

## 6.1.6 Toomuc Reserve - Proposal to lease land to Telstra for Telecommunication Facility

**Responsible GM:** Debbie Tyson  
**Author:** Jeanette Blackwood

### Recommendation(s)

That Council:

1. Notes the submissions received in relation to the proposal to lease land at Toomuc Reserve to Telstra for a telecommunication facility.
2. Authorises the Manager Governance to execute the lease for 10 years with 2 further options of 5 years with Telstra.
3. Notes that officers will advise submitters of the resolution of Council and the reason for the decision.

### Attachments

1. Toomuc Reserve Telstra Facility Plan [6.1.6.1 - 1 page]
2. Toomuc Reserve Telstra Submission Summary [6.1.6.2 - 2 pages]
3. Toomuc Reserve Telstra EME Fact Sheets [6.1.6.3 - 9 pages]

### Executive Summary

Council was approached by Telstra to lease land at the northeast corner of Toomuc Reserve (Land) for the erection of a telecommunication facility (Facility) as shown on the attached locational plan.

Council officers carried out consultation in accordance with section 115 of the Local Government Act 2020 and six submissions were received. These submissions should be considered prior to making a decision whether to proceed with the lease of land to Telstra

### Background

Telstra approached Council in 2012 with a proposal to erect a monopole at the north-eastern corner of Toomuc Reserve to be used as a Facility. In principle agreement was reached at that time, Council carried out consultation in accordance with the *Local Government Act 1989* and resolved to lease the Land to Telstra.

Council officers negotiated in good faith for an extensive time with Telstra in relation to the lease, however both parties could not agree on acceptable terms. A small group of property officers representing LGpro negotiated directly with Telstra to agree on a standard form lease for use by all Victorian councils with Telstra. Since this lease has been finalised Telstra have approached Council again to recommence negotiations for the Facility at Toomuc Reserve.

The proposed Facility is a high impact facility due to the height of the monopole and therefore requires a planning permit. A planning permit was granted some years ago to allow for the construction and the permit (T110380) has been extended until 10 November 2021. The issue of this permit also required public exhibition and the consideration of submissions received in accordance with the *Planning and Environment Act 1987*.

The following in principle lease terms have been negotiated:

- Term 10 years plus an option for 2 further terms of 5 years
- Commencing 1 October 2021
- Rental \$20,000pa plus GST plus 3% annual increase
- Tenant to pay all rates and taxes and \$3000 towards legal fees
- The monopoly will be constructed by Telstra and remain in their ownership for the term of the lease.
- The tenant will be responsible for all maintenance of the facility.

Although community consultation has been carried out previously, officers considered that too much time has elapsed since this process was carried out, therefore in accordance with section 115 of the *Local Government Act 2020*, Council carried out consultation in line with its Community Engagement Policy.

Public notice was included in the local paper and on Councils website from 9 August 2021, also a sign was erected shortly after on the site and a letter sent to the user groups of Toomuc Reserve. Six submissions were received and the details of these are summarised below and are included in Attachment 2

### **Policy Implications**

Telstra leasing land for a Facility would be considered under the Council Leasing Policy as a Category 1 Tenant – commercial tenant and are required to pay a market rental and lease terms and conditions must also be market driven.

### **Relevance to Council Plan**

#### **5.1 We practise responsible leadership**

5.1.1 Build trust through meaningful community engagement and transparent decision-making.

5.1.2 Manage our finances responsibly and leave a positive legacy for future generations.

### **Climate Emergency Consideration**

Telstra have indicated that they will operate their network as carbon neutral from 2020 with 100% renewable energy by 2025 and reducing absolute emissions 50% by 2030.

### **Consultation/Communication**

Six submissions were received to the recent community consultation that has been undertaken in relation to the proposal to lease Land to Telstra. Attached as Attachment 2 is a copy of the submissions. In summary, two submitters were opposed to the proposal, concerned that the site is close to many valuable activities, in a developing residential area, the health risks associated with the radiation of such Facilities and that the Facilities are 'ugly' and we should be trying to beautify the area and requested that Council should reject the proposal.

A further submission requested that the facility be constructed in dark green to blend with the area. This request was considered by Telstra who have advised that green is not always the best colour but have agreed to work with Council officers to agree on a suitable colour in order for it to blend in.

The other three submissions were in support of the proposal, one requesting advice how the money would be used. Officers propose that the funds from the rental be invested in the reserve each year in a similar manner to other telecommunication facility rentals.

Consultation has occurred with Telstra to understand the purpose of the new facility and any potential effects of electromagnetic radiation (EME) and they have advised that the new facility will be established to provide sufficient service for emerging residential development in the region and it will satisfy both network coverage objectives and user demand for the Telstra 4G and the new 5G network. This Facility will also improve depth of coverage on the Princes Highway.

