A few facts about 5G

5G or "Fifth Generation" is the next development of mobile communications and as the next upgrade will provide new opportunities to do things faster and better.

5G will bring new services like slicing the network (think of dedicated lanes on a motorway) and the ability to connect to millions of devices easily and quickly. Initially though, it will be a faster performing network than 4G.

What is EMF?

Since the beginning of the universe, the sun has sent out waves that create Electromagnetic Fields or "EMF" which we see as visible light.

MAN-MADE EMF

ELECTRICITY | RADIO WAVES

While the effects are different, man made EMF comes from things such as supplying electricity or the use of radio waves to communicate.

TWO TYPES OF EMF

Ionising radiation

X-RAYS | SUN UV RAYS

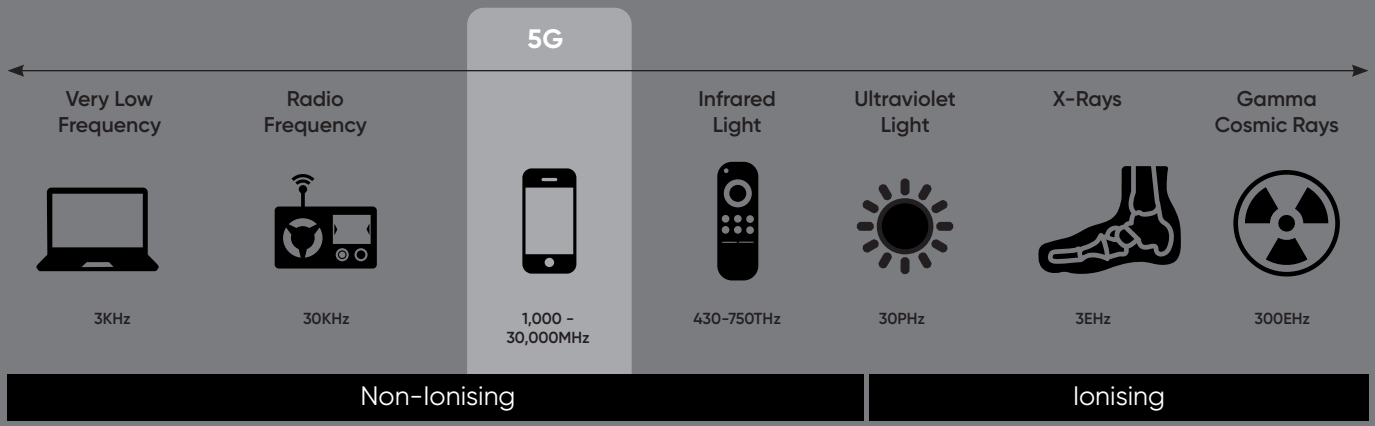
Non-ionising radiation

POWER LINES | WI-FI | CELLPHONE | MICROWAVES

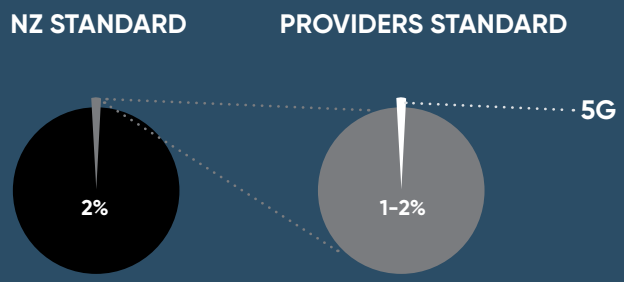
Radiation is described as ionising if it has enough energy to change the molecules it interacts with and isn't necessarily dangerous, unless you are exposed to high doses over time (eg. Sunburn). Non-ionising radiation has not been found to have any physical impact other than mild heating at **extreme** exposure levels.

Where will 5G sit on the Electromagnetic Spectrum?

Initially 5G will use spectrum that is already being used - what's called mid range. Specifically its the 3500Mhz band which is close to the band already being used in 2G and 3G, and WIFI in use in your home already. Lower spectrum like the 700Mhz already being used for 4G in rural NZ will also be used for 5G in the future. In the future 5G will also be using higher frequency millimeter wave (mmWave) bands to ensure fast speeds over short distances. This is between 24,000Mhz and 30,000Mhz and is good for capacity and speed but very poor at going through things like walls.



