

# Fixed Wireless Access on 5G Networks



## Point-to-multipoint broadband for the last mile

Study S10 · summary for policy and industry experts · November 2024

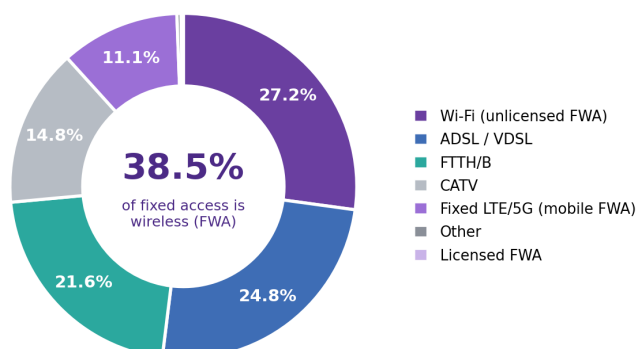
**AT A GLANCE** Study S10 assesses the potential of fixed wireless access (FWA) built on 5G and on comparable technologies in both licensed and unlicensed bands. It quantifies current and future demand from households and businesses, maps the Czech market and regulatory framework against the EU single market, and looks ahead to 5G-Advanced and 6G. FWA already carries 38.5% of all fixed-broadband connections in Czechia — making the wireless last mile a structural part of Europe's connectivity, not a rural stopgap.

## What the study covers

FWA is the final, wireless link of the connection chain: the higher network layers — backhaul and backbone — are carried over high-capacity fibre, while the access layer reaches the customer over radio. The study analyses where FWA delivers competitive broadband, what limits it, and how 5G can answer the rising capacity needs of the radio access network (RAN). A secondary question is whether FWA can also distribute content through specialised protocols such as 5G Broadcast.

## Why it matters

Where laying cable is costly, slow or blocked by property constraints, FWA brings high-speed connectivity quickly and at low build-out cost. It is far more than a rural solution: demand also arises in family-house districts and newly built peri-urban areas, and businesses rely on it as a resilient backup to fixed lines. Extending affordable high-capacity access supports the EU Digital Decade and VHCN connectivity targets.

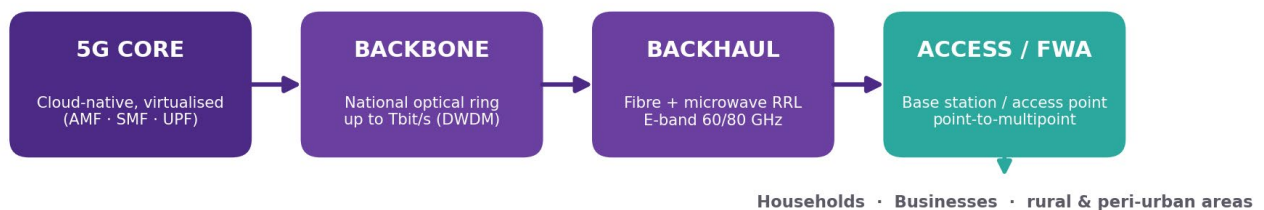


Fixed-broadband connections by technology, Czechia 2023. Wi-Fi (unlicensed), fixed LTE/5G and licensed FWA together make up 38.5% of the market. Source: Study S10, based on CTU market data.

## The FWA technology landscape

<p><b>Mobile networks (MFCN)</b></p> <p>Fixed LTE/5G reuses spare mobile capacity — about 11.1% of fixed access (≈454,000 connections). Only 5G unlocks the ≥100 Mbit/s to 1 Gbit/s tiers.</p>	<p><b>Licensed bands (non-mobile)</b></p> <p>Legacy WiMax has faded; today these are mainly point-to-point links for corporate clients and shared multi-dwelling buildings — roughly 8,000 connections in 2023.</p>
<p><b>Unlicensed bands</b></p> <p>The largest segment: Wi-Fi at 5 GHz plus 60 GHz WiGig (IEEE 802.11ad/ay). Around 1.12 million connections, with gigabit tiers available in the millimetre bands.</p>	<p><b>Point-to-point &amp; backhaul</b></p> <p>Licence-free E-band (71–86 GHz) delivers 40+ Gbit/s; about 14,500 links registered. Microwave links connect an estimated 30–60% of mobile sites.</p>

### From the network core to the wireless last mile (MFCN)



*FWA is a hybrid architecture: the wireless access layer solves the last mile, fed by fibre and high-capacity microwave backhaul.*

## Toward 5G-Advanced and 6G — what the study finds

- ▶ **Most users are already served.** Around 50 Mbit/s meets typical household needs, a level 4G-class FWA often reaches — so raw demand alone does not justify premium upgrades.
- ▶ **Spectrum is scarce and shared.** Bands below 3 GHz are effectively full; 3.6–4.2 GHz and 26 GHz suit fixed points and dense areas but require new base stations.
- ▶ **Backhaul is the real bottleneck.** Gigabit FWA in rural areas depends on pushing fibre closer to base stations and using licence-free E-band links to reach the rest.
- ▶ **Millimetre bands change the economics.** 60 GHz (WiGig) and 80 GHz combine spatial and frequency isolation, enabling tens of thousands of low-cost, self-coordinated links.
- ▶ **The roadmap is ambitious.** 5G-Advanced (3GPP Rel-18) and 6G target FWA throughput up to 10 Gbit/s — but infrastructure rollout lags well behind the technology timeline.

**KEY TAKEAWAY** Fixed wireless access is a permanent pillar of European broadband. The decisive levers are backhaul capacity and light-touch access to millimetre-wave spectrum — not headline peak speeds. Pragmatic, technology-neutral spectrum policy will determine how far 5G FWA can extend high-capacity connectivity into under-served areas across the EU.