Furthermore, the Australian Communications and Media Authority has set mandatory limits for EME exposure for all devices that produce Radiofrequency signals (this includes 5G). Mobile phones and their base stations are included in these mandatory limits, as are AM/FM radio and TV broadcast stations.

The safety regulations operate by placing a limit on the strength of the signal (or radiofrequency EME) that Telstra can transmit. They are not based on distance or creating “buffer zones” for zoned areas such as residential. The environmental standard limits the network signal strength to a level low enough to protect all people, in all environments, 24-hours a day, 7 days a week. The safety limit itself, has a significant safety margin, or precautionary approach built into it.

Attached as attachment 3 is a Fact sheet in relation to EME and the health affects.

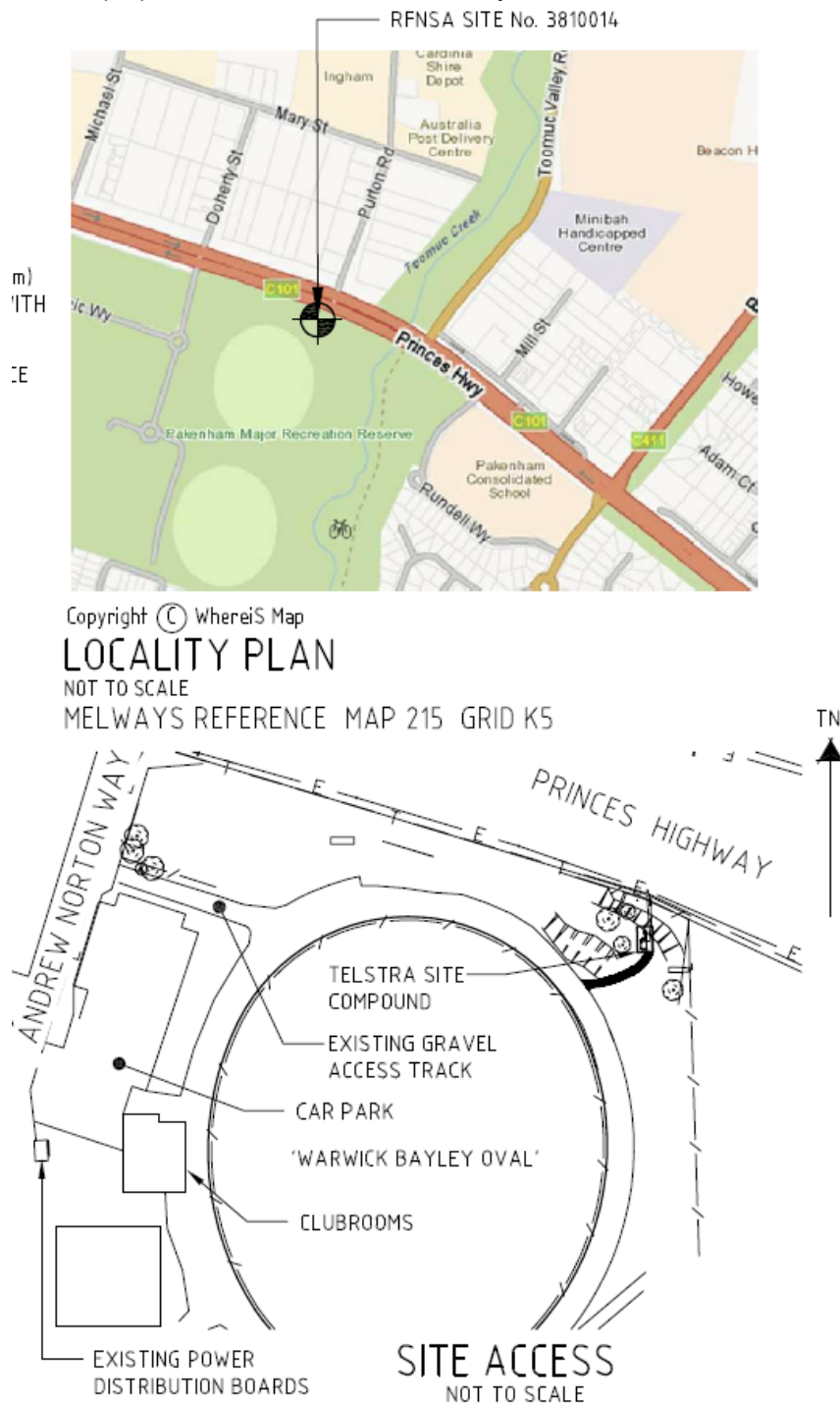
### **Financial and Resource Implications**

A rental of \$20,000pa exc GST has been agreed with Telstra and this has been agreed based upon other rentals recently agreed for telecommunication facilities in nearby locations. Furthermore, Telstra have agreed to annual 3% increases in a rental and will also contribute \$3,000 toward legal costs for the preparation of the agreement.

