C A S T
Certification Authorities Software Team

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Charter

CAST is an international group of certification and regulatory authority representatives who

- Support aviation industry system, software, and complex electronic hardware (CEH) activities and
- Promote international harmonization of certification and regulatory positions on software and CEH aspects of aviation safety

CAST considers safety issues relating to airborne software and CEH, CNS/ATM (communication, navigation, surveillance, and air traffic management) ground-based software, and production/ inspection/maintenance/testing software.

Interfaces

- RTCA SC-205 / EUROCAE WG-71 (Software Assurance)
- RTCA SC-203 (Unmanned Aerial Systems)
- SAE S-18 (Aircraft Systems Safety)
- EUROCAE WG-63 (Aircraft Systems Safety)
- DO-254 User's Group
- ICAO AIRP (SARPS revision)
- RTCA SC-216 (Aeronautical Systems Security)
- EUROCAE WG-72 (Aeronautical Systems Security)

Participants

Chair	Barbara Lingberg, FAA
Secretary	Pippa Moore, UK CAA
ANAC	Brazil
AVIA	Russian Federation
CAA NL	The Netherlands
DGAC	France
DND	Canada
EASA	Europe
ENAC	Italy
FAA	The United States
TC	Canada
UK CAA	United Kingdom

Position Papers

Recently Completed

▪ CAST 29 "Use of COTS Graphical Processors (CGP) in Airborne Display Systems"

Abstract: Commercial-Off-The-Shelf (COTS) Graphical Processors (CGP) are currently being used in airborne display systems. These devices represent a different class of devices than COTS microprocessors used in critical airborne applications. These components have been designed with non-aerospace applications in mind, such as video games and computer graphics. These components have not been typically developed per RTCA DO-254/EUROCAE ED-80 guidelines or to other design assurance standards recognized by the international certification authorities. Verification activities or the use of reverse engineering to make these devices RTCA DO-254/EUROCAE ED-80 compliant may be impractical. Due to the very short life cycle of these components, it may be

difficult to use service experience to verify the absence of design errors.

This paper addresses some of the concerns and issues regarding the use of these CGPs in airborne systems, and summarizes the CAST position on the use of these devices.

▪ CAST 30 "Simple Electronic Hardware and RTCA Document DO-254 and EUROCAE Document ED-80, *Design Assurance Guidance for Airborne Electronic Hardware*"
Abstract: RTCA document DO-254 and EUROCAE document ED-80, *Design Assurance Guidance for Airborne Electronic Hardware*, was published in April 19, 2000. However, this document has only been recently recognized by some of the certification authorities as an acceptable means of compliance for satisfying the relevant regulations, when custom micro-coded components and devices (such as Application Specific Integrated Circuits (ASICs), Field Programmable Gate Arrays (FPGAs) and Programmable Logic Devices (PLDs)) are used in airborne systems. Since the date of publication, the aviation community has gained experience using DO-254/ED-80; however, many applicants and developers are confused on the document's guidance for simple electronic hardware. Some feel the definition and the guidance for verification of a simple hardware item, as stated in DO-254/ED-80, are ambiguous and may be interpreted differently among applicants and certification authorities. Currently, there does not exist harmonized policy or guidance from the certification authorities to specifically address the safety and airworthiness requirements for simple electronic hardware; however, some applicants are proposing to use the guidance in DO-254/ED-80 to obtain the certification authorities' approval of simple custom micro-coded components and devices that support critical airborne functions. This CAST paper provides clarification to the guidance in DO-254/ED-80 for simple electronic hardware to ensure their safe implementation in airborne systems.

▪ CAST 11 Rev A ""
Abstract: This paper identifies the need for continuous and complete software verification, and associated software Configuration Management (CM) and Software Quality Assurance (SQA) processes for the development of aircraft embedded system software that can involve multiple entities (e.g., applicant, one or more software developers, one or more hardware developers, integrator).

Position Papers

In Work

- ITAR (International Traffic in Arms Regulations)
- COTS in CEH

Upcoming Activities

- CAST #51 (Vienna) (with SC-205/WG-71)
- CAST #52 (Vancouver) (with SC-205/WG-71)
- CAST #53 (spring 2008, Canada)