

From: Official Information
Sent: Tuesday, 15 October 2019 11:16 AM
To: [REDACTED]
Subject: TRIM: LGOIMA request - 5G Information
Attachments: FACT SHEET Mobile base stations EMF and 5G.pdf

Dear [REDACTED],

I refer to your official information request we received on 2 October 2019 requesting the following:

1. *Copies of all CCC assessments of the impact of 5G technology on Christchurch residents and the city environment.*
2. *Copies of all assessments as to the impact of 5G technology on Christchurch residents who suffer from electromagnetic sensitivity.*
3. *Copies of all CCC assessments of the impact of 5G technology on insect life in the city.*
4. *Calculations of the number of 5G antennae it is proposed be installed in Christchurch and the specific locations of these antennae.*
5. *Estimates of the number of trees it is proposed to be removed for successful operation of the 5G network and the location of these trees.*
6. *Copies of CCC evaluation of the actions of cities overseas which have invoked the precautionary principle in relation to 5G technology.*

Council Response

The 5G rollout is covered by the existing regulatory framework, principally the National Environmental Standard for Telecommunication Facilities 2016 (NESTF 2016). A National Environmental Standard is a regulation under the Resource Management Act designed to set out nationally consistent technical standards or requirements for particular activities and decision-making processes. The Ministry for the Environment are responsible for the NESTF 2016 and there is a technical guide on their website <https://www.mfe.govt.nz/node/24369/>

The NESTF 2016 provides for certain telecommunication facilities and activities to be **permitted activities** under the RMA, which means that no resource consent is required provided they meet the relevant standards.

With respect to radiofrequency fields exposure, the relevant standard is *NZS 2772: 1:1999 Radiofrequency fields – Maximum exposure levels*. This New Zealand Standard is based on the International Commission on Non-Ionising Radiation Protection (ICNIRP) EMF exposure guidelines, which are recognised by the World Health Organisation. The Ministry of Health website has a page discussing cell sites and public health effects, with a link to NZS 2772: 1:1999 <https://www.health.govt.nz/your-health/healthy-living/environmental-health/radiation-environment/cellsites>

Where the NESTF 2016 permits a telecommunication facility or activity, no resource consent under the RMA is required, including for example, the installation and operation of a 5G antenna on a new pole in a road reserve is a permitted activity as long as it meets the standard. If a resource consent is required for a particular facility or activity the application is almost always for a controlled activity status which means the application cannot be notified or declined by the consenting authority (the Council). To note much of the infrastructure is installed in road reserve, or attached to existing towers and this is permitted.

The Council must observe an NES, and enforce it to the extent their powers enable them to do so. An NES generally prevails over a Council's District Plan rules (a District Plan must give effect to an NES and therefore cannot be more stringent than an NES(except where the NES expressly says it can e.g. protecting significant habitats of indigenous vegetation/fauna, protection of historic heritage values, ...).

Questions relating to any potential health impacts would be best addressed by health authorities. Environmental impacts would be considered by the regional council.

The Council has only received the attached factsheet from Vodafone.

You have the right to request the Ombudsman to review this decision. Complaints can be sent by email to info@ombudsman.parliament.nz, by fax to (04) 471 2254, or by post to The Ombudsman, PO Box 10152, Wellington 6143.

Kind regards,

Sean Rainey
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FACT SHEET: Mobile base stations, EMF and 5G

With 2G, 3G, 4G and now 5G, New Zealanders have been asking how mobile signals are sent – and what are the technical details behind mobile connectivity. The health and safety of communities has always been – and continues to be – an absolute priority for us. We closely monitor global research and will continue to deliver a world-leading network on a safety-first basis. Decades of research, and thousands of scientific studies have been conducted globally on radio spectrum used by mobile networks, with experts finding no evidence that mobile phones pose a risk to human health.

How do radio signals work?

