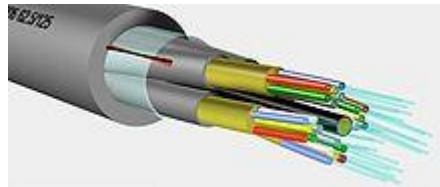


Fiber optic communications, bandwidth, and 5G

JLW: Fiber optics is one of the key components in the computer and telecommunications infrastructure. It has been in use for over a half century. The improvement is not so much in the fiber as the applications and infrastructure in recent years. The COVID pandemic has increased the need for bigger and faster telecommunications for Zoom meetings, home learning, working from home, at-home gaming services, TV streaming, as well as the Internet of All Things (IoT). These broadband utilizations are all competing for precious bandwidth, which may face a “capacity crunch” in the near future. This drain on bandwidth has led to a push for the next **5G** technology.



https://en.wikipedia.org/wiki/Optical_fiber

Wikipedia - **history of fiber optic communications:**

In 1953, Dutch scientist **Bram van Heel**, [Harold Hopkins](#), and [Narinder Singh Kapany](#) demonstrated image transmission through bundles of optical fibers with a transparent cladding.

Narinder Singh Kapany ([Punjabi](#): ਨਰਿੰਦਰ ਸਿੰਘ) (born 31 October 1926) is an [Indian-born American physicist](#) coined the term *fibres optics* in 1956.

German physicist [Manfred Börner](#) at [Telefunken](#) Research Labs in Ulm filed the first patent application for this technology in 1966

Sir Charles K. Kao is a Chinese-born British-American scientist who laid the groundwork for fibre optics in communication in 1966. He is known as the "Godfather of Broadband", the "Father of Fiber Optics", and the "Father of Fiber Optic Communications". He was awarded the 2009 [Nobel Prize in Physics](#) for "ground-breaking achievements concerning the transmission of light in fibers for optical communication" In 2010 he was knighted by Queen [Elizabeth II](#) for "services to fibre optic communications". He remains a [permanent resident of Hong Kong](#).