### **Conclusion**

Following the consideration of the submissions and the further discussions with Telstra agreeing that the Facility will be painted a colour that will help it to blend in with its surrounds and the rental be invested in improvement work each year in Toomuc Reserve, it is proposed that Council should proceed to lease the Land for the construction of the Telstra Facility on a 10 year lease with 2 further options on the agreed terms.

## Plan for proposed Telecommunication Facility at Toomuc Reserve



Date Submitted	Please type in the box below.	Name	Email or phone number
Aug 30, 2021, 03:39 AM	<p>Dear There</p> <p>As you can see the area is saturated with heaps of practical and valuable activities;</p> <p>Child care, Nursing homes, Clinics, Medical Centres, kindergartens, Primary schools, Supermarkets, food outlets, Community kids, etc... a very handy area and still attracting more residents to build and live in, it is more family spot and keep growing.</p> <p>Also as you know very well, that a lot of experts said and still saying these sorts of towers emit radiation and send out dangerous electromagnetic waves that can cause health hazards, cancer, and threatening our peaceful community, unfortunately, it is true not fiction. We need the application to be denied.</p> <p>Thanks in advance for protecting our families and their future.</p> <p>Kindest Regards</p> <p>Michael WASSEF</p> <p>0490 676 946</p>	Michael W. WASSEF	wazzyk33@tpg.com.au
Aug 28, 2021, 03:35 PM	<p>I am against the tower for a couple of reasons. Firstly, they are ugly and we should be trying to beautify the area rather than detract from the limited pretty spots we have in Pakenham. Secondly, for health reasons we should avoid putting these anywhere near where children will be. I'm sure Telstra will say they're fine, but let's put people ahead of profits for a change.</p>	Emily Woods	emilyfwoods@gmail.com
Aug 24, 2021, 10:59 AM	<p>It would appear that "Toomuc Reserve" incorporates all of the recreation facilities and stretches from Toomuc Creek in the east, across to Olympic Way on the west. As such the "Tower" would be located in the Northeast corner of the site.</p> <p>I have NO issue with the location as it is removed from any domestic property and would be a similar height to the existing light towers at the playing fields.</p>	Terry Williams	terry_w2190@yahoo.com.au
Aug 22, 2021, 08:11 PM	<p>Colour to fit in with surrounds. Dark green building and pole</p>	Mehmet Huseyin	mehmetyusuf10@gmail.com

Aug 10, 2021, 12:50 PM	The Pakenham Cricket Club has no objection to the Telstra tower being erected as per the attached plan above and if it is able to provide improved coverage then it is a benefit for our community moving forward than we support that We do have 1 question in regards to above . Telstra will be paying approx \$22000 pa will that money be redirected back into Toomuc Reserve facilities or does it go directly into council funds	Philip Anning	jackanning@bigpond.com.au
Aug 09, 2021, 12:18 PM	Do it. Don't let the uneducated foil hat brigade sway any opinions. They will be the first ones complaining that this mobile phone reception isn't good.	Steven Kearney	stevenk83@hotmail.com



# 5G and Electromagnetic Energy (EME)

## Fact sheet

### Is 5G safe?

- **That's an important question** that applies to all the mobile and wireless devices that we use in our daily lives, not just 5G.
- **Independent health authorities** here and overseas require us to meet their safety standards so that you can use this technology safely.
- **Over 50 years of scientific research** exists into the possible health effects of the radio frequency signals used for mobile and wireless services including 5G.
- **Safety Standards** – the existing EME safety standards cover 5G, include children and are conservative.

### The facts about 5G

- **5G is very efficient** – both the network and device power will be low, which means low levels of EME
- **5G Frequencies & Power levels** – similar to 3G and 4G used today
- **5G Devices & Networks** – tested to the EME safety standards

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arpansa

There is no established health effects from the radio waves that the 5G network uses



World Health Organization

There is no evidence that exposure to low level EME is harmful to human health

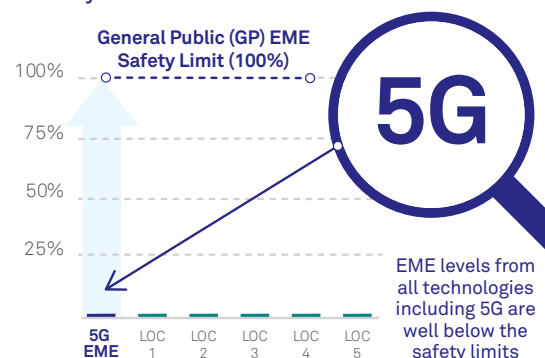
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### What testing has Telstra done in relation to 5G?

