



### Webinar highlights

At the recent webinar titled “Licensed 6 GHz for 5G: An Opportunity for Society in Europe”, policy makers and leading industry players discussed the importance of the 6 GHz band for licensed 5G. Speakers brought out a clear message, calling for a balanced approach for 6 GHz in Europe: a licensed allocation in the upper 6 GHz range (6425-7125 MHz) complementing the license-exempt allocation in the lower 6 GHz range (5945-6425 MHz).

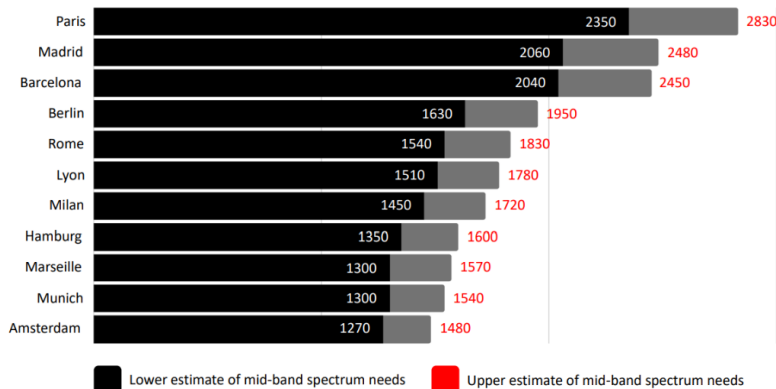
Europe's society and economy need future-proof communications infrastructure to drive the Digital Decade.

5G is a key pillar of the digital transformation providing reliable, high capacity, low latency, and wide-area connectivity to digital consumers & industries.

Licensed use of the 6 425 – 7 125 MHz band by public mobile network operators will achieve the best outcome for Europe's digital society.



Ms. Luciana Camargos, head of spectrum at **GSMA**, highlighted that, according to a recent [study](#) published by the GSMA estimates the mid-band spectrum needs in European cities to be in the range from ca. 1.5 to 2.8 GHz. Considering an average of 2 GHz for the mid-bands needs in Europe, and accounting for the current availability of 1050 MHz harmonized spectrum, the GSMA asked where the additional 950 MHz will come from and invited listeners to think about the question during the webinar.



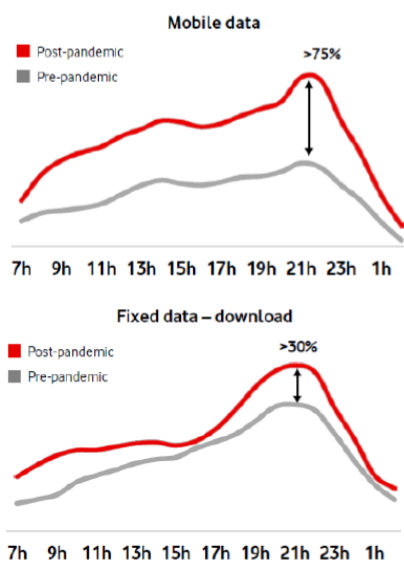
Mid-band spectrum needs in Europe by 2030

	Europe	MENA	SSA
1-3 GHz	650	650	650
3-6 GHz	400	500	300
	<b>950</b>		

“With less spectrum, IMT-2020 requirements are under risk or 5x more base stations are needed. The additional spectrum will allow cell sites to support 3.5-6x more homes with 5G FWA”

Harmonized Mid-bands in EMEA and the identified need in Europe (ref: GSMA presentation)

During his presentation Dr. Peter Cosimini shared important traffic trends in **Vodafone** networks: mobile and fixed network traffic has been more than doubling every two years and is forecasted to continue accelerating. Dr. Cosimini emphasized that it’s all about customer choice also highlighting that during the pandemic, users chose data via mobile over WiFi, i.e. mobile data traffic during the peak hour has increased by 75% (+30% for fixed traffic).



“Mobile network traffic forecasts show that some Urban 5G network areas will begin to experience capacity limitations within the next 6 years, driven by demand for new and enhanced Mobile Broadband Services (HD/UHD video, AR/VR services, Cloud Gaming), Fixed Wireless Access, Smart City use cases etc

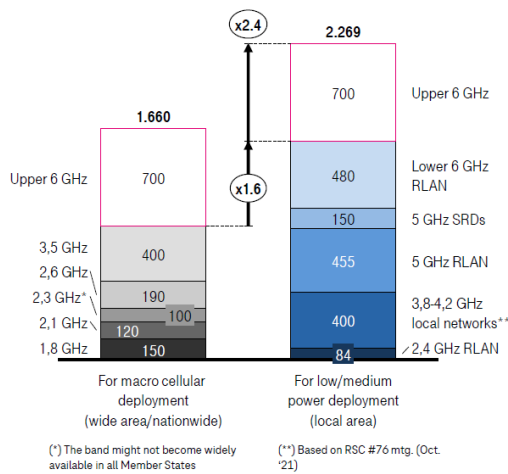
Traffic trends in Mobile and fixed networks. (ref: Vodafone presentation)

According to Dr. Cosimini, 6 GHz spectrum can be used for wide-area mobile broadband services achieving similar levels of coverage as 3.5 GHz services today

thanks the massive MIMO antenna technology. Allocating the upper 6 GHz band for IMT therefore reduces the cost of delivering mobile data (cost/GB) while not allocating the upper 6 GHz band for IMT will have a significant impact on future public 5G network service performance with negative outcomes on our digital society and economy.

