

Press Release

Paris, France November 18th 2021

Nokia and Orange validate the performance of fifth generation super coherent optics on live network to enable 400Gbps services

Paris, France – Nokia and Orange announced today the completion of a network trial using the Nokia PSE-Vs, its fifth generation super coherent optics. This trial successfully validates Orange’s network capability to increase its optical capacity to support end-to-end 400Gbps services across its network.

With this field trial, Orange has successfully validated a planned upgrade of its long-haul backbone networks to support new high-bandwidth 400 Gbps services, and the ability to scale fiber capacity up to 600Gbps. This represents an increase in spectral efficiency by 50% compared to prior technologies on its long distance network.

The trial was performed in real-world conditions using Nokia PSE-Vs super coherent optics in production-ready optical transport hardware, just 16 months after the lab prototype trial done on Orange’s live network.

Orange and Nokia demonstrated error-free performance at a data rate of 600Gbps over a 914km network between Paris and Biarritz, under challenging live network conditions. The fiber network consisted of 13 spans of Orange’s existing network, through multiple cascaded reconfigurable optical add/drop multipliers (ROADM), using 100GHz WDM spectrumchannels.

Jean-Luc Vuillemin, Vice President of International Networks and Services at Orange, said: “With the booming market bandwidth requirement and need for scalability and flexibility, it is important that Orange continues to support an ever-greater network scale and new high-bandwidth services across our terrestrial and subsea global footprint. Validating super coherent optics with Nokia represents an important enabler for future-proof networks which will bring spectral efficiency and operational deployment flexibility to our customer solutions. Furthermore this technology will allow for power savings by nearly 50%, which is key to our objective of developing greener networks for our customers. ”

James Watt, Head of Optical Networks Division, Nokia, said: “We are delighted to work with Orange in continued support of their network upgrade plans. With the introduction of the PSE-Vs super coherent capabilities across our entire 1830 portfolio, Nokia enables spectrally-efficient transport at 600Gbps over real-world long haul networks, and 400Gbps services over ultra long haul networks spanning multiple 1000’s of kilometers.”

Notes to editors:

[The Nokia PSE-V](#)

The Nokia PSE-V is the industry's most advanced family of digital coherent optics (DCO), powering the next generation of Nokia high-performance, high-capacity transponders, packet-optical switches, disaggregated compact modular and subsea terminal platforms. The PSE-V Super Coherent DSP (PSE-Vs) implements the industry's only 2nd generation probabilistic constellation shaping (PCS) with continuous baud rate adjustment, and supports higher wavelength capacities over longer distances – including support for 400G over any distance – over spectrally efficient 100GHz WDM channels while further reducing network costs and power consumption per bit.

Further resources:

- **Web page:** [Nokia 1830 Photonic Service Interconnect \(PSI\)](#)
- **Web page:** [Nokia Photonic Service Engine \(PSE\) Coherent DSPs](#)
- **Web page:** [400G Everywhere](#)

About Nokia

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

As a trusted partner for critical networks, we are committed to innovation and technology leadership across mobile, fixed and cloud networks. We create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Adhering to the highest standards of integrity and security, we help build the capabilities needed for a more productive, sustainable and inclusive world.

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About Orange

Orange is one of the world's leading telecommunications operators with sales of 42.3 billion euros in 2020 and 137,000 employees worldwide at 30 September 2021, including 79,000 employees in France. The Group has a total customer base of 266 million customers worldwide at 30 September 2021, including 222 million mobile customers and 22 million fixed broadband customers. The Group is present in 26 countries. Orange is also a leading provider of global IT and telecommunication services to multinational companies under the brand Orange Business Services. In December 2019, the Group presented its new "Engage 2025" strategic plan, which, guided by social and environmental accountability, aims to reinvent its operator model. While accelerating in growth areas and placing data and AI at the heart of its innovation model, the Group will be an attractive and responsible employer, adapted to emerging professions.

Orange is listed on Euronext Paris (symbol ORA) and on the New York Stock Exchange (symbol ORAN).

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