# Optical cable with ITU-T G.654.E fibre removes barriers to delivering 800G and beyond


**28 May 2025** – A new proposal for long-haul optical network cables will ‘break through the glass ceiling’ of data transmission limits to ensure the ever-growing demands of data centres can be supplied.

A new whitepaper from fibre cable experts ACOME Group and Sumitomo Electric Industries, Ltd. says that existing optical fibre cables will only be able to meet the long-term transmission capacity needs of European data centres at a significantly higher cost and degraded environmental footprint.

Conventional G.652.D optical fibres struggle to transmit data rates at and above 800 Gb/s over distances further than a few hundred kilometres. Over longer distances, such as between two data centres, signal regeneration or additional optical amplification is needed which adds complexity and costs for network owners.

**“With AI, cloud services, and the growth of hyperscale data centres dramatically increasing demand for bandwidth, telecom infrastructure must evolve to support high-capacity, long-distance transmission,”** said **Xavier Renard, Telecom Marketing Director at ACOME. “It’s also crucial that we consider the longevity of the network. A network is not a static asset. It’s constantly evolving, so it’s essential that the fibre used is correctly selected to support future bandwidth over decades of use.”**

ACOME and Sumitomo Electric have developed a new hybrid solution that allows network operators to deploy a single universal cable that supports both current and future network needs. Upgrading to 800G and above requires fewer repeaters to amplify the optical signals and can also avoid the need for signal regeneration.

Their solution combines two existing fibre grades to provide a cable solution that enables longer transmission distances, higher data rates per wavelength, and reduced infrastructure requirements – which are key enablers of energy-efficient, scalable, and future-proof optical transport networks.

**“PureAdvance™ fibres, compliant with ITU-T G.654.E, are contributing to evolve long-term network and transmission technologies. For example, combining G.654.E with G.652.D can maximise flexibility and futureproof the network,” added Fumiyoshi Ohkubo, General Manager, Market Development & Engineering Department of Optical Fiber & Cable Division at Sumitomo Electric.**

This hybrid approach creates pathways for future upgrades to high-capacity, using coherent transmission, and enables a smoother migration to next-generation network architectures without needing full infrastructure overhauls.

Beyond performance, the cable offers sustainability benefits. By reducing the number of repeaters and regenerators required in a long-haul link, it directly contributes to lower energy consumption and a smaller equipment footprint. For operators working toward more

environmentally responsible networks, fibre selection now plays a central role in achieving those goals.

One of the key advantages is gradual migration. With both G.652.D and G.654.E fibres combined, operators can transition to higher-capacity architectures without fully overhauling existing infrastructure, enabling smoother “network evolution”.

Read the full whitepaper, “G.654.E Fibre Cable - A Game Changer for the Future of Long-Distance Networks”.

**ENDS**

**About ACOME Group**

ACOME Group is an international industrial and cooperative company that designs and manufactures high-performing cables for the data and telecom infrastructure, building, and transport and automotive sectors.

With 15 factories in 8 countries, 10 logistic centres, and 2 R&D centres, ACOME employs more than 1700 people worldwide. The company turned over €558million in 2023. Find out more at https://www.acome.com/en or on LinkedIn.

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**About Sumitomo Electric Industries, Ltd.**

Sumitomo Electric Industries, Ltd. is a global corporate group founded in 1897, comprised of more than 400 affiliates, and over 290,000 employees in about 40 countries worldwide. Together, they are a leading-edge force advancing information and communications technology.

Official Web site: https://sumitomoelectric.com/