

The background of the slide is a photograph of a modern building with a green roof. The roof is covered with solar panels and lush green plants. In the background, there are tall city buildings under a clear sky. The Nokia logo is in the top left corner.

NOKIA

Fiber-powered sustainability: Aurelis Optical LAN for greener buildings

Boost your BREEAM score with Aurelis Optical LAN: energy-efficient, sustainable campus and in-building connectivity that delivers future-proof performance with minimal waste

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At Nokia, we embed environmental considerations into everything we do, and we believe in an inclusive diverse world where nobody is left behind.

Environmental, Social, and Governance (ESG) principles are increasingly prioritized across industries, particularly in sectors with substantial operational footprints. ESG goes beyond financial performance by assessing a company's impact on environmental sustainability, social responsibility, and governance practices. Indeed, investors and other financial stakeholders are increasingly favoring companies that demonstrate responsible and sustainable operations.

In today's world, reliable, high-speed connectivity is vital. However, in-building and campus connectivity supported by traditional copper-based local area network (LAN)

technology, is a significant contributor to a building's energy consumption, carbon footprint and running costs. As a legacy technology that relies on numerous active components, it requires a significant amount of energy to run and to cool equipment. It also has a restricted performance compared to newer technologies and so requires regular maintenance and upgrades to support modern connectivity requirements. With increasing reliance on data processing, cloud services, Internet of Things (IoT) applications and Wi-Fi, building developers, owners and occupants must think carefully about the ESG implications of their connectivity.

Aurelis Optical LAN is a passive optical local area networking (POL) solution that uses fiber technology from the world of broadband, including Passive Optical Networking (PON) and fiber-optic cabling. Fiber is known for its energy efficiency and longevity, and we also apply industry-leading design, material, and life cycle management principles that significantly reduce the environmental impact of our solutions. All this makes Aurelis Optical LAN an ideal solution for meeting ESG commitments while making a significant contribution to BREEAM certification.



What is BREEAM?

BREEAM (Building Research Establishment Environmental Assessment Method) is the world's first sustainability rating system for the built environment. It provides a robust and internationally recognized framework for assessing and improving the environmental, social, and economic performance of buildings across their life cycle. Its global adoption has helped drive sustainability practices worldwide, ensuring buildings are designed, constructed, and operated with minimal environmental impact while promoting occupant or employee health and well-being.