- We have done extensive EME testing on our 5G network at different locations including a school, café, apartment, sports field and in the street.
- We have found the EME levels to be similar to 3G, 4G and WiFi.
- The EME levels measured were found to be well below the safety limits, and in many cases over a thousand times lower.
- We continually monitor our network and the ACMA conduct EME compliance audits.



### 5 Surveys of 5G and EME





## 5G and small cells

### Will Telstra be using small cells for 5G?

- Initially we are not using small cells for Telstra's 5G deployment. We are upgrading existing base stations for 5G.
- In the future Telstra will be using a range of different base stations for 5G including small cells.

### Will small cells be built on every street for 5G?

- Currently, Telstra does not plan or need to build small cells on every street for 5G.
- In future years, mmWave small cells with a shorter range may be used extensively in residential & commercial areas where customers need access to quality high speed and high capacity mobile services.

Small cells are not new and have been used for many years to enhance capacity and boost coverage.

### Do small cells have high EME?

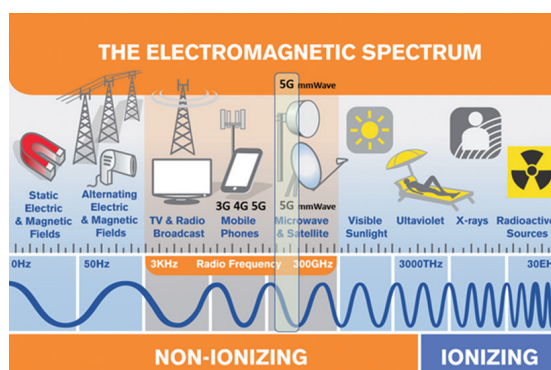
- No, small cells operate at low power and have low EME levels.
- Telstra has tested a range of small cells and found the EME levels around small cells to be very low and well below the EME safety limits.



A typical 4G small cell in a suburban street

## What is mmWave and is it safe?

- Telstra 5G technology does not currently use mmWave frequencies, however we plan to use mmWave in the future when spectrum becomes available.
- mmWave is not new, it's a higher frequency band that is already being used for communications.
- The existing EME safety standards and extensive research to date includes mmWave.
- Telstra's mmWave 5G trials showed EME levels were very low and similar to existing technologies.



## Resources

Source	Website
Telstra.com	• <a href="https://www.telstra.com.au/consumer-advice/eme/5g-and-eme">https://www.telstra.com.au/consumer-advice/eme/5g-and-eme</a>
Telstra Exchange Articles – public information on 5G and EME	• <a href="https://exchange.telstra.com.au/understanding-5g-and-eme/">https://exchange.telstra.com.au/understanding-5g-and-eme/</a> • <a href="https://exchange.telstra.com.au/5-things-you-should-know-about-5g-and-eme/">https://exchange.telstra.com.au/5-things-you-should-know-about-5g-and-eme/</a> • <a href="https://exchange.telstra.com.au/5-surveys-of-5g-show-eme-levels-well-below-safety-limits/">https://exchange.telstra.com.au/5-surveys-of-5g-show-eme-levels-well-below-safety-limits/</a>
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	• <a href="https://www.arpansa.gov.au/news/misinformation-about-australias-5g-network">https://www.arpansa.gov.au/news/misinformation-about-australias-5g-network</a>
Small cells bringing fast mobile coverage to where it's needed most	• <a href="https://exchange.telstra.com.au/small-cells-bringing-fast-mobile-coverage-needed/">https://exchange.telstra.com.au/small-cells-bringing-fast-mobile-coverage-needed/</a>
Australian Communications and Media Authority (ACMA) - small cells	• <a href="https://www.acma.gov.au/Home/theACMA/a-guide-to-small-cells">https://www.acma.gov.au/Home/theACMA/a-guide-to-small-cells</a>
EMF Explained – how 5G works	• <a href="http://www.emfexplained.info/?ID=25916">http://www.emfexplained.info/?ID=25916</a>
World Health Organisation online (WHO) – EME Q&A	• <a href="https://www.who.int/features/qa/30/en/">https://www.who.int/features/qa/30/en/</a>
International Commission for Non-Ionising Radiation Protection (ICNIRP)	• <a href="https://www.icnirp.org/en/frequencies/high-frequency/index.html">https://www.icnirp.org/en/frequencies/high-frequency/index.html</a>
Science Media Centre – EME Briefing	• <a href="https://www.scimex.org/newsfeed/background-briefing-5g-jitters-how-safe-is-5g-for-our-health">https://www.scimex.org/newsfeed/background-briefing-5g-jitters-how-safe-is-5g-for-our-health</a>
Science & Wireless 2018 EME presentation	• <a href="https://acebr.uow.edu.au/events/UOW254614">https://acebr.uow.edu.au/events/UOW254614</a>
ACMA RadComms 2018 5G and EME	• <a href="https://www.acma.gov.au/-/media/mediacomms/Events/RadComms2018/Presentations/RadComms-2018-Day-1-Mike-wood-pptx.pptx">https://www.acma.gov.au/-/media/mediacomms/Events/RadComms2018/Presentations/RadComms-2018-Day-1-Mike-wood-pptx.pptx</a>