JLW 20.11.20

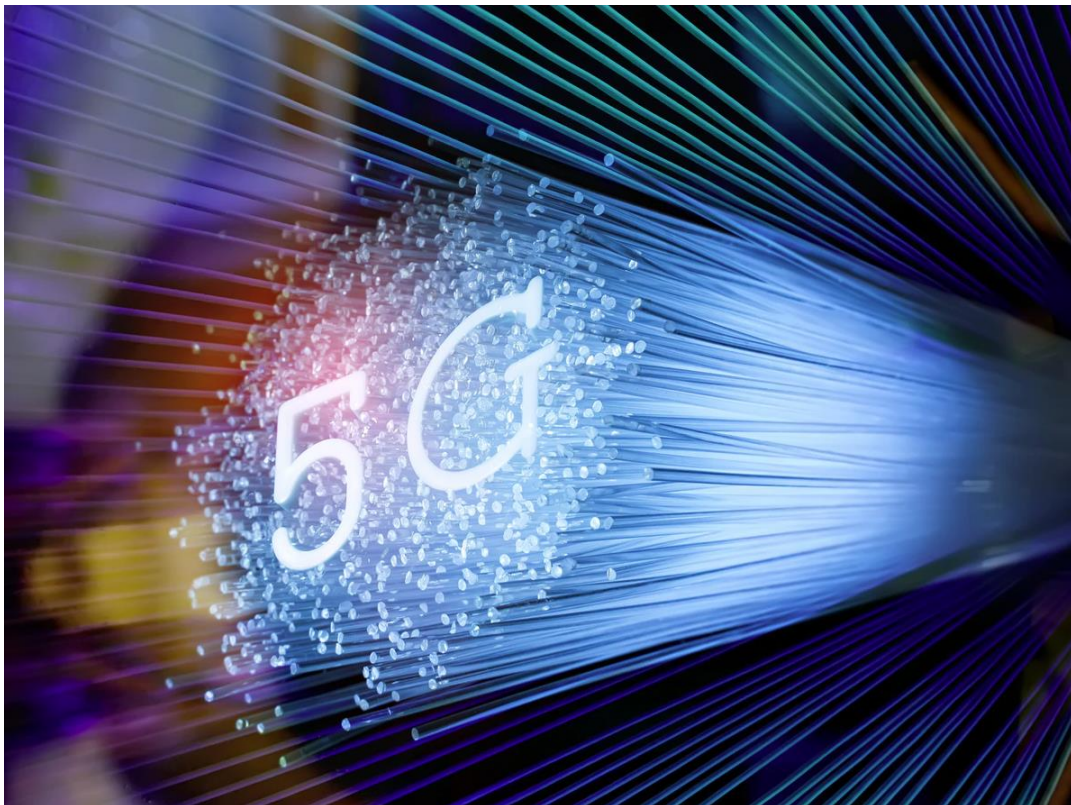


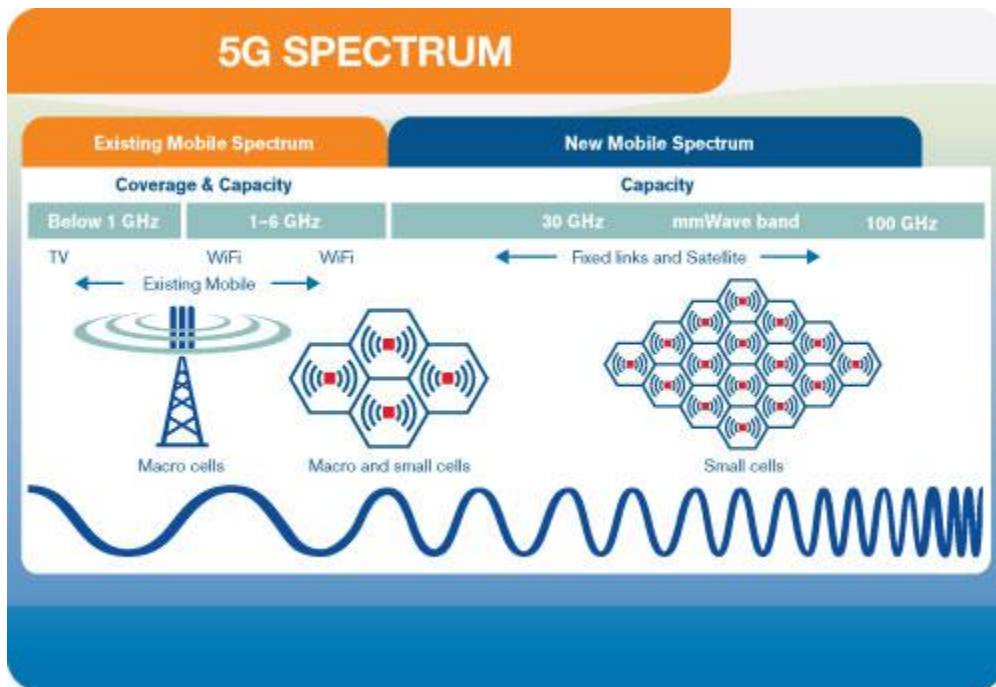
Global and local telecommunications networks





