



# 5G BROADCAST TRIALS IN EUROPE

## What is 5G Broadcast?

A newly standardised innovation, 5G Broadcast, combines building blocks of 5G mobile technology with broadcast towers to bring free-to-air linear content to all types of mobile devices such as smartphones and tablets and including in-car systems.

5G Broadcast works on mobile devices without the need of a SIM card. Hence, it does not require a subscription and its consumption is excluded from data caps.

As such, 5G Broadcast avoids gatekeepers and preserves the possibility of free-to air nationwide broadcasting services. From a broadcasters' perspective, 5G Broadcast has the potential to increase reach, to improve user experience and to remain competitive even if viewing behaviour changes.

**Regulatory:** 5G Broadcast is an application of the Broadcast Service. Alongside the current Digital Terrestrial TV (DTT) networks, it can complement current services without the need of any new allocation and increasing the already highly efficient use of the spectrum.

**Standards:** "LTE-Based 5G Terrestrial Broadcast" was introduced in 3GPP and Standardized in Release 16. It is published in ETSI (ETSI TS 103 720) and included in the standardization work of ITU-R Study Group 6.

## Many 5G Broadcast Trials are on-going in Europe.

**They associate public and commercial TV and radio broadcasters, broadcast network operators, technology partners and universities (list of participants at the end).**

### Austria

The trial in Austria, conducted by the broadcast network operator ORS, started in 2019 in Vienna with the goal of comparing existing DTT technologies (DVB-T2) with 5G broadcast.

It was then complemented by several phases of trials from 2020-2021 to 2021-2024 to investigate applications and further development of the 5G Broadcast ecosystem. Besides broadcasting transmissions also other possible technical functionalities (emergency warning, positioning and navigation) are investigated.

### Croatia & Slovenia

Croatian broadcast network operator OIV and RTV Slovenia launched a joint 5G Broadcast project. Two transmitters in SFN in UHF sub700 MHz frequency band are on-air since October 2022, one on site Sljeme near Zagreb in Croatia and the other on site Trdinov vrh in Slovenia. OIV in cooperation with RTV Slovenia's unit Oddajniki in zveze intends to test reception on mobile and portable devices in urban and rural areas.

### Czech Republic

The broadcast network operator CRA initiated a series of trials. Trial 1 was carried out from April to December 2022 in Prague from one TV tower. In Trial 2, since May 2023, a single frequency network is operated on 2 transmitters in the region of Prague.

## Finland

5G broadcasting technology trials were launched by broadcast network operator Digita in September 2020 and have continued until 2022. Trials were made in the capital area using a single frequency network with three transmitters. After this technical feasibility study the next phase is currently being planned.

## France

During the Roland Garros tennis tournament in June 2023, the broadcast network operator TDF, in collaboration with public service broadcaster France Television, is setting up a 5GBC trial using a dedicated transmission from the Eiffel Tower to cover the tournament area and surroundings.

## Germany

In Stuttgart from October 2020 to December 2022, a trial under leadership of the public broadcaster SWR investigated coverage towards cars to offer linear TV and radio service, media library and geo-referenced content recommendations (travelguide). In Hamburg, the public broadcaster NDR and broadcast network operator Media Broadcast established a trial in 2021, which is still ongoing.

## Italy

Not less than 4 trials have been performed or are still on-going in Italy since 2021, conducted by public service broadcaster RAI and broadcast network operators RAIWAY or EI-Towers: Torino since 2021; Aosta Valley from 2021 to 2022; Eurovision Song contest in 2022 in Turin and 3 other capital cities in Europe (Paris, Stuttgart and Vienna) with the support of EBU; Lissone Lombardy since March 2023.

## Spain

Three trials have been set up by public TV broadcaster RTVE and broadcast network operator Cellnex Telecom during the 2020, 2022 and 2023 editions of the Mobile World Congress in Barcelona. Each trial allowed to demonstrate the progress in the technology and the integration in smartphones and explore outdoor and indoor coverage and associated services.

## Conclusions

5G Broadcast is confirmed as one of the 3 key pillars for the broadcasting innovation agenda, alongside quality increase (HD, UHD) and Hybrid Television services combining linear and non-linear delivery in a seamless way.

Real life demonstration of the performance of the standard with involvement of each part of the systems value chain was achieved under a variety of environments.

5G Broadcast networks have similarities with DTT and will share as a basis the High-Power/ High-Tower Infrastructure Investment made for the DTT networks, but will not be exactly the same.

5G Broadcast will use spectrum slots in the 470-694 MHz band alongside with DTT. For 5G Broadcast to be able to develop it is important that the band is retained for the Broadcasting Service with a No Change decision on Agenda point 1.5 at WRC-23.

## Participants to trials

ARD, Ateame, Bitstem, Cellnex, CRA, ČRo Radiožurnál, CT 1 HD, CT1 Sport HD, CNN Prima News, DFMG, Digita, EBU, Eurovision, EI Towers, 5G-MAG, France TV, Kathrein, KroneHit, ORF, ORS, OIV, Media Broadcast, Mercedes-Benz, NDR, Porsche, ProSiebenSat.1, Qualcomm, RAI, Railway, Rohde&Schwarz, RTVE, RTV Slovenia, Syes, Servus TV, SWR, Technische Universität Braunschweig, TDF, Telekom....

## More

The website of Broadcast Networks Europe [www.broadcast-networks.eu](http://www.broadcast-networks.eu)

5G-Media Action Group [www.5g-mag.com](http://www.5g-mag.com) (BNE is a founding member of 5G-MAG)

Preliminary draft new Report ITU-BT.[TRIALS-NEW-TMMB] -Collection of field trials of Terrestrial Multimedia Mobile Broadcasting systems (Doc. 6A/417 Chapter 1 Annex 1 from ITU WP6A)