## Contact us

EME General Enquiries

EME.Enquiries@team.telstra.com

Telstra Basestation Enquiries

Basestation.Enquiries@team.telstra.com



# What is 5G?

**AMTA**

 Australian Mobile  
Telecommunications  
Association


**5G is the 5th generation of mobile networks, a significant evolution of today's 4G networks.**

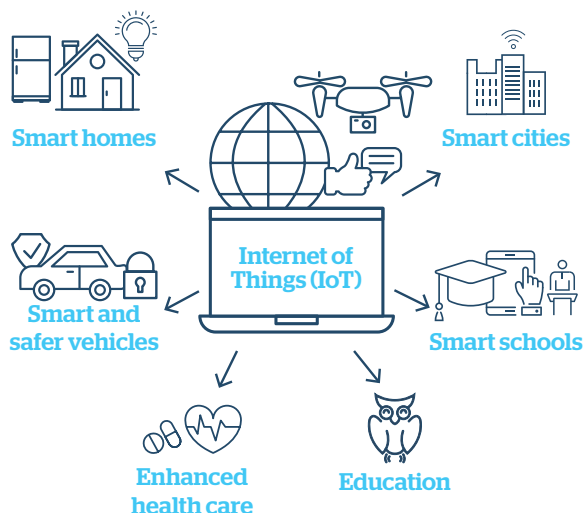
**5G is designed to meet the very large growth in data and connectivity of today's modern society, the internet of things with billions of connected devices, and tomorrow's innovations.**

5G will initially operate in conjunction with existing 4G networks before evolving to fully standalone networks. The rollout of 5G will help meet Australians' growing demand for more data, with the Australian Communications and Media Authority (ACMA) reporting that the volume of data downloaded on mobiles has increased by 41% from June 2017 to June 2018, and this is set to continue.

## What will 5G enable?


5G will enable enhanced mobile broadband, instantaneous connectivity to billions of devices, the Internet of Things (IoT) and a truly connected world.

**For communities, 5G will enable real-time connection of billions of devices to provide a safer and more efficient place to live by enabling things like:**



**For businesses and industry,** 5G and IoT will provide a wealth of data allowing them to gain insights into their operations like never before.

**Business will increasingly operate and make key decisions driven by data (e.g. parcel tracking), and innovate in different application areas including agriculture, smart farms and manufacturing. All of these will pave the way for cost savings, better customer experience and long-term growth.**



**5G enabled  
mobile technology**

IS SET TO DELIVER A

**\$65 billion bigger  
Australian economy**

BY 2023

Mobile Nation 2019 - the 5G Future report by Deloitte Access Economics and AMTA

# What is 5G?

## What will be the first applications for 5G?

**5G-enabled products such as wireless broadband, mobile devices and IoT will be the first applications using 5G.**



## What will 5G devices offer?

**The prime benefits of 5G devices will be significantly faster speeds in data access, downloading and streaming content.**

In addition, 5G devices will have increased computing power and make use of faster connectivity, meaning that the devices will enjoy virtually instantaneous connections to the network, as well as greater connectivity when on the move. 5G will enable applications such as remote monitoring, automation of production, medical monitoring and even remote surgery.



## How does 5G work?

**5G will deliver faster speeds, better response times and greater capacity. 5G networks are designed to work in conjunction with 4G networks using a range of macro cells, small cells and dedicated in-building systems.**

Small cells will be a feature of 5G networks and will evolve to include the use of millimetre wave (mmWave) frequencies.

Small cells are mini base stations designed for very localised coverage typically from 10 metres to a few hundred metres providing in-fill for the larger macro network. Small cells will be essential for the 5G networks.

