



European Commission

#DSM

Digital Single Market

Spectrum in the European Union

MODERN CONNECTIVITY IN EUROPE REQUIRES A BETTER COORDINATION OF RADIO SPECTRUM WAVES – A KEY RESOURCE FOR MOBILE COMMUNICATIONS



"We need increased coordination in spectrum management so that Europe can become a leader in the roll-out of 5G networks. Our economy needs it, our businesses need it to grow and expand."

European Commission President Jean-Claude Juncker

To successfully build a Digital Europe, the EU needs in particular: A first rate infrastructure and communications network; this requires cooperation at the EU level, inter alia with the aim of achieving world-class very high-speed fixed and mobile networks (5G) all across the EU and increased coordinated availabilities of spectrum by 2020 under consistent regulatory and economic conditions; this in turn requires dedicating all necessary legislative resources, including a sufficient number of trilogues, to reaching an agreement on the electronic communications code, including the necessary provisions on spectrum.

European Council conclusions from 19 October 2017

WHAT IS SPECTRUM AND HOW IT IS USED?

- Radio spectrum waves are the basis for Wi-Fi, mobile phones and other wireless communications devices.
- Spectrum is also a key resource for other sectors that rely on wireless services such as broadcasting, public safety (police, fire brigades), research (radio astronomy), transport (ships, airplanes), environmental protection (monitoring the Earth's surface and atmosphere) and energy (smart grids).



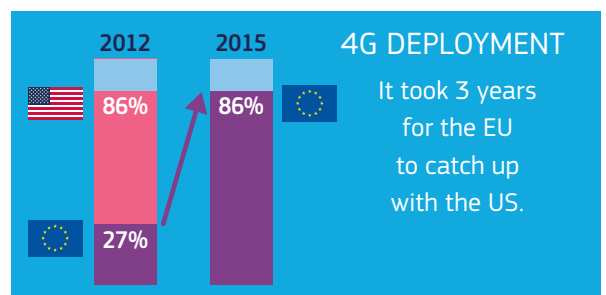
SPECTRUM COORDINATION IS INDISPENSABLE FOR BETTER CONNECTIVITY IN THE EU

- Next generation data communication – 5G – will offer a multitude of new opportunities for citizens and businesses with services crossing national frontiers. That is why 5G roll-out cannot just be a national matter.
- The EU has already made a first step towards 5G in 2017 by legislating to fix a common deadline in 2020 for some TV broadcasting spectrum (the 700 MHz band) to be assigned for wireless broadband. But much more spectrum is needed.
- The EU has powers to define technical aspects of spectrum use, but Member States decide when it is made available to mobile operators in their territory and under what conditions – for how long, for what price. In these circumstances, it is not possible to roll out new, top-quality wireless data services throughout Europe at the same time and with a common business model that supports major investments.


FROM 2G TO 5G

The EU was leading in the world for 2G and 3G connections, but the fragmentation and delays left Europe lagging behind in 4G for several years, a delay it has only recently made up.

For 5G we cannot repeat the same mistake. While 5G trials have begun in Europe, the US, Japan or South Korea are already planning major deployments.




WHAT WE WILL BE ABLE TO DO IN 2025 WITH BETTER CONNECTIVITY?

Time to download a 	2017 4G average download speed = 25 Mbps	2025 5G
Digital book – 1 MB	0.32 second	3.2 milliseconds
Song – 5 MB	1.6 seconds	16 milliseconds
TV show (HD) – 450 MB	2.4 minutes	1.44 seconds
Film (HD) – 1500 MB	8 minutes	4.8 seconds

COPING WITH THE DEVELOPMENT OF THE INTERNET OF THINGS

ALL CONNECTED DEVICES NEED SPECTRUM TO SEND AND RECEIVE DATA


 **Demand for wireless** connectivity using smart phones and future 5G devices is continuously **growing**. Mobile traffic will grow eight times in the next five years.

 The worldwide market for the **Internet of Things** will **grow** from 15.4 billion devices in 2015 to 75.4 billion in 2025.


WHAT DID THE EUROPEAN COMMISSION PROPOSE?

- Clear rules on spectrum assignment to accelerate 5G deployment in the EU
- Spectrum release (timing, coverage criteria, and license duration) has to be coordinated and systematically reviewed in the EU


THE NEW EUROPEAN ELECTRONIC COMMUNICATIONS CODE WILL


 Ensure **timely/ simultaneous release** of spectrum across the single market so that **investments in 5G networks** can happen in different Member States at the same time.


 **Increase investment certainty** through **longer license durations (20 years)** and clarity on **renewal**. This will ensure **return on investment** and **predictability** for all market players.


 Facilitate rapid deployment of dense networks of 5G small cells and chips, to **guarantee better and uninterrupted wireless network coverage across the EU**.

FROM WHICH NEW SERVICES EU CITIZENS AND BUSINESSES WILL BENEFIT BY 2025 IF THE COMMISSION'S PROPOSALS ARE ADOPTED?

 Factories of the future interconnected machines, robots, automated processes, goods, remote workers in real time

 Doctors operating remotely or closely monitoring patients at home

 Cities turning to intelligent energy consumption or traffic lights based on real-time needs

 Connected cars driving on European roads

KEY MILESTONES FOR A EUROPEAN POLICY ON SPECTRUM

- Mid 2018** New European Electronic Communications Code adopted and increased spectrum coordination
- 2019** Technical harmonisation of the spectrum bands 3.6 GHz (for connected car corridors) and 26 GHz (for enhanced, dense wireless broadband)
- Mid 2020** Code transposed in national law, which includes binding time limit for making spectrum available, peer review, longer licence duration, etc
- 2020** 700 MHz band assigned in most Member States, 5G in one city per Member State
- 2020-2022** All Member States to assign the 700 MHz band by mid-2020. Other 5G bands (3.6 GHz and 26 GHz) should be assigned by 31 December 2020.
- 2020-2025** Roll-out of 5G infrastructure
- 2025** Gigabit Society (5G in major cities and along major transport routes)