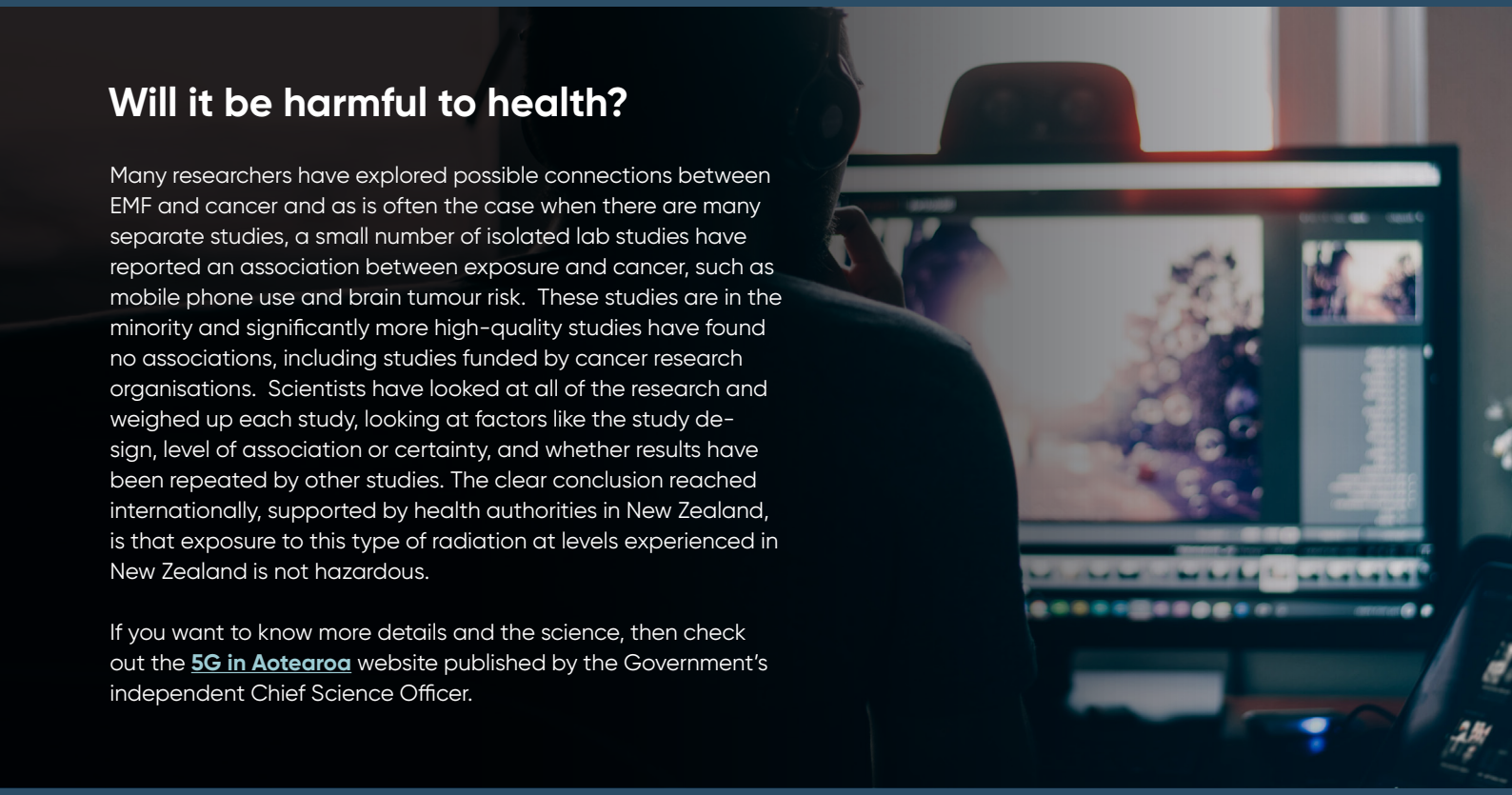
How does 5G compare to the New Zealand standard for EMF?



NZ standard is set at 2% of what will start to have an effect on the body.

Our providers typically operate towers at 1-2% of that NZ standard 2%.

New Zealand's standards for EMF exposure are very strict and set at something like 50x lower than where they start to have an effect on the human body. Further, our mobile providers typically operate their towers at around 1-2% of the NZ standard allowable power output meaning that the only effect should be an incredibly small amount of warming if you were to stand for long periods of time right up against the antenna's high on the towers - and this would dissipate as you moved away.



Will it be harmful to health?

Many researchers have explored possible connections between EMF and cancer and as is often the case when there are many separate studies, a small number of isolated lab studies have reported an association between exposure and cancer, such as mobile phone use and brain tumour risk. These studies are in the minority and significantly more high-quality studies have found no associations, including studies funded by cancer research organisations. Scientists have looked at all of the research and weighed up each study, looking at factors like the study design, level of association or certainty, and whether results have been repeated by other studies. The clear conclusion reached internationally, supported by health authorities in New Zealand, is that exposure to this type of radiation at levels experienced in New Zealand is not hazardous.

If you want to know more details and the science, then check out the **5G in Aotearoa** website published by the Government's independent Chief Science Officer.

Who is TUANZ?

We are the association for the users of digital technology and connectivity. As a not-for-profit association, we have 35 years of experience of influencing positive change in the telecommunications market in NZ, as well as helping our members make sense of the digital future.

We're the only truly independent and representative voice for all users, both corporate and individual who know that connectivity is key to a growing digital economy.

But above all we want our members to succeed in a growing digital economy. And of course, the more members that support us in our work, the more we can do, so why not join us?

tuanz
TECH USERS ASSOCIATION

For more info check out tuanz.org.nz/5G