (PEC) project on the de Havilland Dash 8 Q 400. On his return Collins reported **"we could learn from these people"**.

## AdaTEST in Action

Both the development and testing with AdaTEST on the PEC project proceeded according to schedule. AdaTEST was also used by the Controls Division on testing the flight critical software of the Landing Gear Control for the Airbus A340-500/600, and the Sonar and Communication Systems division on the Submarine Acoustic Warfare Control System (SAWCS).



de Havilland Dash 8 Q 400

## Cantata in Action

Cantata was successfully used by the Controls Division for testing C++ for the first line test set used with their Digital Automotive System Control Unit (DASCU) for the Challenger Armoured Repair and Response Vehicle (CrARRV), and the Challenger 2 battle tank.

## Conclusion

Ultra Electronics knew what they wanted for testing high integrity software: confidence in the vendor and confidence in the product. The flexibility over development platforms was very important to Ultra Electronics. Peter Devlin also praised the service provided **'technical support has been excellent, and response times were often within the hour'**, and concluded **"our experience of their use and audits undertaken have borne out our original confidence in these tools"**.

All case study text has been approved by the relevant customer.

QA Systems acquired the Cantata business taking over all development, support and sales from IPL in March 2012. Cantata is the extension of the Cantata++ tool.