Evolution of the shared access licence framework

Ofcom calls for input

About Ericsson.

Ericsson is one of the leading providers of Information and Communication Technology (ICT) to service providers. We enable the full value of connectivity by creating game-changing technology and services that are easy to use, adopt, and scale, making our customers successful in a fully connected world. Our comprehensive portfolio ranges across Networks, Digital Services, Managed Services and Emerging Business; powered by 5G and IoT platforms.

Ericsson welcomes the opportunity to respond to Ofcom's document Evolution of the Shared Access Framework: Call for Input' released 28 March 2023. Response is due by 5pm on 16th May '23.

Ericsson response: - Evolution of the shared access licence framework

To realise the potential of a digital society, including smart cities, connecting the unconnected, IoT, and industry automation, additional suitable spectrum bands with sufficient bandwidths for 5G and its evolution are required. The addition of mid-band spectrum is critical for improving the coverage and capacity of 5G services. The 3.8-4.2 GHz band, currently available via the shared access regime, offers the potential to deliver on many of the proposed use cases that are best served by 5G mid-band spectrum.

Currently there are some issues with the shared access regime that is likely to be contributing to the limited usage, particularly for the 400MHz in the 3.8-4.2GHz band. With potential changes to the current Shared Access licence conditions, there could be wider usage and denser deployments in both rural and urban locations.

The challenge of a shared access scheme is to strike a balance between enabling high enough base station power for relevant use cases, the management of coexistence of licences as well as conditions that encourage investment in the eco-system and network deployments.

There is a risk with the current licence regime that the UK will have wide areas that will not have the opportunity to benefit from the shared access licence spectrum. The 3.8-4.2 GHz band is 400MHz of premium 5G mid-band spectrum that with updated licence conditions could serve many of the verticals looking to adopt 5G, resulting in many thousands of 5G use case deployments across the whole of the UK and avoiding a scenario where the spectrum is under-utilised.

The following suggestions may encourage 5G adoption across a wide range of verticals via the utilisation of the Shared Access Licence:

- Consider increasing the power levels for both low and medium power deployments.
- Allow medium power deployments in urban areas.
- Consider creating a new licence or update the medium power licence to enable the deployment of active antenna systems (AAS). This will require higher power levels than are currently authorised. Many mid-spectrum deployments are anticipated to use AAS.
- Consider authorising licences in the 3.8-4.2GHz band that allow up to 200MHz of contiguous spectrum for use cases such as AR/VR & HD live video links.
- Review the cost-efficient deployment needs of use cases for large indoor deployments as the current licence restriction may be cost prohibitive. Examples include large warehouses, factories, or stadiums
- Consider how best to serve the need for use case deployments that have a requirement to roam indoor and outdoor within a private network.
- Review the cost-efficient deployment needs of outdoor private network deployments over wide areas such as ports, industrial estates, university campuses, agriculture, airport estates.
- Extend the “use it or lose it” period to take into consideration the time it takes to deploy a network.
- Extend the licence term to at least 10 years to encourage investment and avoid the lack of business case.
- Avoid the need to move licenses within the 3.8–4.2 GHz band, as generally, the eco system does not support this and the majority of 5G use cases have deterministic spectrum needs.
- Consider how the licence regime can avoid an administrative burden on Ofcom. The success of the shared access scheme is likely to result in many thousands of licences.

Examples of verticals that are keen to adopt 5G but may not be cost effectively served by the shared access licence scheme include ports, airport estates, sports venues, outdoor sports events (e.g., racecourses), festivals, large manufacturing plants and smart cities. The challenge is not the technology but is often related to the business case and investment requirements. Lower power regimes require more radios, backhaul, infrastructure and in expansive areas this can become cost prohibitive.

Considerations for Active Antenna Systems (AAS):

The UK shared access license regime was established in 2019 and is based on non-AAS deployments. At that time AAS regulations were not fully developed.

AAS is different to non-AAS and needs different specifications (e.g., TRP) to allow its full potential with beamforming, which can give better coverage, better capacity serving multiple users in multiple beams, and a narrower beam which also will give less interference to other systems.

It may be appropriate to update the Shared Access licence to allow the use of TRP power limits for AAS Medium power BS as defined in ETSI 138 104, with an appropriate set of AAS antenna configurations (such as e.g., 4x4, 4x8, 8x8).