



5G-Advanced and 6G: A Spectrum Review

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EXPERT
INSIGHT



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Background

How much spectrum will be available for 5G-Advanced and 6G?

How the Sausage is Made

ITU regional breakdown

The WRC spectrum harmonization process

ITU-R study groups

3GPP designations

Agenda Items for WRC-23

How WRC-23 is critical to spectrum allocation at WRC-27

The United States proposal (or lack thereof) for WRC-23

Notes on Specific Bands

470-960 MHz	7.1 to 8.25 GHz
1 GHz to 2.7 GHz	10.0 to 10.5 GHz
3.1 to 4.2 GHz	12.2 to 13.25 GHz
4.8 to 4.99 GHz	13.25 to 20 GHz
5.9 to 6.4 GHz	20 to 90 GHz
6.4 to 7.1 GHz	90 to 200 GHz

Shared Spectrum

Where ‘Clean’ spectrum may be allocated

How Shared Spectrum experiments have worked out (CBRS in USA)

How governments are likely to use shared spectrum in the future

Conclusions

The most likely bands to be used for 5G-Advanced and 6G

The possibilities for ‘harmonization’ over the next 10 years

What this means for the 6G forecast

FIGURES

Figure 1: Spectrum choices for 5.5G and 6G

Figure 2: ITU world regions considered for harmonizing spectrum

Figure 3: WRC Process Diagram

Figure 4: Overall listing of ITU-R Study Groups and Process

Figure 5: The most promising blocks in the “Golden Band” from 5-20 GHz

Figure 6: Millimeter wave bands and usage to date

Figure 7: Sub-THz blocks (92 to 175 GHz) showing possible contiguous blocks

Figure 8: Path loss compared between 28 GHz, 73 GHz, and 140 GHz