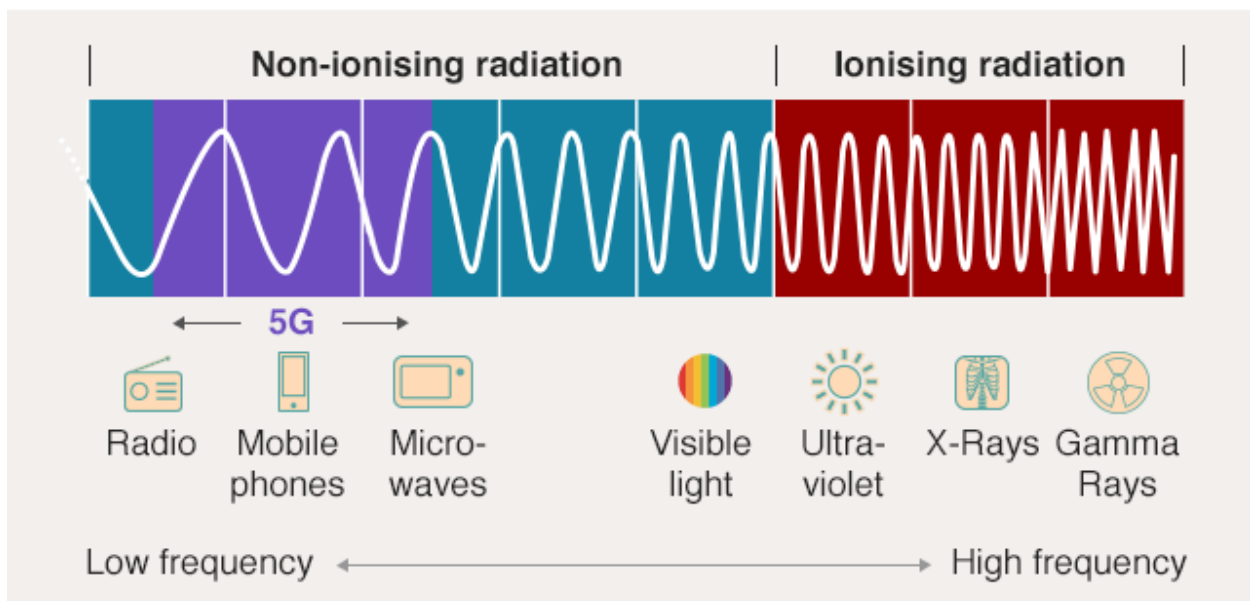
The cell network in an urban setting is all supported by base stations, fiber optic links, and signal repeaters.





Everything in the universe is energy and frequency. There is a range suitable for human habitation. Either side will not support life or is a danger to it.

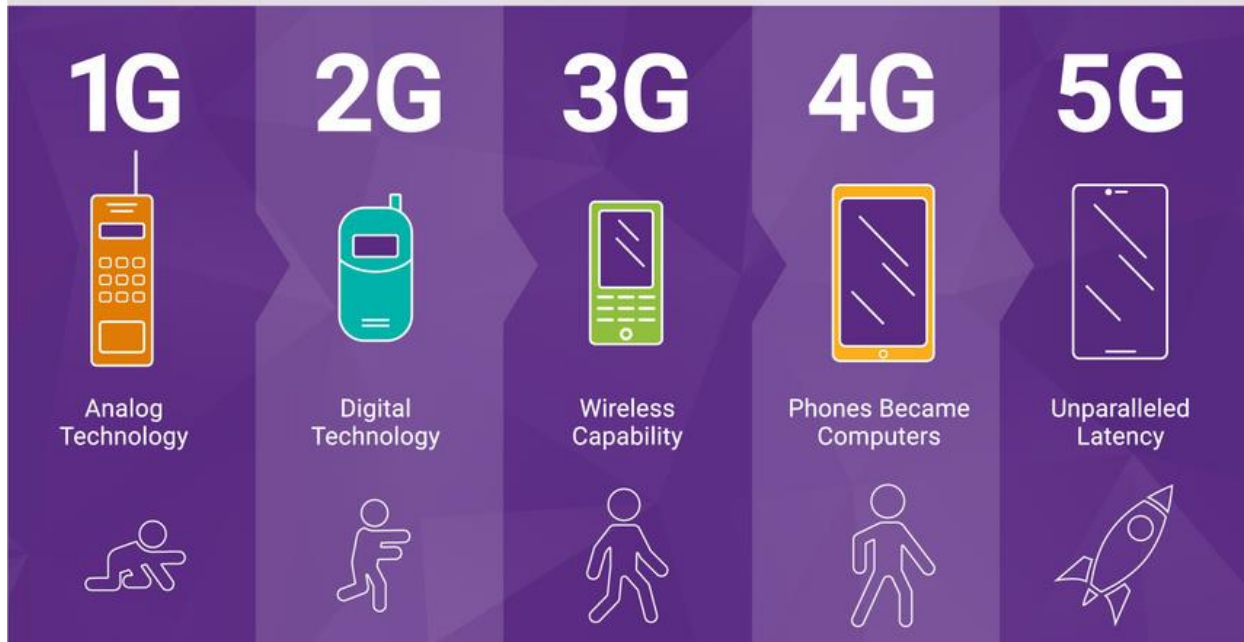
Where 5G fits in the electromagnetic spectrum