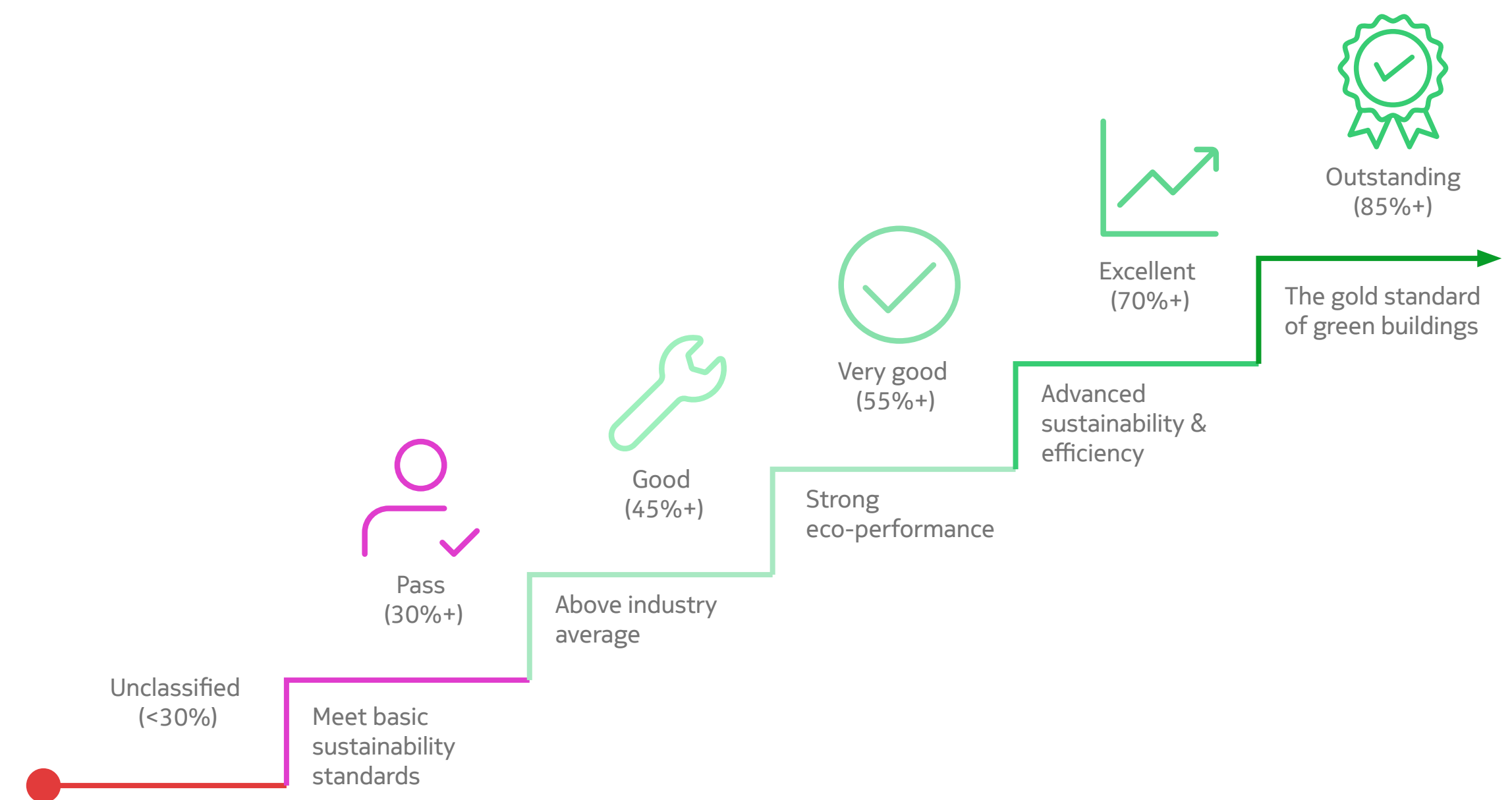
The BREEAM framework assesses a project's sustainability performance throughout the design and construction phases, providing a means to measure and minimize the environmental impact of new buildings. Adhering to BREEAM standards enables alignment with industry best practices, compliance with or surpassing regulatory requirements, and enhanced cost efficiency while reducing risks.

BREEAM evaluates buildings across ten core categories, each addressing specific aspects of sustainability:

1. Management (MAN)
2. Health and wellbeing (HEA)
3. Energy (ENE)
4. Transport (TRA)
5. Water (WAT)
6. Materials (MAT)
7. Waste (WST)
8. Land use and ecology (LE)
9. Pollution (POL)
10. Innovation (INN)

Each category is evaluated based on specific criteria, each assigned a set number of credits. The total score is then weighted based on the category's significance, determining the final percentage-based BREEAM rating.