**5G devices will have increased computing power and make use of faster connectivity, meaning that the devices will enjoy virtually instantaneous connections to the network, as well as greater connectivity when on the move.**



# 5G and EME Safety

## Are there safety limits for 5G?

**Yes. Comprehensive international guidelines exist governing exposure to radio waves including the frequencies proposed for 5G.** The limits have been established by independent scientific organisations, such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and include substantial margins of safety to protect all people including children and the elderly at all times.

These guidelines have been widely adopted in standards around the world, including in Australia by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and are endorsed by the World Health Organization (WHO).

## WHAT DO THE EXPERTS SAY ABOUT 5G AND HEALTH?

In relation to radio frequency exposures and wireless technology and health, including frequencies used for 5G, the World Health Organization (WHO) states:

**“Despite extensive research, to date there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health.”**

In relation to 5G frequencies, Dr Sarah Loughran, Director of the Australian Centre for Electromagnetic Bioeffects Research at the University of Wollongong states:

**“The higher frequencies [of 5G] actually means that the energy doesn’t penetrate as deeply into the body than previous fourth generation and other generation technologies have.”**

In relation to 5G and health, ARPANSA states:

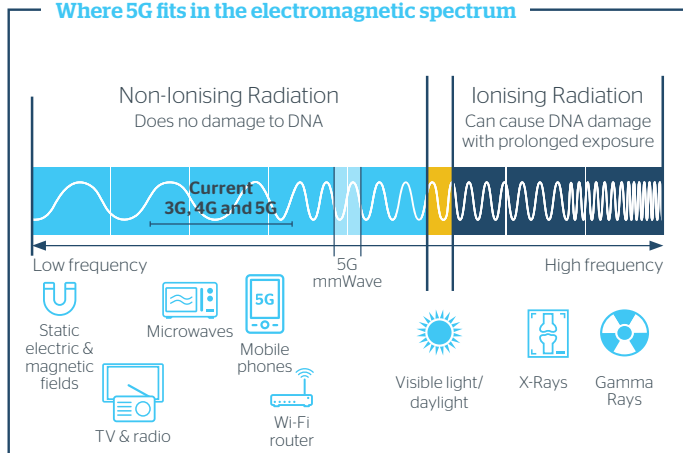
**“There are no established health effects from the radio waves that the 5G network uses.”**

## What research into health effects has been done on 5G?



The electromagnetic frequencies used for 5G are part of the radio frequency spectrum which has been extensively researched in terms of health impacts for decades.

### Where 5G fits in the electromagnetic spectrum



5G operates at a higher frequency than previous 4G networks so it can carry more data but can't travel as far. This means it will have less impact on the human body than any previous network.



Over 50 years of scientific research has already been conducted into the possible health effects of the radio signals used for mobile phones, base stations and other wireless services including frequencies planned for 5G and mmWave exposures.

### ARPANSA states:

**“This network currently runs on radio waves similar to those used in the current 4G network, and in the future will use radio waves with higher frequencies. It is important to note that higher frequencies does not mean higher or more intense exposure. Higher frequency radio waves are already used in security screening units at airports, police radar guns to check speed, remote sensors and in medicine and these uses have been thoroughly tested and found to have no negative impacts on human health.”**



## 5G and EME Safety

**Testing on Australian 5G networks with commercial devices in real-world settings shows levels similar to 3G, 4G and Wi-Fi, and in many cases around 1,000 times below the safety limits.**



### Does 5G mean higher power and higher exposure levels?

**No – 5G networks are designed to be more efficient and will use less power than current networks for similar services.**

The Australian Centre for Electromagnetic Bioeffects Research (ACEBR) states:

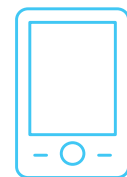
**“In addition, while more antennas may be required to service areas where demand for the new service is high, users are closer to the mobile phone base station and therefore their devices can operate at a reduced power, reducing their exposure from their personal device.”**

Dr Sarah Loughran, Director of the Australian Centre for Electromagnetic Bioeffects Research at the University of Wollongong, states:

**“Based on the improvements in technology, the level of exposure is expected to be lower [with 5G] than what it has been in previous technologies.”**

### How will 5G be regulated?

All base stations including 5G equipment and devices, must comply with standards set by ARPANSA.