Mobile phones work by sending and receiving low power radio signals. The signals are sent to and received from antennas that are attached to radio transmitters and receivers, commonly referred to as mobile phone base stations.

The base stations are linked to the rest of the mobile and fixed phone networks and pass the call on to those networks.

Radio communications have long been a part of everyday life. All radio communications systems use electromagnetic fields (EMF) in the radio frequency (RF) part of the electromagnetic spectrum. Typical background EMF levels from radio communications systems are very low and well below safety guidelines and limits set by government.



What determines the location of mobile phone base stations?

A mobile network is typically designed on a grid basis covering a geographic area. Base stations need to be located reasonably close to mobile phone users to provide good quality reception. The more people using mobile phones, the more capacity that is required and this usually means more base stations closer together. The number of base stations required for a given area will depend on the terrain and number of people using mobile phones.

A suitable location for a new mobile phone site must fulfil the technical network requirements to improve coverage for mobile phone users, while balancing the reasonable expectations of the community and any impacts on the local environment. There are a number of criteria to take into account, including compliance with the Resource Management Act and compliance with Local Authority District Plans.

What is EMF?

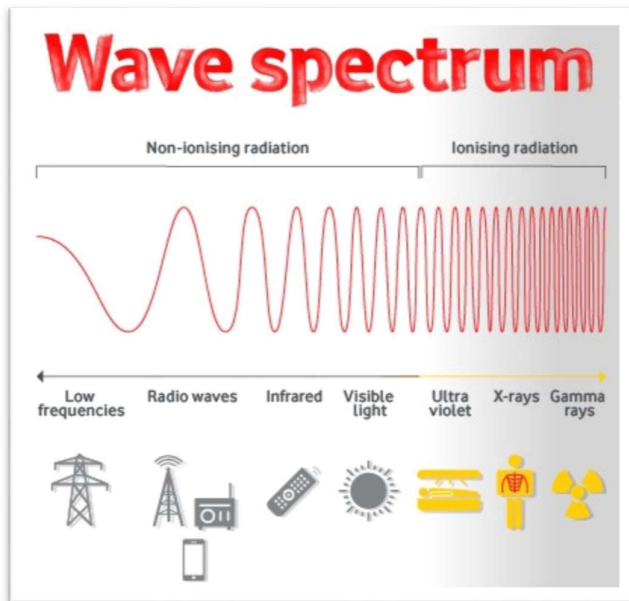
EMF is short for electromagnetic fields or sometimes known as electromagnetic radiation (EMR) or electromagnetic energy (EME). Electromagnetic fields are present everywhere in our environment – the earth, sun and ionosphere are all natural sources of EMF.

Electric and magnetic fields are part of the spectrum of electromagnetic energy which extend from static electric and magnetic fields, mains power frequencies (50/60Hz) through to radiofrequency, infrared, and visible light to X-rays.

Many electrical appliances don't just create EMF – they rely on them to work. Television and radio, mobile and cordless phones, remote control handsets, baby monitors and the communication systems used by emergency services all communicate using Radio Frequency EMF. So do wireless technologies such as WiFi, which is increasingly used by computer networks.

What makes non-ionising radiation safe?

Scientific research shows that non-ionising radiation doesn't pose any adverse risks to human health.



Electromagnetic fields which cannot break down molecular bonds are called non-ionising radiation. Visible light is a type of non-ionising radiation, which we are exposed to daily from natural and artificial sources such as the sun and indoor lighting.

Radio Frequency EMF is also a source of non-ionising radiation, which does not carry enough energy to break down chemical bonds within cells and tissues.

Some electromagnetic waves carry such large quantities of energy that they can ionise particles of matter and consequently break down the chemical bonds between molecules. This type of radiation is potentially harmful to health, and is only used in a small number of specific applications: X-rays used for both diagnostic and therapeutic purposes (radiotherapy), gamma-rays (emitted by radioactive materials) and cosmic radiation all have the ability to break molecular bonds.

What standards apply to mobile phone base stations in New Zealand?

