



Press release
24th November 2020

Icomera Achieves True 'Gigabit Train' in 5G-Enabled Router Trial

Icomera, a wholly-owned subsidiary of ENGIE Solutions, has conducted a successful trial of the world's first 5G-enabled router on an X2000 train travelling on the Stockholm-Gothenburg route in Sweden.

The train is receiving over 1 gigabit of data per second using only commercially available 4G and 5G cellular networks: an industry-record-breaking level of throughput, surpassing the benchmark referred to in the public transport industry as 'the Gigabit Train'.

Icomera has a strong track record when it comes to world firsts, having installed the first ever on-train Passenger Wi-Fi service, way back in 2003. At that time, megabit-level speeds were considered impressive and, seventeen years on, the onboard connectivity delivered in the current trial is over a thousand times faster. For context, the provision of 'gigabit' speeds is equivalent to passengers streaming over 10,000 songs or 200 HD films concurrently.

The onboard 5G technology trial, which began in October, involves fitting an X2000 train travelling on the Stockholm-Gothenburg route with Icomera's X5 5G-enabled router, which houses four 5G radio modems. The results of the trial show delivery of over 1 Gbps of net throughput (data speed) to the train as it passes through telecommunications operator Tele2's 5G cellular network in Stockholm's central station, as well as other telecommunications operators' LTE (4G) networks along the train route. The new Icomera system is also ready to use the 5G networks offered by all other cellular operators on the Stockholm-Gothenburg route, as they roll out.

The backwards-compatible 5G modems also yield gigabit speeds when using *only* 4G LTE networks thanks to 'LTE CAT 20' technology, which allows for faster data transfer by aggregating up to seven 'frequency carriers' at once. This indicates that transport operators upgrading to 5G-enabled technology ahead of the full 5G rollout should expect to see substantial increases in the throughput from existing networks, while establishing a future-proof means of delivering high-speed gigabit onboard Internet.

Icomera's connectivity platform uses external antennas to connect to all available networks along the route. The data capacity from these networks is then aggregated by the onboard router and delivered directly to onboard systems via Ethernet, and to passengers via Wi-Fi. This method offers faster, more stable connectivity than having onboard devices connect directly to cellular networks along the route.

Mats Karlsson, CTO and SVP Innovation for Icomera, said: *"Icomera is excited to demonstrate the technologies that will be used to deliver the true 'Gigabit Train'. The trial presents an early look at the throughput achievable when using 5G-enabled hardware and cellular network aggregation technology, even before 5G rolls out. We look forward to furthering the digital future of public transport, delivering benefits for both transport operators and their passengers."*

Technical Information

- Icomera X5 5G router equipped with 4 x 5G modems with CAT20 LTE support
- Externally mounted antenna array with either 2 or 4 antennas per active 5G modem
- Radio band used for 5G network: 3.5 GHz NR
- First aggregated peak of 1095 Mbps (986 Mbps from Tele2 5G network)
- Second aggregated peak of 1,112 Mbps (752 Mbps from LTE on Tele2 modem)
- Third aggregated peak of 1,267 Mbps (1,002 Mbps from Tele2 modem)
- LTE and 5G networks aggregated simultaneously using Icomera SureWAN™ algorithm

About Icomera

Icomera is the world's leading provider of wireless Internet connectivity for public transport and is committed to promoting green mobility. Serving millions of Wi-Fi users worldwide, our award-winning technology makes public transport a better, safer, more attractive option for passengers, supporting our mission to help contribute to a reduction in carbon emissions of 3.5 million metric tons by 2022. A wholly-owned subsidiary of ENGIE Solutions, Icomera is headquartered in Gothenburg, Sweden, with main offices in the United Kingdom, Germany, France, Italy, the United States, and Canada.

Find out more at [icomera.com](https://www.icomera.com)

About ENGIE Solutions

ENGIE Solutions supports towns, industries, and companies in the tertiary sector, providing them with solutions to the challenges posed by the energy transition in the form of turnkey and bespoke packages.

ENGIE Solutions' experts apply all their expertise in pursuit of three aims: optimising the use of energy and resources, greening energies, and reinventing living and working environments.

ENGIE Solutions guarantees its clients a single point of contact and a combination of complementary offerings that go beyond energy. The company is committed to achieving results and its 50,000 employees which operate throughout France (900 sites) have expertise in an extremely diverse number of areas, ranging from the design and operation of infrastructure & services, to funding, installation, and maintenance.

ENGIE Solutions is part of the ENGIE Group, one of the world's leading low-carbon energy and services groups whose purpose is to act to accelerate the transition towards a carbon-neutral world.

Turnover: €10 billion.

To find out more, visit <https://www.engie-solutions.com/en>

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Image: The Icomera X5 multi-modem aggregation router ([View Full Resolution](#))

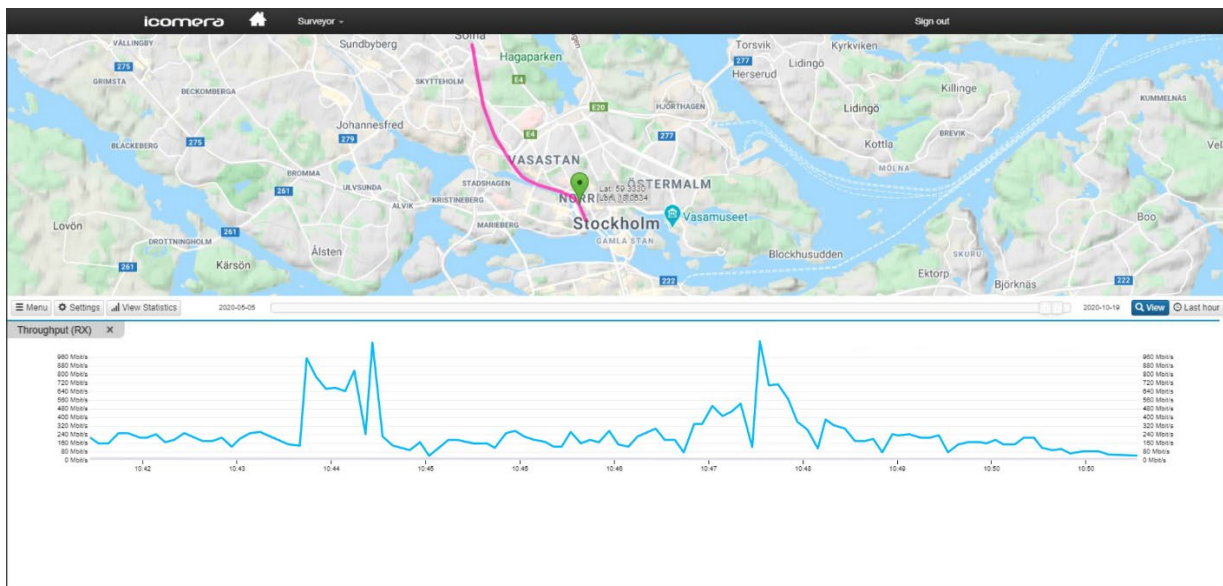


Image: The train reaches over 1 Gbps throughput in commercially available 4G and 5G networks ([View Full Resolution](#))