### Where can I get more information on 5G?

#### Australian Communications and Media Authority (ACMA)

1300 850 115

<https://www.acma.gov.au/theACMA/a-guide-to-small-cells>

#### Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

(03) 9433 2211

[www.arpansa.gov.au](http://www.arpansa.gov.au)

#### EMF Explained web site

[www.emfexplained.info](http://www.emfexplained.info)

#### Mobile Nation 2019 - the 5G future report

<https://amta.org.au/new-mobile-nation-report-the-5g-future/>

#### Mobile Carriers Forum

<http://amta.org.au/mcf>



Australian Mobile  
Telecommunications  
Association

(02) 8920 3555

[contact@amta.org.au](mailto:contact@amta.org.au)

[www.amta.org.au](http://www.amta.org.au)



## Information for Councils about Mobile Base Station Deployment

### What is the MCF?

The [Mobile Carriers Forum](#) (MCF) is an industry group representing the mobile phone carriers deploying mobile networks in Australia. The MCF is a specialised forum that deals specifically with issues related to the deployment and operation of mobile phone networks.

The MCF is made up of a National Council who oversees and directs the work of the MCF, with representatives from each carrier. It has also formed several National Taskforces working on specific issues, such as the Mobile Phone Base Station Deployment Code, Compliance and EME regulations and site design management. The MCF has also established state based regional forums to address region specific issues and implement the MCF's best practice policies at a local level.

### What has changed?

In December 2018 [C564:2018 The Mobile Phone Base Station Deployment Code](#) was updated.

There were a few changes which impact the way Carriers engage with Councils. Most notable are:

- Section 5.2 - A new consultation section dedicated to Small Cells tailored to reflect the small scale and low visual impact of these facilities. Council will receive notification of the planned installations and an invitation to comment on the proposal.
- Clarifications around delivery timeframes for postage etc.
- Improved clarity around specific site position.
- Provision for email as a delivery method.
- Section 7 (Upgrades) – Provisions for alternatives to newspaper advertising.
- Updated correspondence templates.
- Guidance documents now stored on Communications Alliance Ltd [website](#).

### Small Cells

Depending on your location, you may have seen the introduction of Small Cells. Small Cells are physically small radio base stations that complement the macro network to improve coverage, add capacity, and support new services & user experiences. You can find out more about Small Cells [here](#) (ACMA – A Guide to Small Cells).

### 5G

5G is the 5<sup>th</sup> generation of mobile networks, a significant evolution of today's 4G LTE networks. 5G is being designed to meet the very large growth in data and connectivity of today's modern society, the internet of things, and tomorrow's innovations. 5G will initially operate in conjunction with existing 4G networks before evolving to a fully standalone network. See further details [here](#). A report on the economic benefits of 5G can be found [here](#).

### EME

Electromagnetic Energy (EME) regulations in Australia are managed by [ARPANSA](#).

AMTA & the MCF acknowledge that some members of the community may be concerned about EME and offers the following website of user friendly information [EMF Explained](#).

Information on the Australian Standards ([RPS3](#)) can be obtained from [ARPANSA](#) who also offer a regular [Talk to a Scientist](#) service.

### RFNSA

The Radio Frequency National Site Archive is a publicly accessible database of all Australian mobile phone base stations. It can be accessed at [www.rfnsa.com.au](#) The database provides information on existing and planned base stations. Upgraded search options and a new subscription service provide email notification of proposed works to a specific facility or a defined post code.

### CARRIER CONTACTS

Carriers remain committed to working with local government on the rollout of telecommunications infrastructure. If you have any questions that you would prefer to direct specifically to the Carrier, they can be contacted at:

Optus: [Communityrelations@optus.com.au](mailto:Communityrelations@optus.com.au)

Telstra: [basestation.enquiries@team.telstra.com](mailto:basestation.enquiries@team.telstra.com)

Vodafone: [Community.relations@vodafone.com.au](mailto:Community.relations@vodafone.com.au)