Decades of research into EMF and health has produced a large body of scientific literature which national and international standards organisations can review to establish safe exposure limits. These standards have been around for twenty years. With the rollout of 5G, the current mobile phone base stations will be upgraded to include new technology that enables 5G connectivity.

New Zealand Standard NZS 2772.1:1999 / National Environmental Standard (NES) 2008

The World Health Organisation (WHO) formally recognised the International Commission on Non-Ionising Radiation Protection (ICNIRP) to develop international EMF exposure guidelines. The ICNIRP guidelines are based on careful analysis of the scientific literature and are designed to offer protection for all ages, including children, against identified health effects of EMF with a large built-in safety margin.

The ICNIRP guidelines form the basis of the New Zealand radiofrequency field exposure standard NZS 2772.1:1999. The NES requires that all network operators comply with NZS 2772.1:1999, ensuring that the same standard applies across all local authorities.

Community Engagement Guidelines for Wireless Telecommunications Sites

The Community Engagement Guidelines are an industry code of practice for the rollout of new wireless telecommunications sites in New Zealand, including mobile base stations.

These were created by members of the Telecommunications Carriers' Forum (TCF) in 2009, and updated in 2018, and are designed to help facilitate open and transparent engagement with communities at or near the location of new or upgraded wireless facilities. They aim to bridge the gap between what the Resource Management Act prescribes, and what communities and local councils expect, from wireless network operators when looking to upgrade or install new wireless facilities.

Vodafone New Zealand continues to be an active member of the TCF and follows these guidelines.

What about 5G – is it safe?

Like most wireless technologies that have been around for many decades such as radios and televisions, 5G technology uses non-ionising radio frequency that, just like 2G, 3G, 4G and your home WiFi, don't harm us.

The World Health Organisation, part of the United Nations, has reviewed thousands of scientific studies and has concluded that there is no evidence to convince experts that 5G technology poses any risk to human health.

For added peace of mind, there are strict global and local regulations that protect people from frequencies that could be harmful and 5G falls well within compliance.

Do 5G antennas expose me to more radio frequencies than with 2G, 3G or 4G?

Actual exposure levels from the antennas that provide all available services (2G, 3G, 4G and 5G) will fluctuate for several reasons, including the number of services running and the amount of use for each service.

Overall exposure levels should remain relatively constant however and be well within established international exposure limit guidelines.

Does the use of higher 5G frequencies mean higher exposure to EMF?

No, higher frequencies typically mean shorter ranges but higher speeds for data. It does not mean higher exposure. The future deployment of 5G (and the current trials) only use frequencies that are covered by the existing exposure standards.

Is 5G being rolled out in other countries?

5G is the newest wireless networking technology that phones, smartwatches, cars, and other mobile devices will use in the coming years, but it won't be available in every country at the same time.

The Ericsson Mobility Report from June 2019 predicted that by the end of 2024, globally 5G subscriptions will reach 1.9 billion, 35% of traffic will be carried by 5G networks and up to 65% of the global population could be covered by the technology.

This makes it the fastest generation to be rolled out on a global scale and we believe it's important that New Zealand isn't left behind.

Vodafone has already started to launch 5G in many countries across Europe, including the United Kingdom, Italy, Spain and Germany, and we are in regular contact with teams in these leading markets and will draw on their experience in our plans to bring 5G to New Zealand.



Where can I find more information about 5G and EMF?

- World Health Organisation's information on EMF - www.who.int/peh-emf/en/
- NZ Ministry of Health's Office of Radiation Safety - www.health.govt.nz/our-work/radiation-safety
- NZ Ministry of Health's fact sheet on 5G and health - www.health.govt.nz/system/files/documents/topic_sheets/5g-and-health-aug19.pdf
- Vodafone NZ's 5G website - www.vodafone.co.nz/5g/

For specific queries about 5G, EMF and Vodafone, please contact: communityrelationsteam@vodafone.com