BREEAM rating

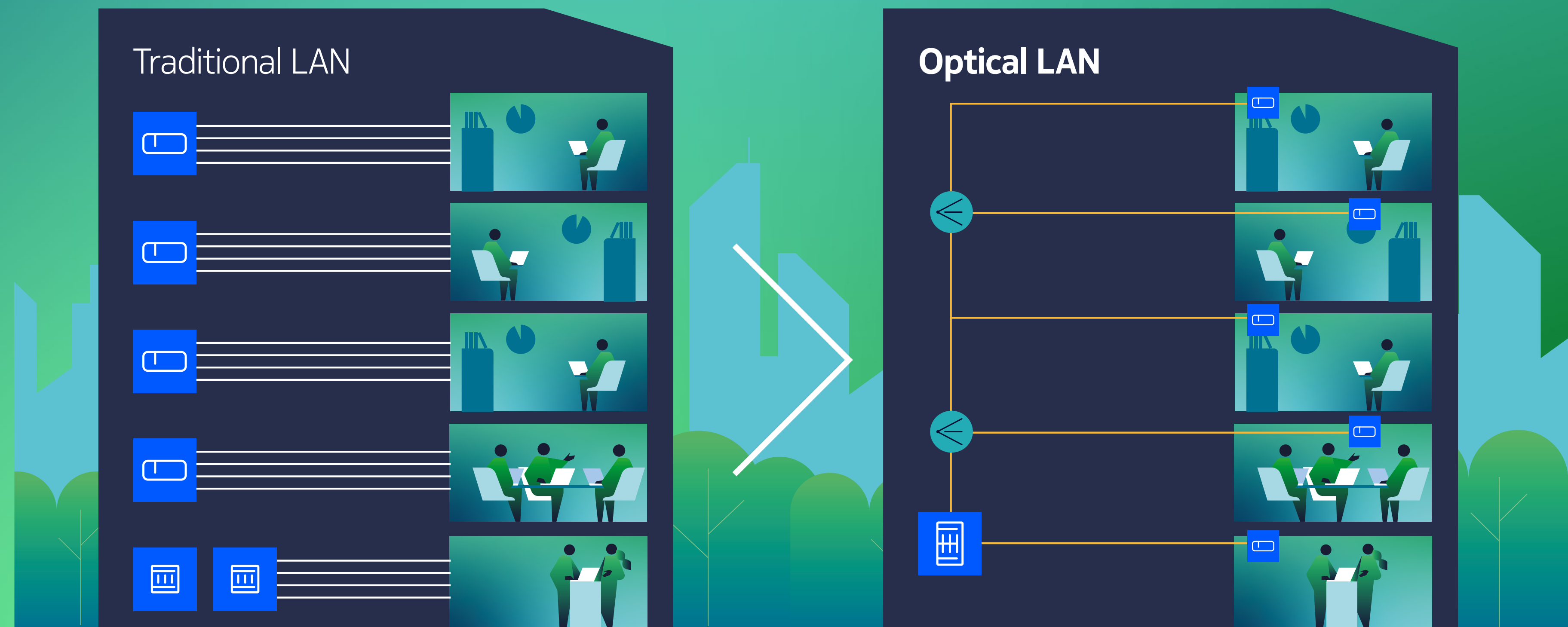


What is Aurelis Optical LAN?

Aurelis Optical LAN is an innovative networking solution that delivers high-speed, reliable, and energy-efficient connectivity. using fiber technology from the world of broadband, including Passive Optical Networking (PON) and fiber-optic cabling. This cutting-edge solution provides superior bandwidth, low latency, and longevity, empowering enterprises to support modern applications such as IoT, cloud services, and next-generation wireless technologies like Wi-Fi 7. It also offers unmatched scalability, enhanced security, and simplified management while driving cost savings through reduced operational complexity.

Fiber is known for its energy efficiency and longevity. With its centralized architecture, thin, lightweight, and resilient fiber-optic cabling, and use of passive optical splitters, Aurelis Optical LAN consumes 40% less energy than a traditional LAN, minimizes material waste, and aligns seamlessly with sustainability goals, while also reducing costs.

Whether in greenfield deployments or refurbishment projects, Aurelis Optical LAN is the smart choice for enterprises aiming to futureproof their networks, boost productivity, and meet their ESG commitments.



What are the benefits of Aurelis Optical LAN?

At the speed of light

25 Gbps
and more

Light on energy

40%
less power

Light on infrastructure

70%
less cabling

Light on TCO

50%
lower cost

Nokia solution components

Aurelis MF-2 Optical Switch

Modular central optical switch for a high-speed network.



Aurelis MF-2 Optical Switch

Aurelis Optical Modems

Multiple-user edge devices for a versatile service deployment.