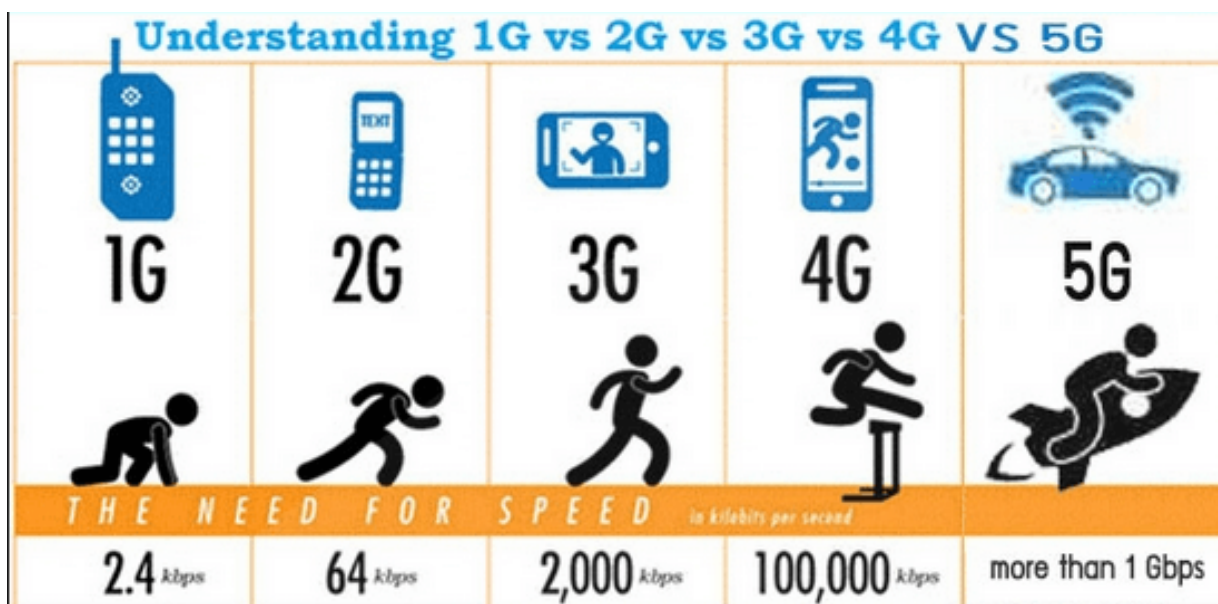
Source: SCAMP/Imperial College London/EBU

