

CASE STUDY

A large operator in a Gulf country provides long-distance microwave connectivity to islands in challenging propagation conditions

NOKIA



OBJECTIVE

Connecting remote communities with resilient technology

A large operator in a Gulf country has set out to deliver reliable, high-performance connectivity to remote and challenging locations, particularly the islands scattered across the nation. These areas, often inaccessible through traditional fiber-optic infrastructure, require advanced microwave transport links to ensure connectivity.

The objective was to build a robust and high-capacity microwave transport network capable of panning long distances over the sea while maintaining performance in extremely difficult propagation conditions, including high humidity. The climate in the area makes the region one of the most challenging for radio

propagation, combined with typical over-water challenges, necessitating precision engineering and innovative technological solutions.

The operator focused on developing systems with sufficient power and system gain to overcome these environmental obstacles, ensuring the network's reliability and stability. By leveraging Nokia's deep expertise in microwave technologies and implementing comprehensive planning, deployment and optimization strategies, the goal was to create a communication infrastructure that could support the connectivity needs of island communities.



SOLUTION

High-power microwave solutions for long-distance, high-throughput connectivity

Nokia's UBT-T XP high-power microwave radio was pivotal in this solution, designed to meet communications service provider's objective of delivering high-performance connectivity to remote island communities. Operating in the 8GHz frequency band with a 56MHz channel and utilizing 4+4 space diversity, this advanced microwave system provided the power and stability required for reliable long-distance links over challenging maritime environments.

The solution achieved a throughput of 2Gbps over a 26km link, meeting operator's stringent requirements. This was made possible by leveraging 1024QAM modulation in this

particular link, a technology that maximizes data capacity while ensuring spectral efficiency and required availability. Despite the inherent challenges of maintaining such high modulation in a humid environment with reflective water surfaces, Nokia's solution ensured 100% link availability during one month measurement period, addressing critical demand for uninterrupted connectivity.

By providing the necessary power, system gain and reliability, Nokia's microwave technology enabled operator to overcome environmental obstacles and deliver robust communication links.



UBT-T XP microwave provides the highest output power and system gain in the market

RESULTS

Reliable, high-speed connectivity in demanding environments

The deployment of Nokia's UBT-T XP microwave radio delivered exceptional results, providing a robust and reliable solution for high-speed connectivity, even in the most challenging conditions. The link achieved an impressive throughput of 2Gbps, ensuring nearly 100% availability—a critical factor for both end-user satisfaction and mission-critical operations.

This resilience was made possible by the UBT-T XP's high transmit power and system gain, combined with the strategic implementation of Space

Diversity. These features effectively eliminated service disruptions, resulting in zero unavailability seconds throughout its operation.

The solution proved ideal for long-distance applications, supporting very long 26 km link in this deployment across open sea. Despite the demanding maritime environment, the system maintained consistent, high-quality communication. This performance highlights its suitability for remote or challenging locations, such as islands, offshore platforms and coastal areas.



GLOBAL PERSPECTIVE

Enhancing connectivity with Nokia microwave solutions

Nokia's microwave solutions are reshaping the global approach to connectivity by addressing the challenges of connecting remote and underserved areas. In regions where traditional infrastructure like fiber-optic cables is not feasible, microwave technology offers a reliable and cost-effective alternative.

This innovation has broad applications across the globe, from linking isolated islands to the mainland to enabling offshore operations and supporting emergency services. By providing robust long-distance connectivity, even in the harshest environments, Nokia's technology empowers communities and industries to bridge the digital divide.

The flexibility and scalability of microwave transport make it invaluable for diverse scenarios, such as supporting fluctuating populations, adapting to changing demands or facilitating rapid deployment in crises. Its ability to deliver high-speed and reliable communication fosters economic growth, enhances access to essential services, and ensures inclusivity for remote and underserved regions. By connecting more remote areas and enabling seamless communication in challenging environments, these solutions drive innovation, unlock opportunities and lay the foundation for a more connected world.

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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, which is celebrating 100 years of innovation.

With truly open architectures that seamlessly integrate into any ecosystem, our high-performance networks create new opportunities for monetization and scale. 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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