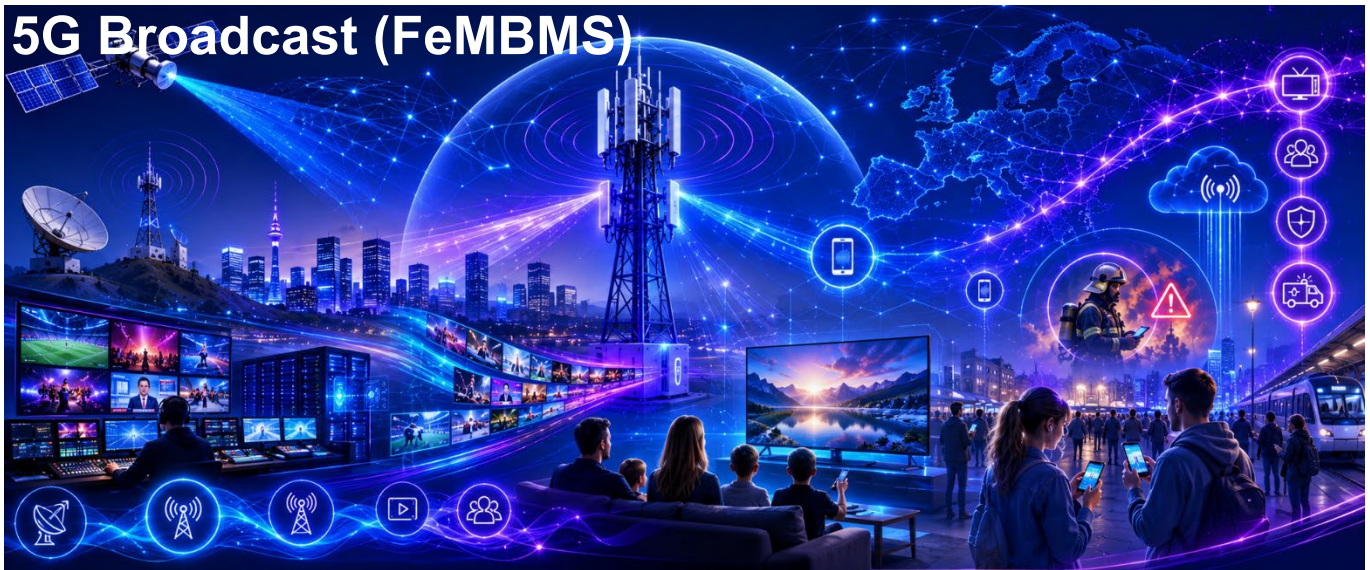


5G Broadcast (FeMBMS)

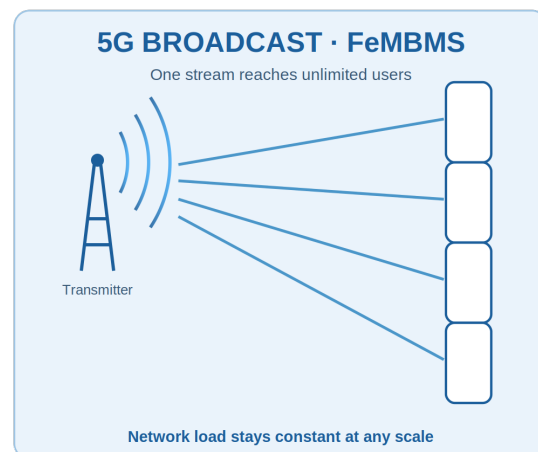
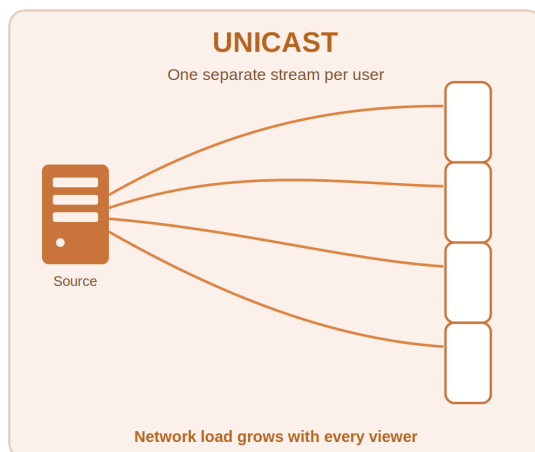


INFORMATION LEAFLET · STUDY 12

Efficient one-to-many delivery of multimedia and emergency communications in 5G networks

AT A GLANCE

Study 12 analyses **FeMBMS** (Further evolved Multimedia Broadcast Multicast Service) — the 5G Broadcast technology that delivers audiovisual content and mass communications to an **unlimited number of users at once**. It evaluates the technology's maturity, its compatibility with existing 5G and terrestrial networks, international pilot projects across Europe, and the practical path to deployment in the Czech Republic and the wider EU.



