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# Spectrum Sharing in the Czech Republic:

# Experiences and future plans

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Český telekomunikační úřad


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# Topics

- ❑ Spectrum Sharing: risk management and potential benefits
- ❑ National experience and technology-based regulation: 60 GHz
- ❑ National decision: RLAN 5.8 GHz
- ❑ Spectrum sharing and algorithm sharing: Software licencing
- ❑ CEPT and EU Policy Outcomes in the 6 GHz band (lower part)
- ❑ Upper part of the 6 GHz band: under study
- ❑ National spectrum plan: both RLAN and 5G considered
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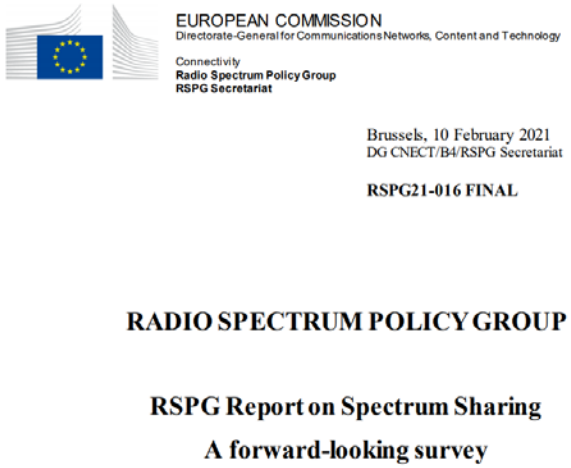
# Spectrum Sharing: risk management and potential benefits

- Based on new EU telecommunication regulatory framework (The Code) and new needs and trends, the European Union is going to adopt new Radio Spectrum Policy Program (2022).
- The shapes of the spectrum sharing have been summarized via RSPG Report on Spectrum Sharing: A forward-looking survey. Some ideas:
  - more efficient use of radio spectrum
  - to give incentives for innovation (geolocation, blockchain, …)
  - the availability of information about spectrum usage to facilitate spectrum sharing
  - the role of research activities
  - collaborative efforts


EUROPEAN COMMISSION
Directorate-General for Communications Networks, Content and Technology

Connectivity
Radio Spectrum Policy Group
RSPG Secretariat

Brussels, 10 February 2021
DG CNECT/B4/RSPG Secretariat

RSPG21-016 FINAL

RADIO SPECTRUM POLICY GROUP

RSPG Report on Spectrum Sharing
A forward-looking survey

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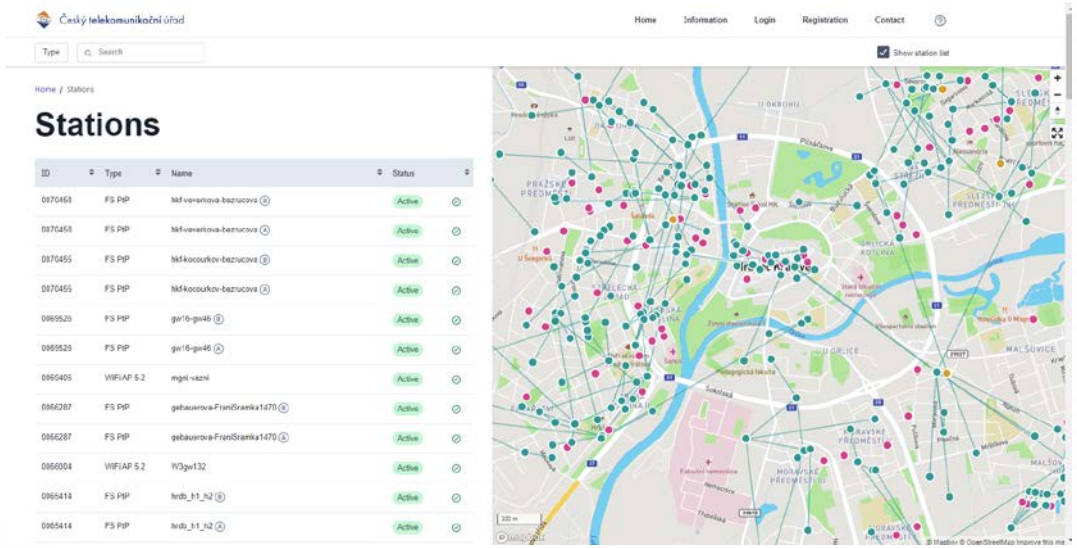
# National experience and technology-based regulation: 60 GHz

- Rollouts of fibre networks to households in rural or some specific areas: difficult to find investors.
- Fixed Wireless Networks in the 60 GHz: a solution (WiGig, MGWS).
- However - incumbent Fixed Service. Solution for the coexistence between FS and WiGig/MGWS: licence-exempt operation based on registration and Coordination Calculator
- Spectrum management is fully in hands of users. Launched in January 2020.
- Today: 55.000 stations. It facilitated the connectivity for citizens during the during the COVID-19 pandemic.
  - ➢ rlan.ctu.cz/en