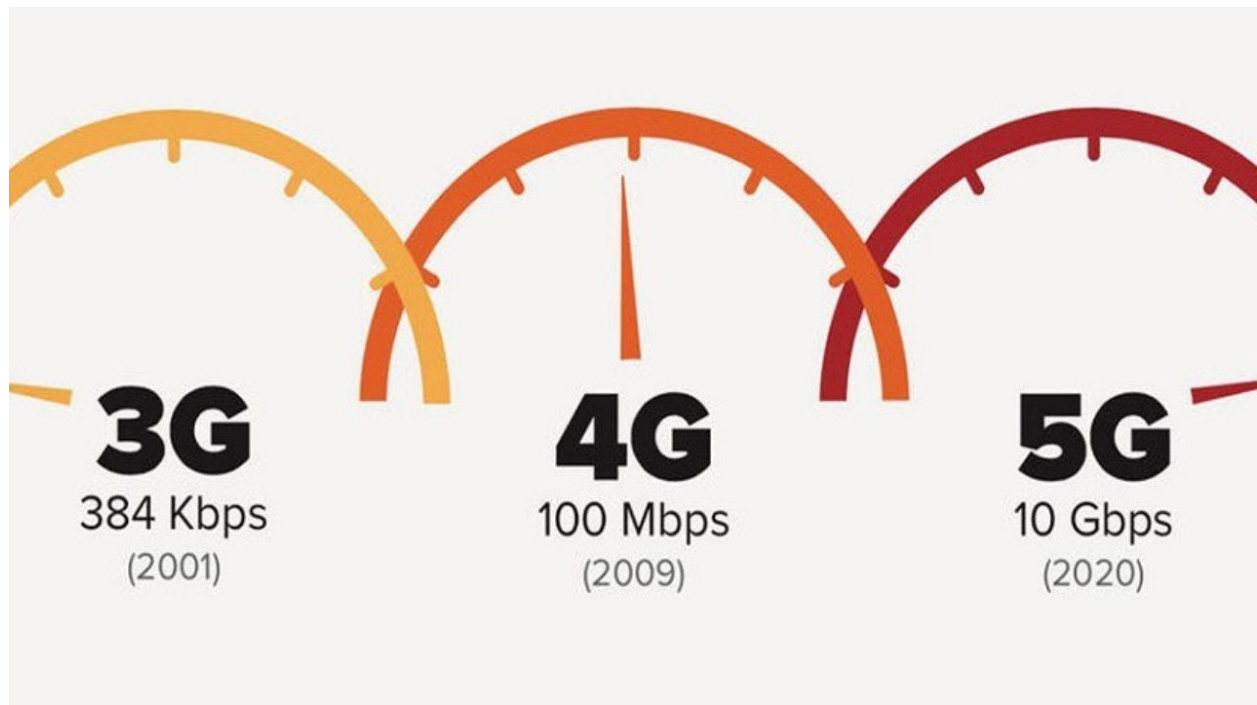
History of Mobile Technology

SYNOPSIS®

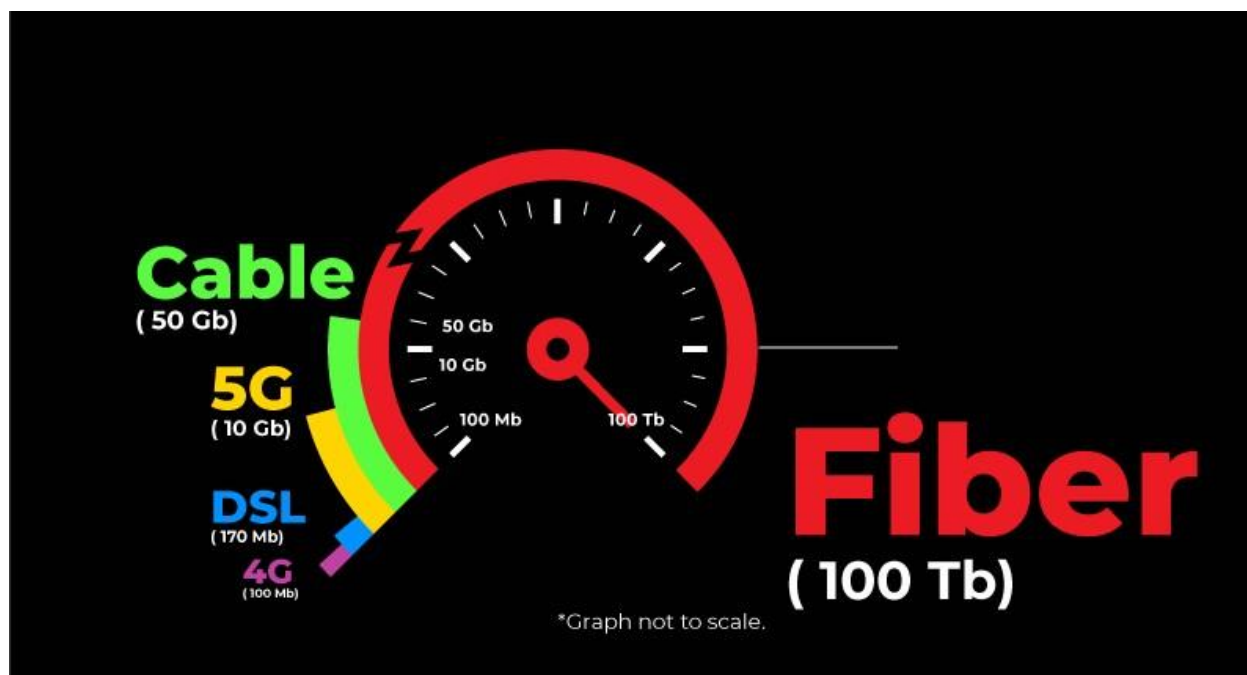


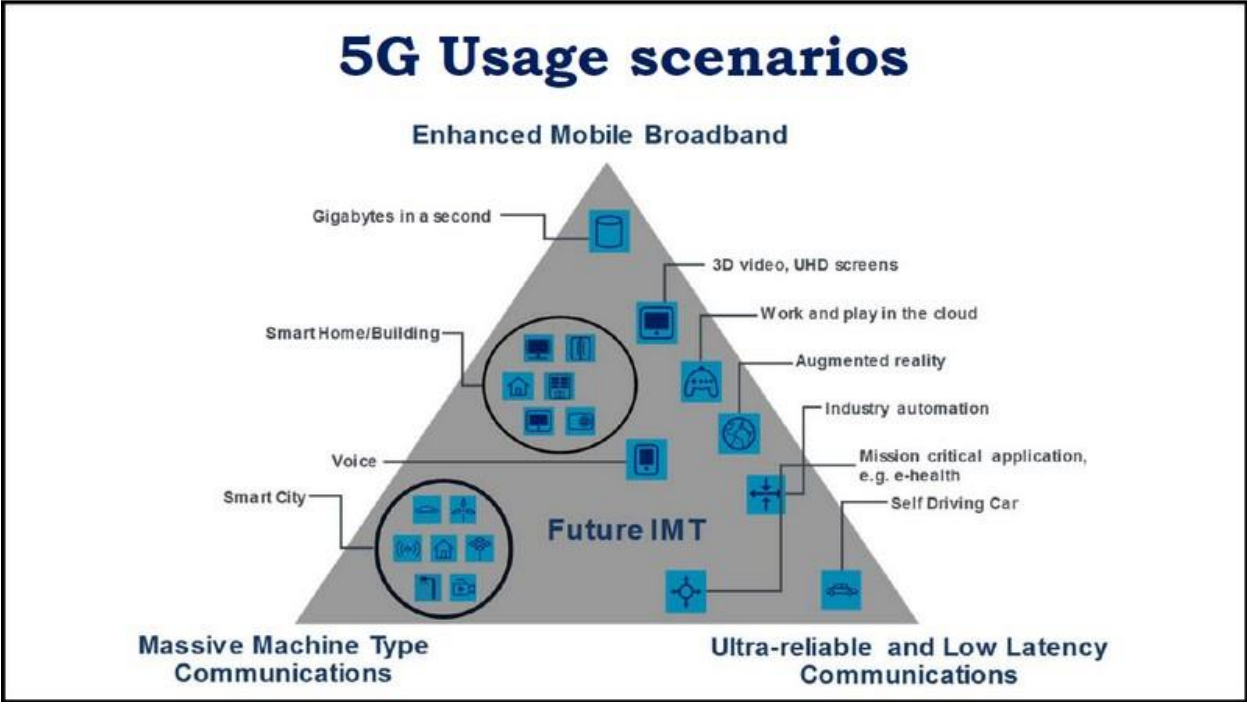
We have come a long ways in telecommunications since the days of German physicist Heinrich Hertz in 1886 and Italian Guglielmo Marconi in 1896. Several people came up with the crude telephone but it was Alexander Graham Bell who won the first U.S. patent for the device in 1876. On April 3, 1973, Martin Cooper, a Motorola researcher made the first mobile telephone call to Dr. Joel S. Engel of Bell Labs, his rival. Now, we have moved on from those analogue technology (1G) to the present 4G, 5G technology in the last half century. Recently, China launched the 6G quantum telecommunications of the things to come. This type of network is unhackable.