What the study covers

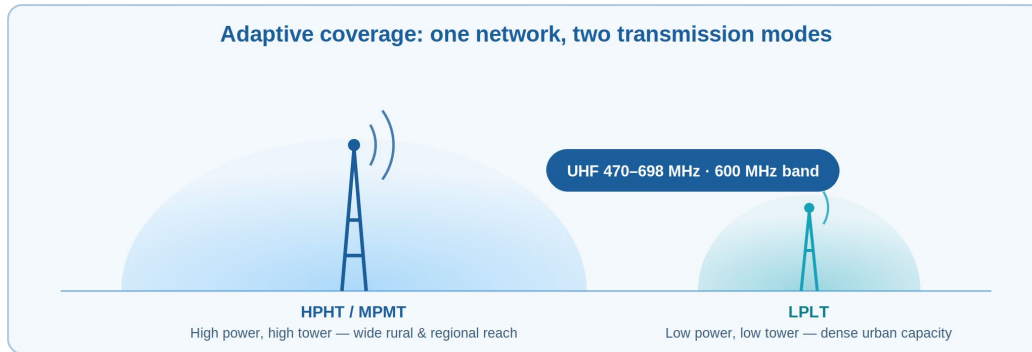
FeMBMS extends the earlier eMBMS (LTE) standard and brings high-quality television and audiovisual services into 5G networks. The study examines the technology from three angles — the **user**, the **content provider** and the **signal distributor** — compares terrestrial and satellite delivery, reviews the EU and Czech legal framework, and benchmarks international deployments. Its goal is to assess both the current implementation status and the future potential of FeMBMS, particularly in combination with traditional systems such as DVB-T2.

Why it matters

Unicast sends an individual stream to every viewer, so bandwidth demand rises with each connection and networks can become congested during mass-viewing events. Broadcast works on a **one-to-many** principle: a single stream reaches all users in coverage, so network load stays constant regardless of audience size. This makes 5G Broadcast a reliable channel for **emergency alerts even when conventional networks are overloaded**, and an efficient way to extend multimedia services into remote areas.

How it works — from unicast strain to one-to-many broadcast

- Combines multicast and broadcast to optimise bandwidth, with **HPHT/MPMT** mode for wide rural and regional reach and **LPLT** mode for dense urban capacity.
- **Single-Frequency Networks (SFN)** and OFDM reduce interference and keep the signal stable, even in difficult terrain.
- Runs in both **standalone (SA)** and **non-standalone (NSA)** 5G modes and integrates with **DVB-T2** to bring TV content to mobile devices.
- Advanced compression (**H.265/HEVC**, **AV1**) and adaptive streaming (**MPEG-DASH**) sustain high quality at low bandwidth.



Where it delivers value



International inspiration

The study benchmarks pilot projects across Europe and beyond — a rich evidence base for adapting deployment strategies to national conditions:

<p>DE Germany</p> <p>5G Media2Go and Hamburg trials; strong focus on in-vehicle multimedia and automotive collaboration.</p>	<p>IT Italy</p> <p>Turin 5G-TOURS trial and Aosta Valley Tower Overlay; emphasis on rural coverage.</p>	<p>FI Finland</p> <p>WIVE, 5GTN+ and eMBMS demos exploring industry verticals and broadcast.</p>
<p>AT Austria</p> <p>Vienna field trials measuring real-world 5G Broadcast performance.</p>	<p>GB United Kingdom</p> <p>5G RuralFirst project extending broadcast coverage to rural communities.</p>	<p>EU EU & global</p> <p>Tower Overlay trials in France and Norway, plus the Eurovision broadcast and the 5G-Xcast project.</p>

Key considerations for deployment

Realising FeMBMS in the Czech Republic and across the EU calls for coordinated action on:

- **Spectrum management** — securing the UHF 470–698 MHz / 600 MHz band for efficient wide-area coverage.
- **Network compatibility** — integration with SA/NSA 5G and DVB-T2 using SFN and HPHT architectures.
- **Infrastructure investment** — modernising transmitters while re-using existing assets, especially in remote areas.
- **Sustainable financing** — new revenue from targeted advertising and interactive broadcasting.
- **Security** — PKI authentication, AES/RSA encryption, DRM/CAS access control and protection against DoS attacks.
- **Regulatory alignment** — AVMSD, ETSI TS 103 720 and 3GPP releases, and national electronic-communications and broadcasting law.

KEY TAKEAWAY

5G Broadcast (FeMBMS) can make multimedia and emergency communications more efficient, resilient and far-reaching — a one-to-many platform of shared interest for broadcasters, mobile operators and public-safety authorities across the European Union.