Pluggable



4 port inwall



4 port



8 port

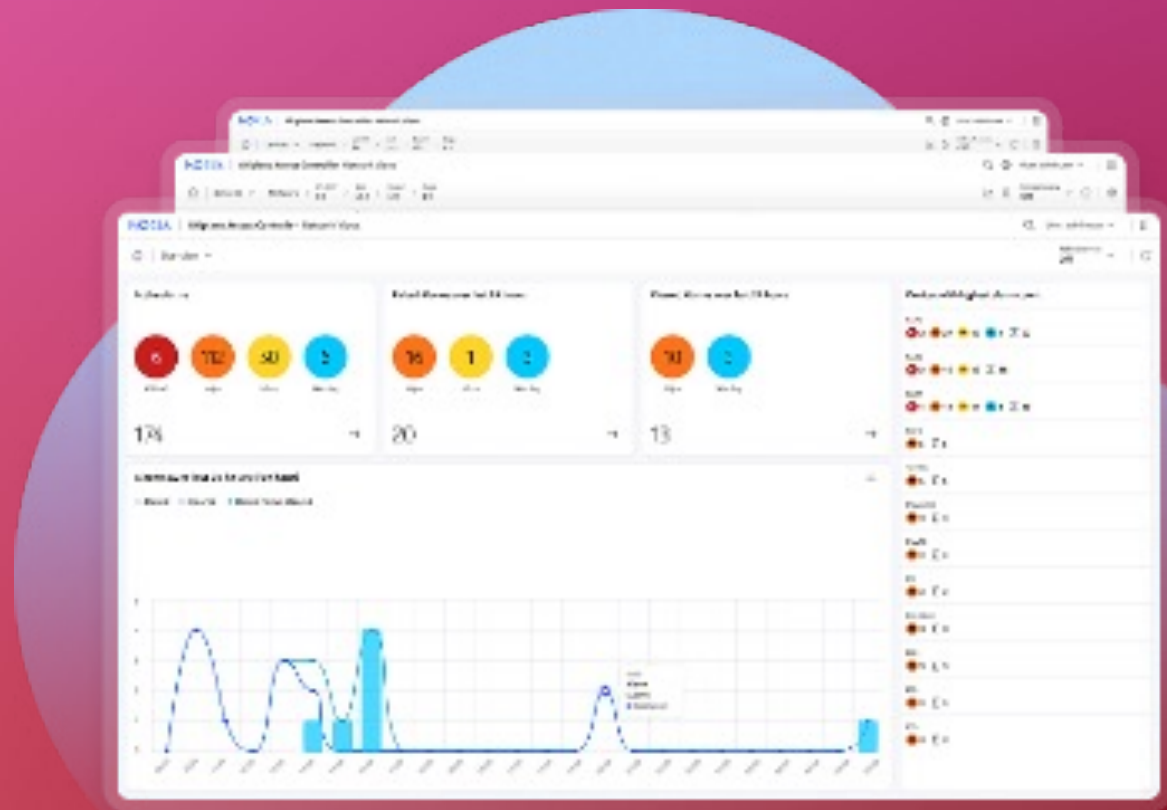


8 port



Aurelis Command Center

Makes day-to-day network management a breeze.



Aurelis Command Center

Images are not to scale

Advancing sustainability with Aurelis Optical LAN

Aurelis Optical LAN has been assessed against the sustainability objectives of BREEAM International New Construction V6 and shown to make a significant contribution to BREEAM credits. As such, Aurelis Optical LAN is the perfect fit for BREEAM-certified projects, driving improvements in key areas:

- **Energy efficiency.** By reducing IT infrastructure energy consumption, POL contributes to higher scores in the Energy category.
- **Waste reduction.** POL's durable, streamlined design minimizes material waste and supports circular economy principles, enhancing scores in the Waste and Materials categories.
- **Health and wellbeing.** Delivering seamless, high-speed connectivity, POL boosts occupant productivity and satisfaction, meeting the goals of the Health and Wellbeing category.

By integrating Aurelis Optical LAN into BREEAM-certified projects, organizations showcase their commitment to innovation, sustainability, and modern design. POL not only elevates environmental performance but also delivers meaningful value to building occupants, clients, and other stakeholders, making it a cornerstone for greener, smarter buildings.





How can Aurelis Optical LAN help you obtain BREEAM credits?

Management (MAN)

MAN 02 – Life cycle costing & service life planning

Recognizes and encourages the use of life cycle costing (LCC) and service life planning and the sharing of data to raise awareness and understanding.

Assessment criteria:

- Conduct a life cycle cost analysis over a minimum period of 60 years.
- Evaluate the costs of building elements and technical systems throughout their life cycle.
- Develop a plan for maintenance and replacement of building components based on their expected service life.

Maximum available credits: 4

Aurelis Optical LAN contribution: 1 credit

Aurelis Optical LAN provides long-term value through its extended life cycle compared to traditional copper-based LANs. Its robust infrastructure requires less frequent replacement and upgrades, which directly supports service life planning and cost-effective decision-making.

MAN 04 – Commissioning and handover

Encourages best practices in the commissioning and handover process, ensuring building systems are inspected, tested, and appropriately handed over to building users..

Assessment criteria:

- Create a commissioning schedule with optimal timescales, ensuring all systems and building fabric are tested according to best practices.
- Identify and rectify defects efficiently using appropriate methods.
- Provide a user-friendly building guide and operator training timed around the handover and occupation phase..

Maximum available credits: 4

Aurelis Optical LAN contribution: 1 credit

Aurelis Optical LAN's simplified architecture supports seamless commissioning. It requires fewer components to test and integrates with building systems more efficiently. Training is also streamlined due to the user-friendly nature of the system, ensuring optimal use once handover is complete.



