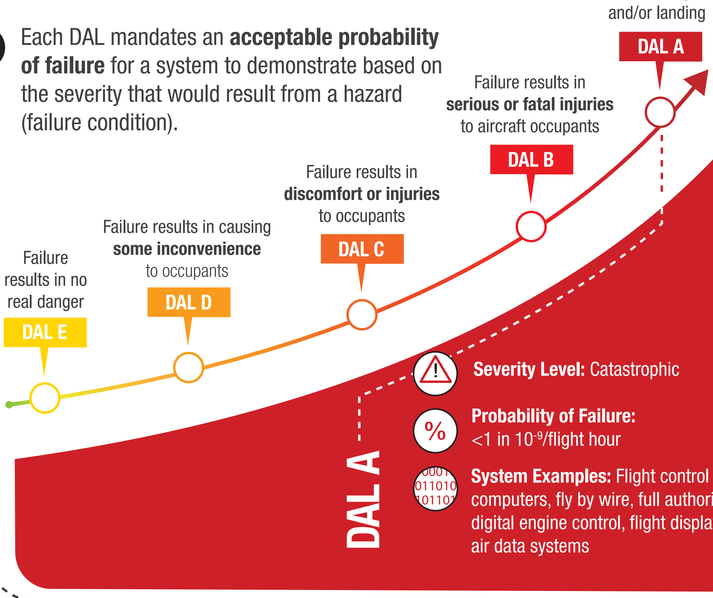
CURTISS-WRIGHT

Overcoming the DO-254 DAL A Challenge

1. **Design Assurance Levels (DALs)** dictate the safety requirements an aircraft system must meet.

2. Each DAL mandates an **acceptable probability of failure** for a system to demonstrate based on the severity that would result from a hazard (failure condition).

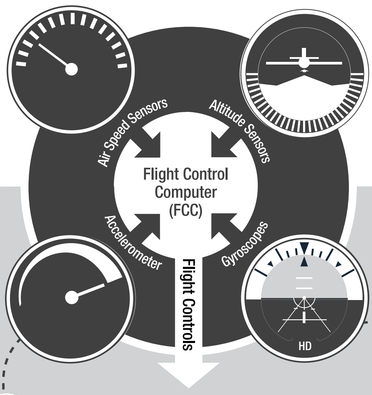


DAL A

Severity Level: Catastrophic

Probability of Failure: <1 in 10^{-9}/flight hour

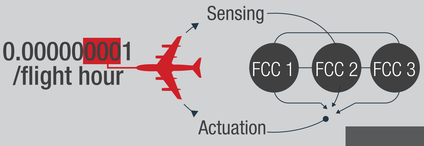
System Examples: Flight control computers, fly by wire, full authority, digital engine control, flight displays, air data systems



3. Most DAL A systems rely on **data from multiple systems** to calculate outputs.

4. The flight control computer, for example, communicates with these sensors in a **high frequency controlled feedback loop**

5. Relying on a single computer to manage this loop **would not meet** the <1 in 10^{-9}/flight hour probability of failure required for DAL A systems

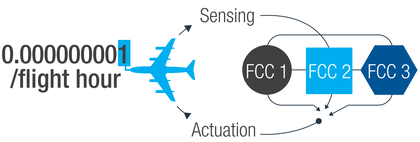


6. Adding redundancy **decreases the probability** of failure…

7. …But similar systems are susceptible to **common mode failures**

Common Mode Failures

- Lightening Strikes
- Electromagnetic Interference
- Fire or Explosion
- Software / Hardware Bugs



8. To protect against common mode failures, a **fully fault tolerant system** incorporates redundancy with dissimilar processor architectures, software and applications.

9. That's why Curtiss-Wright's selection of DO-254 safety-certifiable COTS modules offer a choice of processor architectures, and graphic processing units (GPUs) complying to A(M)C 20-152A, providing a rugged and certifiable single board computer (SBC).

10. And support today's **leading DO-178 certifiable** operating systems

WNDRVR · arm · Power · intel · DDC-I · SYSGO EMBEDDING INNOVATIONS · LYNX · Green Hills SOFTWARE

Download the White Paper

Learn more about building a redundant architecture to meet DAL A requirements