

Airbus - Transmission Control Unit (TCU)

Background

EADS Astrium (now Airbus) provided civil and military space systems and services with a turnover of €5.8 billion worldwide.

Airbus provide secure satellite communication systems to navies around the world with the SCOT family of products.



There is a usability and safety problem when transmitting to satellites which are low on the horizon. This can result in a high exposure of personnel, fuel or ammunition on the vessel to microwave radiation, or irradiation of nearby ships or aircraft. Historically this risk has been controlled by manual monitoring with associated overheads and a risk of failing to prevent exposure due to human error.

EADS wished to provide a solution which reduced the overhead of monitoring while providing a safer solution and a competitive advantage.

Solution

Tactiq developed a distributed safety system which allows users to define safe zones into which the satellite communication system will not transmit. Different teams on the vessel have different areas of responsibility and different areas of concern so each team can define their own safe zones. For example, flight operations may define safe zones within which helicopters are operating and the bridge may define areas within which other ships are present. The unit disables transmission into a zone defined by any of the teams. The user interface allows each team to define preprogrammed zones that allows setup for common tasks quickly and easily. The unit supports users over a very wide range of light levels from direct sunlight at the equator to very low levels of illumination that do not compromise night vision.



The system is robust to function reliably in a maritime environment and under exceptional conditions such as simulated explosions under the vessel.

Tactiq responded to a Technical Requirements Specification given by Astrium to take responsibility for the full electronics and mechanical design, build test, certification and supply of the TCUs.

Project challenges included:

- ISO61508 SIL level 2
- Usability challenges under a wide range of conditions
- Military and commercial testing compliance including harsh environmental specifications
- Full system development and manufacturing
- “Non-Software” solution
- Minimum 20 year product life and support
- Complete manufacturing solution