Mr, Jan-Hendrik Jochum, Vice-President for spectrum policy & projects at **Deutsche Telekom AG**, agreed on the fact that, in addition to the 3.5 GHz range, the 6 GHz band is the only possible mid-band resource to meet mid-term capacity needs wider area coverage.

With reference to the current status of mid-bands harmonization in Europe, Mr. Jochum stressed the unbalanced mid-bands spectrum availability for macro cellular wide area and for local area deployments and the important role the 6 GHz band can play with this respect. Not allocating the 6 GHz band for IMT would further weakens European Telco Industries capability to deliver Very High Capacity Networks since mobile operators would not be able to provide the required 5G outdoor capacity in an economically viable manner.



*“The imbalance would grow up to 2.4 times if the upper 6 GHz band is used for RLANs/local licensing. If the upper 6 GHz band is made available for macro cellular networks, a better balance can be achieved. Swathes of mid-bands for low/medium-power short range communications can have a huge opportunity cost.”*

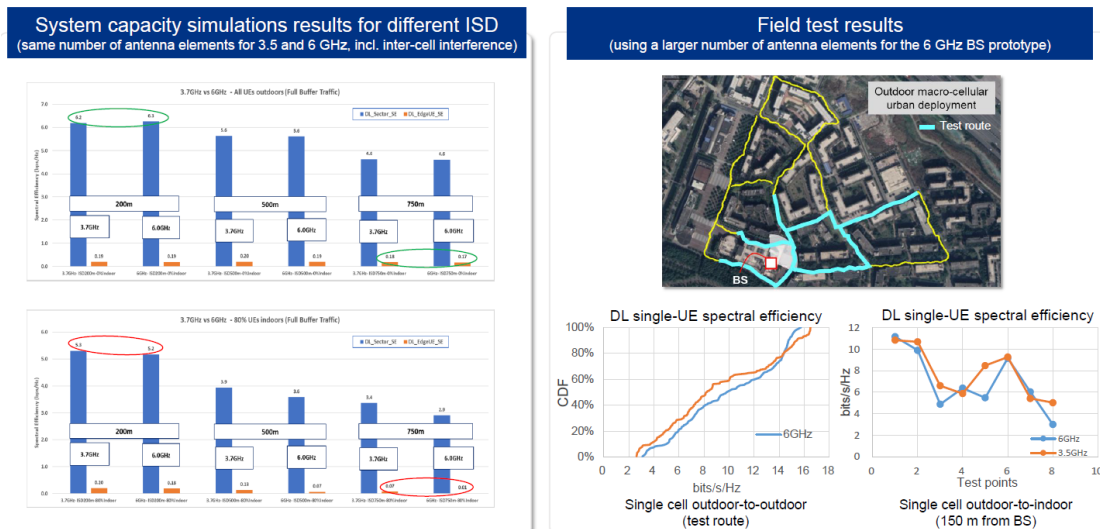
**Wide vs local area mid-band spectrum (MHz)**  
 (ref: DT presentation)

Mr. Stefan Apetrei, Deputy Director, Strategy & International, **Orange** highlighted the 6 GHz band as the key enabler for the future of 5G being a “perfect fit” for high data-driven applications, like smart cities, remote medicine, augmented reality, etc.

With reference to the possible use of the 6 GHz band for mobile backhaul, according to Orange, with 5G higher capacity, there is a need for higher backhaul capacity as well and 6 GHz is not enough but higher bands, as E-band. In the early stages when 5G deployments in the 6 GHz band will be focused in urban areas, and FS in rural areas

and coexistence between the two services will therefore be possible.

Ms. Erika Tejedor, Director of Government and Industry Relations, spoke on behalf of IMT network infrastructure vendors **Ericsson, Huawei, Nokia, ZTE**. She highlighted the need for a European roadmap for licensed mid-band spectrum for wide-area mobile networks. The presentation focused on the capabilities of 6GHz macro BS. Ms. Tejedor highlighted that simulations and field test results confirm the RSPG interim opinion on WRC-23 stating that the band 6425-7125 MHz may respond to additional spectrum demand in mid-band since it has similar propagation conditions to the 5G pioneer band 3400-3800 MHz. She further explained that massive MIMO enables similar performance at 6 GHz and 3.5 GHz band in both outdoor and indoor environments.



