DIGITALEUROPE

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Exploring 5G spectrum options for vertical/local use cases

Executive summary

The promise of 5G for new industrial use cases, with the emergence of important vertical applications, requires careful consideration as to how spectrum needs are changing and how EU regulation for spectrum access should accompany them.

DIGITALEUROPE finds that multiple spectrum options for local 5G networks will be possible.

Such options should consider:

- Studying whether harmonisation for local networks at EU level (to enable economies of scale) and national flexibility, allowing regulators to make some level of national decision on the best use of the 3.8–4.2 GHz band, can be combined.
- Mechanisms such as leasing, use-it-or-lease-it, use-it-or-share-it or use-it-or-lose-it at 26 GHz, which may contribute to efficient spectrum utilisation.

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Spectrum options for local networks in Europe

DIGITALEUROPE finds that multiple spectrum options for private/local 5G networks will be possible. These comprise:

- **MNO spectrum with the MNO providing the network solution** – allowing businesses to benefit from readily available licensed spectrum and its ecosystem.
- **Dedicated licensed spectrum –** allowing verticals and/or other subnational operators wanting to operate their own private/local 5G network to obtain a localised license for their premises.
- **Spectrum leasing** – allowing businesses wanting to operate their own 5G infrastructure to lease spectrum on a localised basis from public network operators holding national 5G spectrum licences.
- **Shared spectrum** – allowing businesses wanting to operate their own 5G infrastructure to apply for licences in a shared spectrum band, which will need to be coordinated with other users in the same band.

Keeping these four scenarios in mind, we note that:

- The spectrum frequency ranges and bandwidths that are made available in both mid and high bands for private/local networks differ among Member States.
- In a number of Member States, dedicated spectrum for private/local networks is now available.
- In other countries, spectrum for verticals has been provided, e.g. 3.74–3.8 GHz in Denmark, by means of obligatory leasing where the licensees, i.e. public network operators, are obliged to either provide the local service or lease the spectrum in the specific area.
- In a few more countries, regulators are assessing the need and market demand for dedicated spectrum for private/local networks.
- The European Commission mandated CEPT to study harmonisation of the 3.8–4.2 GHz band for low- and medium-power applications on a local basis.
- The UK has already made the 3.8–4.2 GHz band available for low- and medium-power applications on a local basis for use by private and mobile network operators.
- The 3.8–4.2 GHz band (or parts thereof) has been made available for wide-area/nationwide networks in other parts of the world, including

Japan, the US and Saudi Arabia. Additional countries in the Middle East region, e.g. the UAE, are considering opening the 3.8–4.0 GHz range for IMT for MNOs to achieve up to 200 MHz each in the 3.3–4.2 GHz band. Saudi Arabia and the UAE have also consulted on spectrum in the 4.0–4.2 GHz range for local networks. Additionally, Canada has indicated it intends to consult on the use of the 3900–3980 MHz band for local networks. Such activities would benefit European use in the upper part of the band for local networks by helping to create a larger market and resulting ecosystem, with corresponding economic benefits.

- A number of Member States have made the 26 GHz band available for private/local networks, some in the lower part, e.g. Sweden, the UK, Denmark and Finland, and some in the entire band, e.g. Germany.

3.8–4.2 GHz band

DIGITALEUROPE welcomes the 3.8-4.2 GHz band as a valuable additional spectrum resource for both private (e.g. enterprise) and public (e.g. community-type) networks.[1]

DIGITALEUROPE sees a benefit in studying whether harmonisation for local networks at EU level (to enable economies of scale) and national flexibility, allowing regulators to make some level of national decision on the best use of this valuable mid-band spectrum, can be combined.

Such decision would depend on industrial users' connectivity needs in the country, i.e. different countries may need different amounts of locally licensed spectrum, on the incumbent use of the band and on the spectrum already allocated to local networks in other bands. At the same time, a minimum level of harmonisation should be guaranteed to enable EU-wide harmonised access to spectrum for local networks.

26 GHz band

DIGITALEUROPE recognises the importance of the 26 GHz band as a valuable spectrum resource for both public and private/local networks. Member States should consider the need of both public and private networks.

[1] Some DIGITALEUROPE members stress that the 3.8–4.2 GHz band is a very valuable portion of mid-band spectrum, and should as such be considered not only for local networks but also for mobile operators' macro cellular networks.

As with mid-band spectrum, estimating present and future spectrum needs for private/local networks in the high-band range, aiming to achieve high spectrum efficiency, is of extreme importance.

DIGITALEUROPE believes that the 26 GHz band should be awarded on a licensed basis to enable a stable network investment environment that can provide predictable network performance for ultra-reliable, low latency and mobile broadband use cases.

We believe that mechanisms such as leasing, use-it-or-lease-it, use-it-or-share-it or use-it-or-lose-it will be important to ensure efficient utilisation and allow verticals and/or other subnational operators to gain access to 26 GHz on their premises. This is particularly the case where mobile operators do not plan or are not in a position to roll out services in the long term.

Should dedicated spectrum for verticals prove necessary in light of market demand, setting aside dedicated frequency resources in the lower part of the 26 GHz band should be considered in line with decisions made by pioneer countries such as Sweden, the UK, Denmark and Finland.

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About DIGITALEUROPE

DIGITALEUROPE represents the digital technology industry in Europe. Our members include some of the world's largest IT, telecoms and consumer electronics companies and national associations from every part of Europe. DIGITALEUROPE wants European businesses and citizens to benefit fully from digital technologies and for Europe to grow, attract and sustain the world's best digital technology companies. DIGITALEUROPE ensures industry participation in the development and implementation of EU policies.

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