Modern media has increased the need for bigger and faster telecommunications for dense internet videos, Zoom meetings, TV streaming, gaming services, pornography, as well as the Internet of All Things (IoT). These broadband utilizations are all competing for precious bandwidth, which may face a “capacity crunch” in the near future. This drain on bandwidth has led to a push for the 5G technology and beyond.





The internet of Things is not here yet, and when it does, it will even demand more bandwidth, way beyond that of today. 7G to 10G are being contemplated or tested. In the technology world, that revolution of increased speed and connectivity is considered human progress, whether we need it or not for most people.





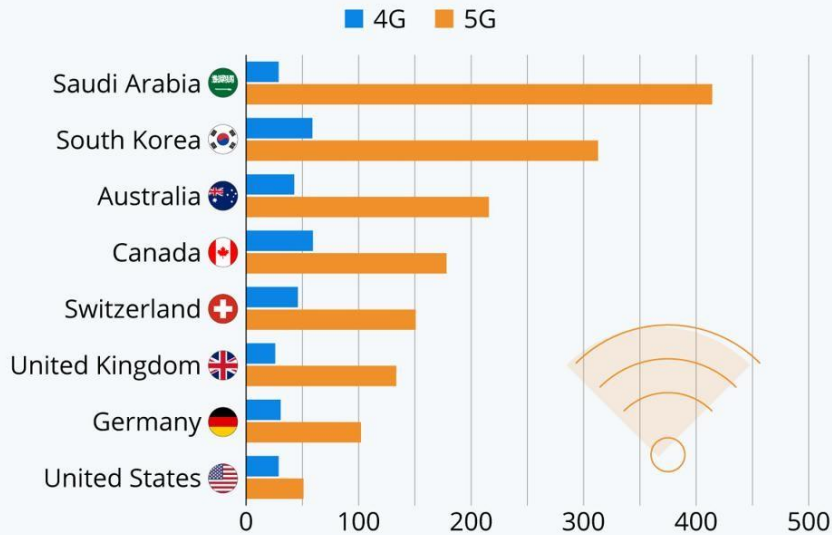
There is no question that 5G provide more connectivity at a faster rate, especially in dense urban centers. We often hear complains that their internet speed being too slow.

How long to download a two hour film?



The 5G Speed Revolution

Average 5G and 4G download speeds in selected countries in Mbps (May-August, 2020)

