PRESS RELEASE

PASSENGER WI-FI DEMANDS FIBRE OPTICS FOR AIRCRAFT INTERIORS - AUGUST 2018

AEROSPACE

It’s time to plan the refit of aircraft interiors with fibre optic cable systems, as passenger Wi-Fi needs demand change sooner rather than later.

One of the biggest challenges for aircraft interiors at the moment is providing the in-flight entertainment and connectivity services passengers desire, without adding to the size and weight of the electrical and data systems that provide it. The most obvious solution is to use fibre optic cables instead of copper wires and Ethernet, and you might just be surprised at how effective this solution really is.

Rockford’s fibre optics partner Tech Optics agrees that one of the most important technology trends relating to cabin electronics in civil aircraft is accommodating all the passengers that now want to use their smartphones, tablets, and laptops on board. They say that passengers will eventually demand the ability to recharge devices and gain Wi-Fi access throughout the entire flight.

The challenge here is delivering the Wi-Fi access passengers want without impacting the plane wiring's overall size, weight, available space, power, cost, and durability. Traditional copper, although increasing its capacity, also fails to address the speed and bandwidth needs of 300 passengers accessing Wi-Fi at once. The key to delivering a solution to passenger Wi-Fi needs therefore lies with fibre optics.

"Wi-Fi is essential to daily life on the ground, and airline passengers see no reason why their time on a flight should be restricted or spent any differently. Staying online is becoming a crucial part of the inflight experience for today's airline passengers." -- Philip Balaam, President of Inmarsat Aviation.

The technical merits of fibre optics over copper are plentiful, and of great importance to flight systems design. This is why aircraft on-board system designers are at the tipping point for converting from copper to fibre optics.

"Passengers are now so keen to get online that more than half (53%) would sacrifice their inflight drink for internet access" – Tnooz

Manufacturers of connectors are devising ways to make the photon-to-electron conversion points as small and light as possible. But despite interconnect connections not reaching optimum size and weight yet, fibre optics systems already perform better than copper in terms of size, weight and power (SWaP).

Optical fibres are immune to electrical noise, as they neither receive nor radiate energy. This means fibre optic cables can be applied without concern for EMI control. The essential EMI shielding on copper cables increases the size and weight of the wiring.

Bandwidth improvements using fibre optics are notable too, as multimode fibres carry data rates of more than 10Gb/s. A duplex fibre-optic cable gives around 25% more space and comes in at 50% of the weight compared to a shielded PVC Cat 5e cable.

Fibre optics simplifies IFE by providing longer transmission distances and higher bandwidth than copper cable. Video systems in aircraft benefit from fibre optics, as cable can be run directly from the server to the screen, eliminating the need for intermediate switches, zone boxes, and seat electronics required with a copper system, and saving up to 60% in weight.

"Globally, if airlines can provide a reliable broadband connection, it will be the catalyst for rolling out more creative advertising, content and e-commerce packages." -- Dr Alexander Grous, London School of Economics

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Rockford helps customers deliver highly ruggedised and complex platforms by integrating technology. Engineers at Rockford suggest that fibre cables can be combined with traditional wire bundles of data and power cables to create hybrid high-performance wiring looms able to perform a multitude of tasks.

The process used at Rockford mitigates risk for customers by offering a one-stop-shop for all electrical requirements (electro-mechanical/electrical cable assemblies/design services/tailored logistics/on-site-support), simplifying complex, and often fragmented, supply chains with an open-source multi-supplier design. Incorporating partnerships with top-quality manufacturers such as Tech Optics, Rockford is able to offer best-in-class system solutions with bespoke designs for every customer.

Rockford has also partnered with companies such as Equip'Aero to provide an embedded cabling solution within composite structures. Equip'Aero is capable of building unique curved composite creations which, teamed with Rockford's electrical design and manufacturing capabilities, opens up a realm of possibilities for aircraft interior cabling solutions.

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ROCKFORD

ABOUT ROCKFORD

Rockford's unique engineering-driven approach to design and manufacturing delivers a cost-effective, high-quality solution to customer needs.

Rockford has since 1978 successfully addressed the high-reliability requirements of the major Original Equipment Manufacturers (OEMs) in the defence and aerospace sectors. Our broad capability and competitiveness, combined with a reactive attitude to service means Rockford has become a major part of many important supply chains.

Rockford has the capabilities, technologies, products, and knowledge to design, manufacture, test, and deliver system-level electrical equipment that ranges from simple electrical cable assemblies and electro-mechanical sub-assemblies, and on to complete systems.

We offer a simplified, competitive and reactive supply chain, meeting your offset requirements and mitigating your risk: Designing high-performance, environmentally sealed, next-generation, high-speed, flexible cabling and system-level electrical equipment with engineering and production capacity for rapid prototypes and low to medium volume orders, delivered with on-site global engineering support.

Rockford has over 280 employees, 39 years of experience and operates from three SC21 Silver award-winning sites around the UK.

Rockford has been given the SC21 Silver award thanks to high standards of delivery, quality, sustainable improvement, and relationship excellence. The SC21 award reflects the exacting requirements of many defence and aerospace organisations worldwide.

Rockford can deliver a globally competitive solution through design excellence, ensuring all customer requirements are captured and met. Rockford's lifecycle management offers prototyping, on-site-installation, production, logistics, spares and obsolescence management.

Rockford is extremely proud to be given the SC21 award for a third year, as it reflects on our professionalism and commitment to our values and our company mission of delivering global excellence by design.

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