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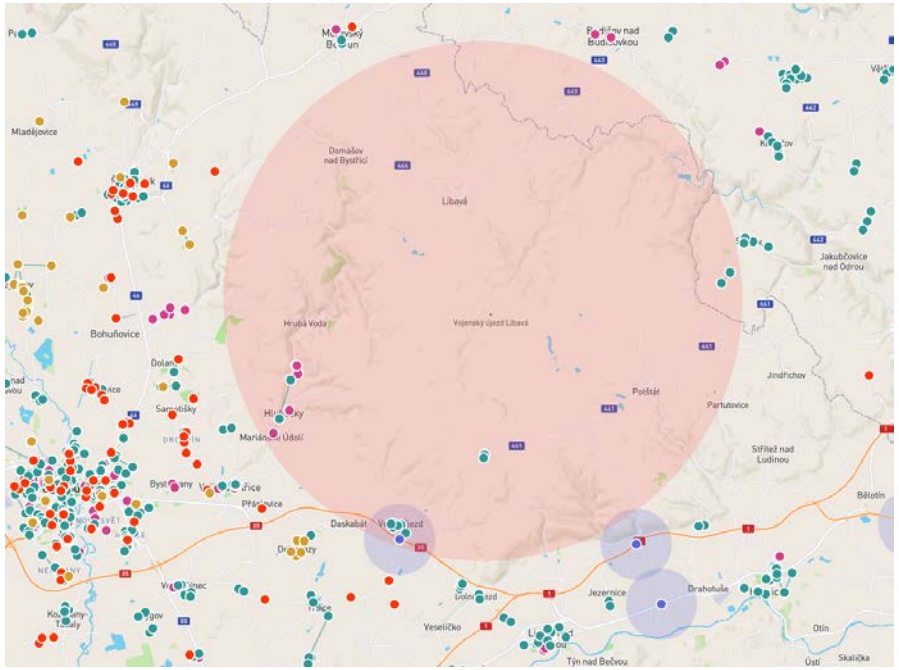
# National decision: RLAN 5.8 GHz

- As the users accepted the light-licencing in the 60 GHz, the Administration proceeded to open further band for RLAN (e.i.r.p. > 25 mW), based on sharing principles: 5725-5850 MHz (April 2021).
  - ➢ RLANs with e.i.r.p. > 200 mW: light-licencing in order to manage coexistence with the incumbents.
- Spectrum sharing with military users: exclusion zones + agreement on the conditions during peacetime
- Road tolling protection: exclusion zones
- CEPT and RLAN in the 5.8 GHz: no European harmonisation, but draft new ECC Report on national measures (public consulation during summer 2021)

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# Spectrum sharing and algorithm sharing: Software licencing

- Advanced spectrum sharing solutions are based on technologies and algorithms. However, several R&D activities are managed on national levels. How to introduce wider multi-country benefits?
- The vision:
  - To share SW solutions with other administrations. If possible, via Free and Open Source Software (FOSS) licences
  - SW developers on the side of administration & the (expert) public can be involved in improvements (reciprocity)
  - European Union Public Licence 2.0 or other copyleft licences can be explored
  - FOSS for European collaboration and benefits: drafting FOSS licence terms and conditions with strengthened reciprocity clauses can be explored in the future

# CEPT and EU Policy Outcomes in the 6 GHz band (lower part)

- 2017: European Union (the Commission) issued the Mandate to CEPT to study conditions for WAS/RLANs in the 5925-6425 MHz band.
- Result: In November 2020, based on detailed studies, CEPT/ECC approved: ECC Decision (20)01 On the harmonised use of the frequency band 5945-6425 MHz for WAS/RLAN (lower part of the 6 GHz band):
  - LPI: 23 dBm (indoor only)
  - VLP: 14 dBm (outdoor, indoor)

CEPT ECC
Electronic Communications Committee

ECC Decision (20)01

On the harmonised use of the frequency band 5945-6425 MHz for Wireless Access Systems including Radio Local Area Networks (WAS/RLAN)

**approved 20 November 2020**

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# Upper part of the 6 GHz band: under study

- WRC-19 adopted Agenda Item 1.2 aiming to study mid-bands for IMT, as described in Resolution 245 (WRC-19): 6425-7125 MHz (globally). Incumbents to be protected: satellite services (FSS), fixed service and others.
- Main reason for the IMT: during the next decade, 5G will need more mid-band spectrum than is currently available for assignment in the 3400-3800 MHz band in Europe.
- Opportunity to studies: Several countries (outside Europe) have adopted the conditions allowing contiguous usage of 1200 MHz in the 5925-6425 MHz band. Therefore, there is a case for expanding the RLAN frequency range to 7125 MHz.
    - ➢ It could support i.a. high data rate applications including high-performance, wearable, augmented-reality and virtual-reality devices

# National spectrum plan: both RLAN and 5G considered

## RLAN:

- Based on the pandemic situation, considerations on RLAN in the upper 6 GHz band became a part of the national (Czech) draft proposal on the government Radio Spectrum Management Strategy.
- Benefits from the RLAN harmonisation are expected to be earlier than in case of IMT.
  - Full benefits can be reached in case of wider harmonisation. Therefore, the Czech Republic will support studies on possible RLAN harmonisation in the upper part of the 6 GHz band.

## 5G NR:

- New project in mm waves: the government adopted the National Recovery Plan aiming to observe algorithms and principles (including planning SW) facilitating dynamic assignment of 5G in the 26 GHz band (outdoors).
  - Considered solution: light-licencing spectrum authorisation
  - Outputs expected in 2023.

# Conclusions

- Need to accelerate high-speed connectivity.
- Techno-regulation is a promising approach to manage several spectrum sharing solutions.
- National decisions on licence-exempt usage address only limited (local) interest of vendors. Therefore, European harmonisation and standardisation facilitate market opportunities.
- The aim is to bring the best solutions for wide-society benefits: availability of high-speed connectivity for users.
- Spectrum sharing is about balancing benefits and possible risks. Policymakers and administrations are obliged to study new and innovative approaches.
- To observe FOSS for international collaboration and benefits.

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