Health and wellbeing (HEA)

HEA 05 – Acoustic performance

Ensures that the building achieves appropriate acoustic performance standards, focusing on sound insulation, indoor ambient noise levels, and reverberation times.

Assessment criteria:

- Assess and meet defined benchmarks for sound insulation.
- Minimize indoor ambient noise levels through proper design and system selection.
- Achieve optimal reverberation times for building function and comfort.

Maximum available credits: 4

Aurelis Optical LAN contribution: 1 credit

Aurelis Optical LAN produces minimal operational noise due to fewer active components, requiring less cooling equipment, thus directly contributing to better indoor acoustic conditions and supporting compliance with performance standards.



Energy (ENE)

ENE 01 – Reduction of energy use and carbon emissions

Encourages improvements in the building’s energy performance, exceeding national building regulations in areas such as heating and cooling demand, primary energy consumption, and carbon dioxide emissions.

Assessment criteria:

- Reduce energy demand through building design and system specification.
- Predict operational energy consumption by end-use and promote monitoring to manage risks during construction and commissioning.

Maximum available credits: 4

Aurelis Optical LAN contribution: 1 credit

Aurelis Optical LAN is based on fiber technology and consumes significantly less power than traditional copper-based networks, reducing overall energy demand and carbon emissions. Its energy-efficient design directly contributes to meeting and exceeding energy performance standards.

ENE 04 – Low carbon design

Encourages the adoption of passive design solutions and low or zero carbon (LZC) energy sources to reduce environmental impact.

Assessment criteria:

- Analyze the building design to identify and implement passive design solutions.
- Conduct a feasibility study to determine the most appropriate LZC energy sources for the building.

Maximum available credits: 3

Aurelis Optical LAN contribution: 1 credit

Aurelis Optical LAN complements passive design strategies as it reduces the energy demand of the building’s ICT infrastructure. This aligns with other low or zero carbon initiatives, supporting overall energy performance



Materials (MAT)

MAT 01 – Life cycle impacts

Encourages reductions in the building’s environmental impact by assessing the life cycle of main building elements.

Assessment criteria:

- Use life cycle assessments to evaluate and reduce embodied carbon and environmental impacts.
- Select materials with low environmental impacts based on tools like Environmental Product Declarations (EPDs).

Maximum available credits: 6

Aurelis Optical LAN contribution: 2 credits

Aurelis Optical LAN uses fiber-optic cables, which have a lower embodied carbon footprint than traditional copper cabling. This contributes to reducing the overall environmental life cycle impact of the building.

MAT 06 – Material efficiency

Promotes optimization of material used to reduce waste and improve resource efficiency.

Assessment criteria:

- Identify opportunities and implement measures to optimize material use during design, construction, and operation.

Maximum available credits: 1

Aurelis Optical LAN contribution: 1 credit

Aurelis Optical LAN reduces material usage by requiring far less cabling and fewer active components. This supports material efficiency goals and minimizes waste during installation and maintenance..

Conclusion

When designing and constructing sustainable buildings, Aurelis Optical LAN takes BREEAM certification from good to great. By enhancing energy efficiency, optimizing material usage, and reducing life-cycle costs, Aurelis Optical LAN offers a futureproof alternative to traditional copper-based networks while providing many advantages for building occupants, such as superior bandwidth, enhanced security, unmatched scalability, and simplified management.

With its streamlined infrastructure and reduced environmental impact, it stands out as a technologically advanced and eco-friendly solution. It supports the achievement of multiple BREEAM credits, making it the ideal choice for enterprises and building developers who are truly focused on sustainability, cost savings, and creating greener, smarter buildings.

Aurelis Optical LAN augments a sustainable building’s BREEAM score by an additional 8 credits, accounting for 7.68% of the total. An independent engineering firm, ENCON—specialists in sustainable building optimization—analyzed and confirmed the feasibility of obtaining these credits.

BREEAM building assessment				
BREEAM criteria			Aurelis Optical LAN contribution	
Category	Total points available	Weighting coefficient	Points contribution	Weighting contribution
Management	21	11.11%	2	1.06%
Health	17	18.66%	1	1.10%
Energy	26	15.69%	2	1.20%
Transport	9	5.98%	0	0.00%
Water	10	8.47%	0	0.00%
Materials	9	12.95%	3	4.32%
Waste	8	5.98%	0	0.00%
Ecology	10	11.20%	0	0.00%
Pollution	13	9.96%	0	0.00%
TOTALS	123	100.00%	8	7.68%

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About Nokia

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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