6 GHz and 3.5 GHz System capacity simulations and field test results  
(ref: Vendors presentation)

As for the important issue of coexistence with incumbent services, vendors showed preliminary studies based on agreed ITU-R parameters, indicating that 5G NR base stations can provide macro-cellular citywide coverage while ensuring coexistence with Fixed Satellite Service - (Earth to Space) and that co-existence with backhaul fixed links can be addressed link-by-link and can be facilitated by deployment coordination and/or separation distances, and/or frequency separation.

Tim Frost, Wireless Technology and Standardization Expert at **MediaTek**, highlighted the technical feasibility of licensed and unlicensed in 6 GHz devices. As a leading wireless chipset supplier globally for 5G NR, LTE, NB-IoT, and WiFi, MediaTek stated its support for the balanced approach for 6 GHz in Europe. He added that licensed spectrum in upper 6 GHz is a natural extension of sub-6 GHz for 5G.



Industry presentations were followed by a lively debate among key European administrations. Policy makers have clearly stated that their final position on the future use of the upper 6 GHz band will largely depend on the ability of IMT systems to coexist with other primary services in the band. No decision is expected before WRC-23, administrations shared their plans to actively engage in the ongoing sharing and compatibility studies within the ITU and regional groups.

Eric Fournier representing the **French administration (ANFR)** stated that there is a clear need for additional mid-band spectrum in the medium term and recognized that, depending on the possibility to fulfil the international obligation of protecting the Fixed Satellite Service UL, there may be an opportunity to allocate the 6 GHz band for 5G or maybe 6G, having the 2030 time horizon in mind. Mr. Fournier also highlighted the possibility to consider the progressive migration of fixed links outside the 6 GHz band. Triggered by a question from audience on the compatibility between IMT and the Earth Exploration Satellite Service, the French representative underlined the fact that EESS has no status in terms of ITU-R Radio Regulations (not even secondary allocation) but the usage is real, more studies will be carried out to determine the width of the sea area along the coastline that would be effected by IMT deployments in-land.

Umberto Mascia from the **Italian Administration (MISE)** said that Italy is following with interest the debate on the 6 GHz band, which can play a role in the broadband strategy. In Italy, particular attention will have to be paid to fixed links, which by the way are a key element of the distribution infrastructure for TV broadcasting, as well as to the Radio Astronomy service. However, a balanced approach to the 6 GHz band is one of the options that will be considered for the future.

Mr. Mascia also pointed out that allowing a new service in a frequency band is a decision that has technical and organisational impacts not only on new entrants but also on incumbents. These are therefore choices that a regulator has to assess carefully, balancing the efforts required of all the stakeholders involved.

Alexander Kühn from the **German administration (BNetzA)** expressed clear skepticism on the possibility for outdoor IMT deployments to coexist with FSS. Adding that Germany would join the 6 GHz for IMT “train” if coexistence with FSS and FS could be proven. Mr. Kühn also highlighted the need to protect fixed links beyond those that are used by mobile operators and the importance, and at least in Germany, the need to protect radio astronomy stations. The network densification option (through base stations operating at high band in particular) was presented as a possible alternative to the availability of additional mid-bands spectrum, various industry stakeholders reacted by stating that the mmWave bands are not viable for ubiquitous wide area coverage for both indoor and outdoor. The importance for both IMT and RLAN to exploit the high band harmonized spectrum in Europe (the 26 GHz by IMT and the 57-71 GHz bands by RLAN respectively) was also underlined. Mr. Kühn also commented on the RLAN Work Item just approved by the ECC for the 6425-7125 MHz band indicating that there is clearly no correlation with the WRC-23 Agenda Item 1.2 and that this WI will be considered after WRC.

Sergey Pastukh representing the **Russian administration (NIIR)** stated the importance of the 6 GHz band for 5G in Russia considering the difficulties in granting spectrum in the 3.4-3.8 GHz band for IMT use. Mr. Pastukh expressed appreciation for the growing support for the licensed IMT use of the upper 6 GHz band. The audience was made aware of RCC (Regional Commonwealth in the Field of Communications) work on an RCC Recommendation on upper 6 GHz scheduled to be approved in the RCC plenary on December 6 – 10 and the expectation that this would trigger further 3GPP work on this issue.

In addition, the Russia State Radio Frequency Commission authorized the field trials of a 5G-NR prototype in 6 GHz which includes both a BS and a UE and that the results are expected next year.

Being now in the middle of the WRC-23 preparation process, this webinar has confirmed the clear demand from European mobile operators for upper 6 GHz licensed spectrum, vendors have explained the feasibility of macro cellular deployments in the 6 GHz band in terms of performance and ability to coexist with incumbent services. Administrations are actively engaging and are expected to take decisions on this important matter after WRC-23.

For more details discussed in the webinar, please visit the event [website](#). Slides can be downloaded [here](#), video recording can be [replayed](#).