## 5G & Electromagnetic Energy (EME) – Quick Reference Guide

<p><b>Is 5G safe?</b></p> <ul style="list-style-type: none"> <li>➤ <b>At Telstra we take our responsibilities regarding the health and safety of our customers and the community very seriously.</b> We also acknowledge that some people are genuinely concerned about the possible health effects from electromagnetic energy (EME) and we are committed to addressing those concerns responsibly.</li> <li>➤ <b>5G wireless networks are designed to be very efficient and minimise EME.</b> This means that both the network and device power will be low, which means low levels of EMF on 5G.</li> <li>➤ The advice from the WHO is that <i>'there is no evidence that exposure to low level EME is harmful to human health'</i>.</li> <li>➤ <b>We are confident that 5G adds no risk compared to existing technologies.</b></li> <li>➤ <b>We have read the extensive research reviews</b> from international governmental health agencies and standards setting committees, conducted our own assessments and follow the safety standards set by the Australian Health Department.</li> <li>➤ <b>The existing safety standards cover 5G, include children and are conservative.</b></li> <li>➤ <b>The frequencies and power levels we are using today for 5G are similar to 3G and 4G.</b></li> <li>➤ <b>Over 50 years of scientific research has already been conducted</b> into the possible health effects of the radio signals used for mobile phones, base stations and other wireless services, including the frequency bands now being redeployed for 5G.</li> </ul>	<p><b>5G and small cells</b></p> <p><b>Will Telstra be using small cells for 5G?</b></p> <ul style="list-style-type: none"> <li>➤ Yes, Telstra will be using a range of different base stations for 5G including small cells. Initially, for Telstra's 5G deployment, existing base stations will be upgraded.</li> </ul> <p><b>Will small cells be built on every street for 5G?</b></p> <ul style="list-style-type: none"> <li>➤ Currently, Telstra does not plan or need to build small cells on every street for 5G. Telstra is upgrading its existing network to provide the initial 5G coverage and will use small cells in future years.</li> <li>➤ Small cells are typically used to provide localised coverage in small geographic areas where there are coverage limitations due to terrain, buildings or other obstructions, or to provide additional capacity where there is a significant number of people using mobile and data services in the local area. Small cells are not new and have been used for many years to provide mobile services.</li> <li>➤ In future years, mmWave small cells with a shorter range may be used extensively in residential &amp; commercial areas where customers need access to quality high speed and high capacity mobile services.</li> </ul> <p><b>Do small cells have high EME?</b></p> <ul style="list-style-type: none"> <li>➤ No, small cells operate at low power and have low EME levels.</li> <li>➤ Telstra has tested a range of small cells and found the EME levels close by and immediately around the small cell to be very low and well below the EME safety limits.</li> </ul>
<p><b>What is mmWave and is it safe?</b></p> <ul style="list-style-type: none"> <li>➤ Telstra 5G technology does not currently use mmWave frequencies, however we plan to use mmWave in the future when spectrum becomes available.</li> <li>➤ <b>mmWave is not new</b>, it's a higher frequency band that is already being used for communications.</li> <li>➤ The existing EME safety standards and extensive research to date <b>includes mmWave</b>.</li> <li>➤ <b>Telstra's mmWave 5G trials showed EME levels were very low</b> and similar to existing technologies.</li> </ul>	<p><b>What testing has Telstra done in relation to 5G?</b></p> <ul style="list-style-type: none"> <li>➤ We have done <b>extensive EME testing</b> on our 5G network.</li> <li>➤ We have found the EME levels to be <b>similar to 3G, 4G and WiFi</b>.</li> <li>➤ The EME levels measured were found to be <b>well below the safety limits</b>, and in many cases over a thousand times lower.</li> <li>➤ <b>We continually monitor our network</b> and the ACMA conduct EME compliance audits.</li> </ul>

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## Resources

Source	Website
Telstra.com	<a href="https://www.telstra.com.au/consumer-advice/eme/5g-and-eme">https://www.telstra.com.au/consumer-advice/eme/5g-and-eme</a>
Telstra Exchange Articles – public information on 5G and EME	<a href="#">Understanding-5g-and-eme/</a> <a href="#">5 Things you Should Know about 5G and EME</a> <a href="#">5-surveys-of-5g-show-eme-levels-well-below-safety-limits/</a>
Telstra internal – News In Brief	<a href="#">Telstra news in Brief: 3 - 7 June</a>
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	<a href="#">misinformation-about-australias-5g-network</a>
Small cells bringing fast mobile coverage to where it's needed most	<a href="#">small-cells-bringing-fast-mobile-coverage-needed/</a>
Australian Communications and Media Authority (ACMA) - small cells	<a href="https://www.acma.gov.au/Home/theACMA/a-guide-to-small-cells">https://www.acma.gov.au/Home/theACMA/a-guide-to-small-cells</a>
EMF Explained – how 5G works	<a href="http://www.emfexplained.info/?ID=25916">http://www.emfexplained.info/?ID=25916</a>
World Health Organisation online (WHO) – EME Q&A	<a href="https://www.who.int/features/qa/30/en/">https://www.who.int/features/qa/30/en/</a>
International Commission for Non-Ionising Radiation Protection (ICNIRP)	<a href="https://www.icnirp.org/en/frequencies/high-frequency/index.html">https://www.icnirp.org/en/frequencies/high-frequency/index.html</a>
CNBC Article	<a href="#">CNBC Article</a>
Science Media Centre – EME Briefing	<a href="#">Science Media Centre – EME Briefing</a>
Science & Wireless 2018 EME presentation	<a href="https://acebr.uow.edu.au/events/UOW254614">https://acebr.uow.edu.au/events/UOW254614</a>
ACMA RadComms 2018 5G and EME	<a href="#">ACMA RadComms 2018 5G and EME</a>

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