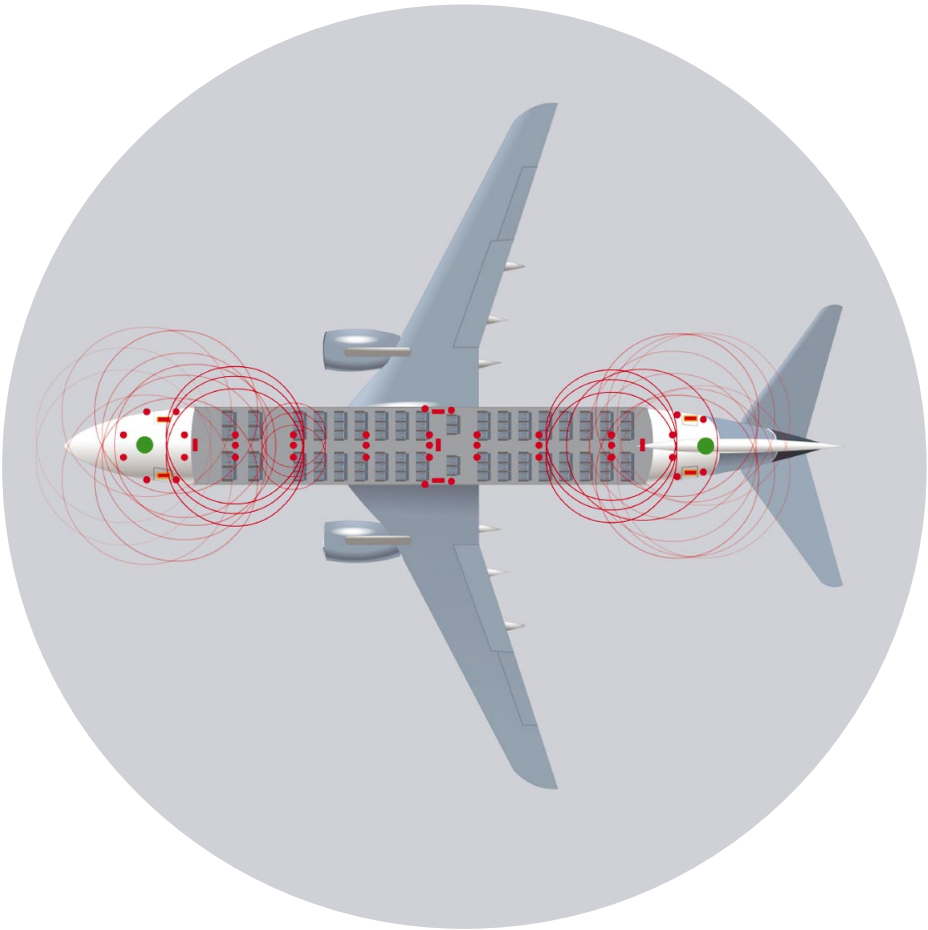
STG AEROSPACE

Intelligent Wireless Control Network

SecureControl

Fact Sheet



What is STG SecureControl™?

STG SecureControl™ is a unique new concept in safety-critical wireless control systems. We believe that this innovative technology could create a new industry standard and open up markets for a wide range of wireless-controlled safety and non-safety critical applications in aircraft – including emergency lighting systems.

Origins

The aerospace industry is facing calls to cut operating costs (for example by reducing weight) and at the same time to increase the range and complexity of cabin services and systems for greater security and passenger appeal. To meet these contrasting challenges the industry is increasingly turning to wireless systems, to date virtually exclusively for wideband data systems such as IFE and personal voice and data communications. **STG** believes that safety-critical passenger cabin systems can also be delivered without wires, offering significant savings in weight and maintenance costs.

Some of the many potential applications envisaged for **STG SecureControl™** include:

- Cabin alert monitoring
- Oxygen deployment
- Fire and smoke detection
- Emergency lighting
- Sensor networks

Benefits

STG SecureControl™ lives up to **STG's** aim to offer products that are simple and modular offering reliability and value.

STG SecureControl™ cuts the cost and complexity of onboard safety-critical systems by removing the need for wiring and remote batteries. It is cost-effective to deploy, highly reliable, due to multiple redundancy, and very adaptable.

Once an aircraft has **STG SecureControl™** technology on board, it is simple to expand the command, control and communication functions and systems with minimal downtime, cost or added weight.

How does it work?

STG SecureControl™ is a compact, low weight radio-distributed network using ultra low-power spread spectrum techniques. The original technology was developed by Hollywood film star and qualified physicist Hedy Lamarr and was adopted and developed by the US and UK military for secure communications. It has only recently been declassified. **STG** has applied these spread spectrum techniques with innovative power-saving protocols to ensure ultra-low power consumption and very low RF transmission and interference levels. **STG's SecureControl** technology offers zero interference with other aircraft electronic systems and very high resistance to incoming interference.

STG's novel application of spread spectrum wireless creates a flexible meshed network of self-powered compact transceiver control units (TCUs). TCUs operating in meshed networks offer multiple signal paths for high-redundancy, distributed, remote control with inbuilt self-diagnosis and condition monitoring/ reporting [BITE] in an aircraft environment. The TCUs have achieved FCC approval and meet all existing and envisaged FAA and FCC limits on transmission (Tx) power.

STG's vision for **SecureControl** sees a number of TCUs within the coverage area. Dedicated commands, sent from a Master Control Unit and sensor and BITE data from TCUs are continuously picked up by the nearest TCUs. These respond and in turn broadcast the signals to the next nearest TCUs and so on throughout the distributed network and back to the MCU. **STG** engineers term this 'cascade control' with multiple paths for each TCU to receive and pass on a command signal and report to the MCU. This creates excellent route diversity for reliable and efficient communications within the aircraft environment. The initial concept see the TCUs powered by a new generation of small batteries, which have already successfully completed relevant testing and have a working life measured in many years.

Characteristics

SecureControl cannot, and is not intended to, serve the wireless IFE markets where high power and UWB transmission is paramount. As with previous emergency protocols the industry is realising that wireless emergency, security and other MEL systems should sensibly be considered as discrete systems designed to be ultra reliable.

STG SecureControl™ could become the neural network for a large number of such systems in an aircraft, with the capacity for easy reconfiguration, expansion and the addition of new systems.

STG SecureControl™ has the following unique capabilities:

- Proprietary firmware – no risk of hacker disruption, possible with Wifi- or Bluetooth-based systems
- Very low susceptibility
- Output power level less than allowable background noise density
- Very low power consumption with long battery life
- Simple 'dispatch/non-dispatch' system status
- Easy to maintain
- Much lighter, and much lower through-life costs than conventional hard-wired and battery-powered emergency systems
- Failsafe operation with very high reliability
- Built-in self-test, diagnostics and reporting [BITE]

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