

CAF and Cellnex achieve an important milestone in railway signalling with the validation of OPTIO on a private 5G network

OPTIO, the CBTC developed by CAF, demonstrates its technological versatility and its positioning at the forefront of the railway market

13 November 2025.- CAF's signalling division and Cellnex Telecom have reached an international technological milestone by successfully validating their Communications-Based Train Control (CBTC) system, OPTIO, on a private 5G network deployed and managed by the telecommunications infrastructure operator. This validation, carried out both in the laboratory and in field tests, is one of the first in the world capable of demonstrating that a CBTC solution operates effectively on a private 5G infrastructure.

OPTIO is CAF's state-of-the-art CBTC system that is modular, flexible, scalable and ready for current and future challenges. It allows improvements in safety, punctuality, capacity and efficiency. In addition, it reduces energy consumption and offers total operational flexibility, both on new lines and in modernizations of existing lines. Its compatibility with multiple wireless technologies such as Wi-Fi, LTE and now, also 5G, positions it at the forefront of the market.

The integration and validation of OPTIO with 5G is a paradigm shift, as it means ultra-fast transmission, low latency, convergence of applications and cyber-secure communications, all under the control of the railway operator. Compared to Wi-Fi or LTE networks, 5G offers a unique, reliable and secure environment, which makes it easier for asset managers and operators to simplify and integrate infrastructures and achieve unprecedented operational savings.

"OPTIO's validation on a private 5G network confirms the technological versatility of the system, which positions us at the forefront of the digital transformation of the railway sector," says Jon Alzate, general manager of CAF's signalling division.

For his part, Alfonso Álvarez, CEO of Cellnex Spain, highlights that *"The fundamental objective of the project has been to promote R+D to integrate ultra-low latency and high-capacity 5G connectivity in critical railway systems, including tunnels, thus improving the safety, efficiency and reliability of operations and preparing the infrastructure for the challenges of future smart mobility"*.

With OPTIO on 5G, railway signalling enters a new era, laying the foundations for safer, more automated and sustainable railway operations, aligned with the demands of 21st century smart cities. This progress has been possible thanks to European co-financing through the Recovery and Resilience Facility (RRF), within the framework of the UNICO Sectorial 2023 programme (PROJECT TSI-065200-2023-006).

About Cellnex Telecom

Cellnex is Europe's largest telecommunications towers and infrastructures operator, enabling operators to access a wide network of telecommunications infrastructures on a shared-use basis, and thus helping to reduce access barriers and to improve services in the most remote areas, whilst also contributing to more sustainable deployment. The Company manages a portfolio of more than 110,000 sites, including forecast rollouts up to 2030, in 10 European countries, with a significant footprint in Spain, France, the United Kingdom, Italy and Poland. Cellnex, which is listed on the Spanish Stock Exchange, is part of the selective IBEX35 and Euro Stoxx 100 and enjoys outstanding positions on the main sustainability indexes such as FTSE4Good, MSCI and DJSI Europe.

For further information, please, visit: [Cellnex Telecom](#)

About CAF GROUP

CAF Group is one of the leaders in the international market as a supplier of comprehensive transport systems, both in the railway field (metro, trams, high-speed, suburban trains, LRVs, locomotives, civil works, electrification) and non-rail (sustainable urban buses). With a turnover of more than 4,000 million euros, CAF has developed important international projects in numerous countries on five continents. The CAF Group currently has a workforce of more than 17,000 people, and has production plants in Spain, France, the United States, Brazil, Mexico, Poland and the United Kingdom, as well as a large number of subsidiaries throughout the world.

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