



The GSMA WRC Series

Low-Band Capacity

Mobile spectrum capacity below 1 GHz can lower the digital divide between urban and rural areas and help create digital equality. The characteristics of low-band spectrum allow it to propagate deeper into buildings and give consistent user experience across urban and rural areas at less cost. But low-band spectrum is a scarce resource and making sufficient bandwidth available is a complex balancing act for regulators. Finding solutions can bring affordable 5G for all.



Sub 1-GHz Demand

600 MHz

Development for 5G in ITU Regions 2 and 3.

700 MHz

Heavy use for 4G in some areas; development for 5G.

800 MHz

Widespread use for LTE providing 4G connectivity.

850/900 MHz

2G core bands; refarmed for 3G; 4G and 5G development.

Low-bands at WRC-23

WRC-23 Agenda Item 1.5 will review IMT spectrum and needs in the band 470-960 MHz in Africa, Europe, the Middle East and CIS countries: ITU Region 1. A mobile allocation in 470-694 MHz, with the possibility of an IMT identification, is needed to allow:



Long-term planning of frequencies below 1 GHz to help 5G lower the digital divide.



Development of sub-1 GHz spectrum for better rural and in-building connectivity.



Development of video content distribution mechanisms going into the 2030s.

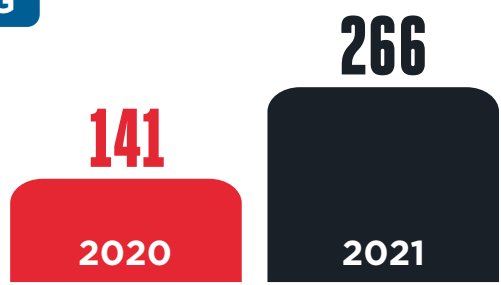
600 MHz: 5G Capacity



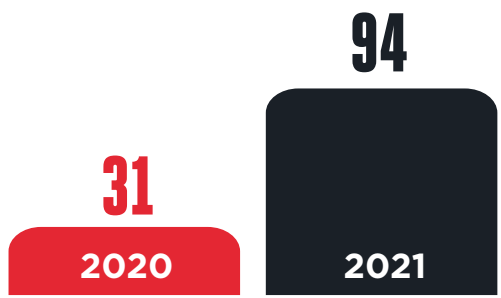
ITU Regions 2 and 3 are not part of the low-band discussion under WRC-23 Agenda Item 1.5. However, driven by their existing mobile allocations and IMT identifications in the band, countries in these areas have already moved forward with additional low-band spectrum. Development of the 600 MHz band began in the US and Canada, while Asia is considering complementary alternatives to maximise the 600 MHz band in the APT Wireless Group (AWG).

600 MHz: 5G Capacity

4G

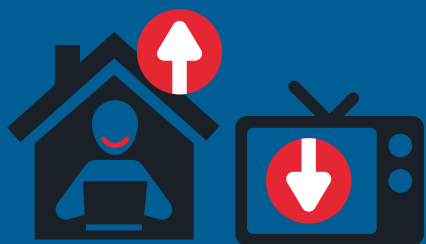


5G



Handset growth: expansion of 600 MHz devices from March 2020-March 2021

Changing Face of Video



Streamed video services are an important part of digital equality. The barrier to their wider take-up is that on-demand consumption requires bandwidth, which is a challenge in rural areas. However, as streamed video demand increases, linear television consumption reduces and using valuable spectrum to support the huge number of niche channels envisaged by the Geneva 06 broadcasting agreement becomes unsustainable. Developing the regulatory conditions to allow more sub-1 GHz mobile can give governments the choice to ensure that streamed video reaches wider audiences outside of fibre footprints.

Use Cases



Smart education & Healthcare



Massive machine-type communications



Smart agriculture



Water and energy management



Environmental management logistics



C-V2X transport communications



Broadband PPDR



Rural eMBB



Enterprise broadband