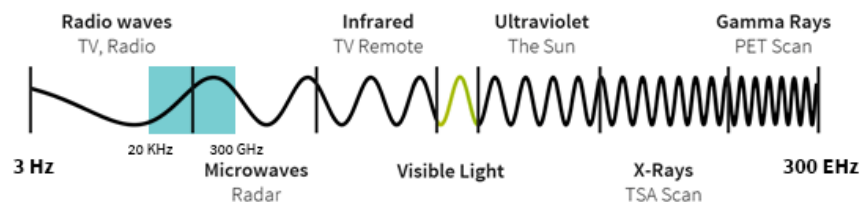




Spectrum is a core component of wireless telecommunications. The wireless devices we use daily – mobile phones, GPS navigation systems in our cars, free WiFi at highway rest shops – are delivered through the air via radio frequency spectrum.

What Is Spectrum?

Spectrum refers to the invisible radio frequencies that wireless signals travel over. Portions of electromagnetic spectrum are divided into separate “bands” depending on their wavelengths (i.e., the distance over which the wave’s shape repeats). Spectrum bands are further divided into “blocks” of radio frequencies that are allocated to the service providers and other sectors for communication over the airwaves.



Source: CTIA – The Wireless Association

The frequencies we use for wireless are only a portion of what is called the electromagnetic spectrum. The full electromagnetic spectrum ranges from three Hz (extremely low frequency) to 300 EHz (gamma rays). The portion used for wireless communication sits within that space and ranges from about 20 KHz to 300 GHz.

For the purposes of wireless communication, lower radio frequencies travel longer distances with minimal signal interruption. In contrast, higher radio frequencies travel much shorter distances (think meters, not kilometers), but offer high data capacity and ultra-fast speeds. New cellular technology (5G) relies on service providers accessing these higher frequencies.

Who Manages Spectrum Use?

Spectrum is a limited natural resource. While we can't create more of it, we can make better use of what is available. The federal government regulates access to spectrum through Industry, Science, and Economic Development (ISED) Canada.

The Canadian government has relied on auctions to allocate wireless spectrum licences for commercial use. The decision to use auctions for licence allocation aligns with their strategy of relying on market forces to the greatest extent possible. These auctions make blocks of spectrum available for purchase by the highest bidders, which the federal government records as general revenue.

Public Input Mechanisms

ISED regularly conducts public consultations to develop policies and ensure an effective management of spectrum. Members of the public and local governments can participate and share their views in person, by videoconference, online or in writing. Visit the Government of Canada's [public consultations](#) website to learn more about ongoing and past public consultations.