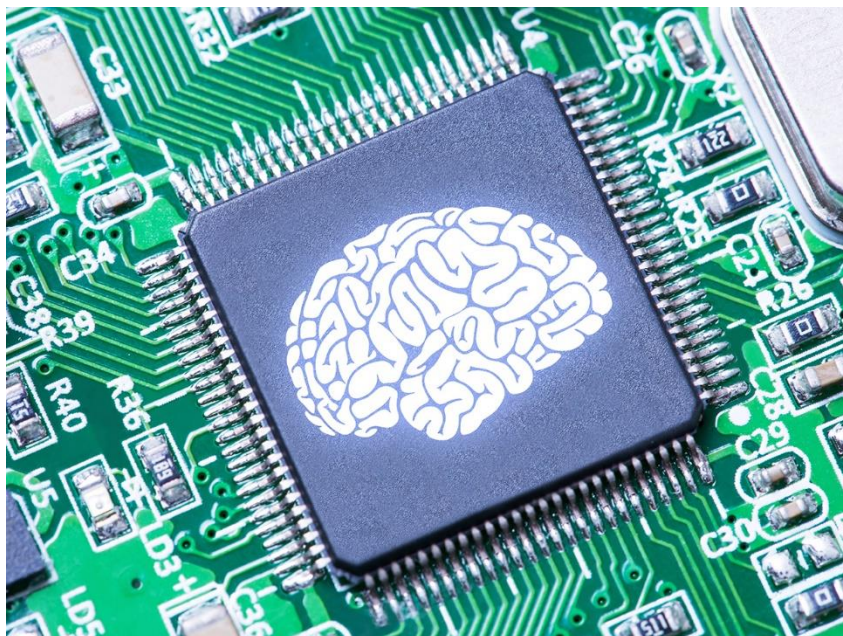


Source: Open Signal



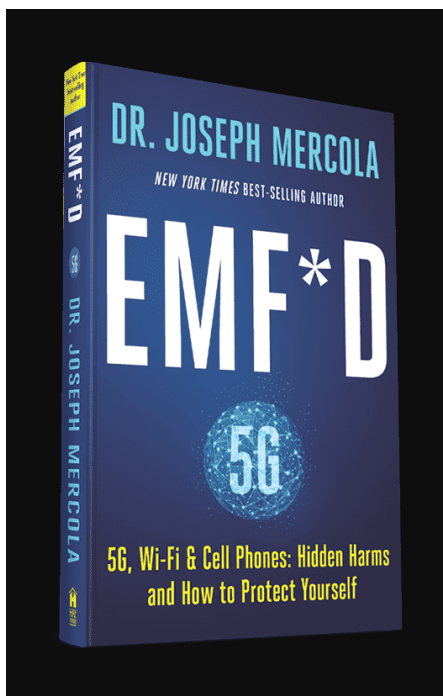
Forbes statista

This 5G techno-business is a multi-trillion-dollar business and the world is clamoring to be part of it to maintain their economy. The other hot pursuit is the chip technology to push beyond the present boundaries of the silicon-based semi-conductor.





However, there are hidden dangers as we push closer to the boundary of higher electromagnetic spectrum, as seen from the graph. There have been many studies which warn us about such dangers. The critics say there isn't enough testing before the launch of such advanced technology. As always, government regulations are often falling behind technology progress. The industry people say regulations are an obstacle to creativity and innovation. Who is right and which group will win in the end?





We Say NO To 5G in Australia

10 April at 13:25 · 🌐

...

#IDONOTCONSENTTO5G

#stop5g

EMF/ELF Radiation Health Risks

Recent medical research has uncovered links between prolonged exposure to electromagnetic radiation and many health impacts.

Neurological Effects

- Brain Tumor
- Alzheimer's Disease
- Cognitive Impairment
- Sleep Disturbance
- Reduction in Melatonin Production
- Acoustic Neuroma
- Lou Gehrig's Disease

Cellular Effects

- DNA Damage
- Leukemia
- Cancers, including Breast and Skin
- Infertility and decreased sperm motility
- Blood-Brain Barrier Disruption

Well-Being Effects

- Toasted Skin Syndrome
- Electromagnetic Sensitivity
- "Subliminal Stress", the reduction of blood and oxygen flow to vital systems



👍👎👤 128

3 comments 95 shares

Some countries such as Belgium and Switzerland had stopped the roll-out of 5G due to increased radiation health concerns. Ongoing tests are being done to establish the safety level of human tolerances.



collated: JLW: 20.11.20