

Addressing Public Concerns around Telecommunications Facilities

Telstra's EMF Communications

ITU Workshop – Uganda Communications Commission
18th May 2023

Presented by Mike Wood



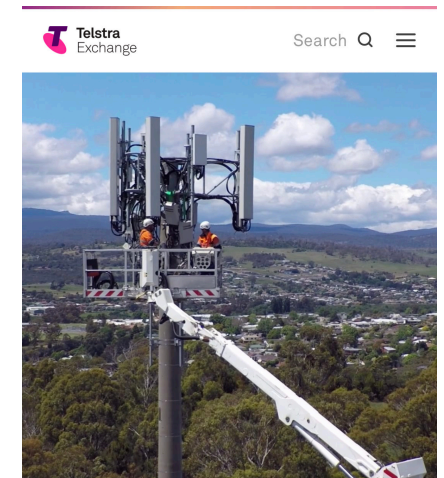


Introduction

Radio waves are not visible – what we do to make them transparent

This presentation provides an overview of Telstra's EMF communications in Australia and our public engagement.

- Telstra's Mobile Networks
- EMF Communications & Busting Myths
- 5 years of 5G EMF Surveys



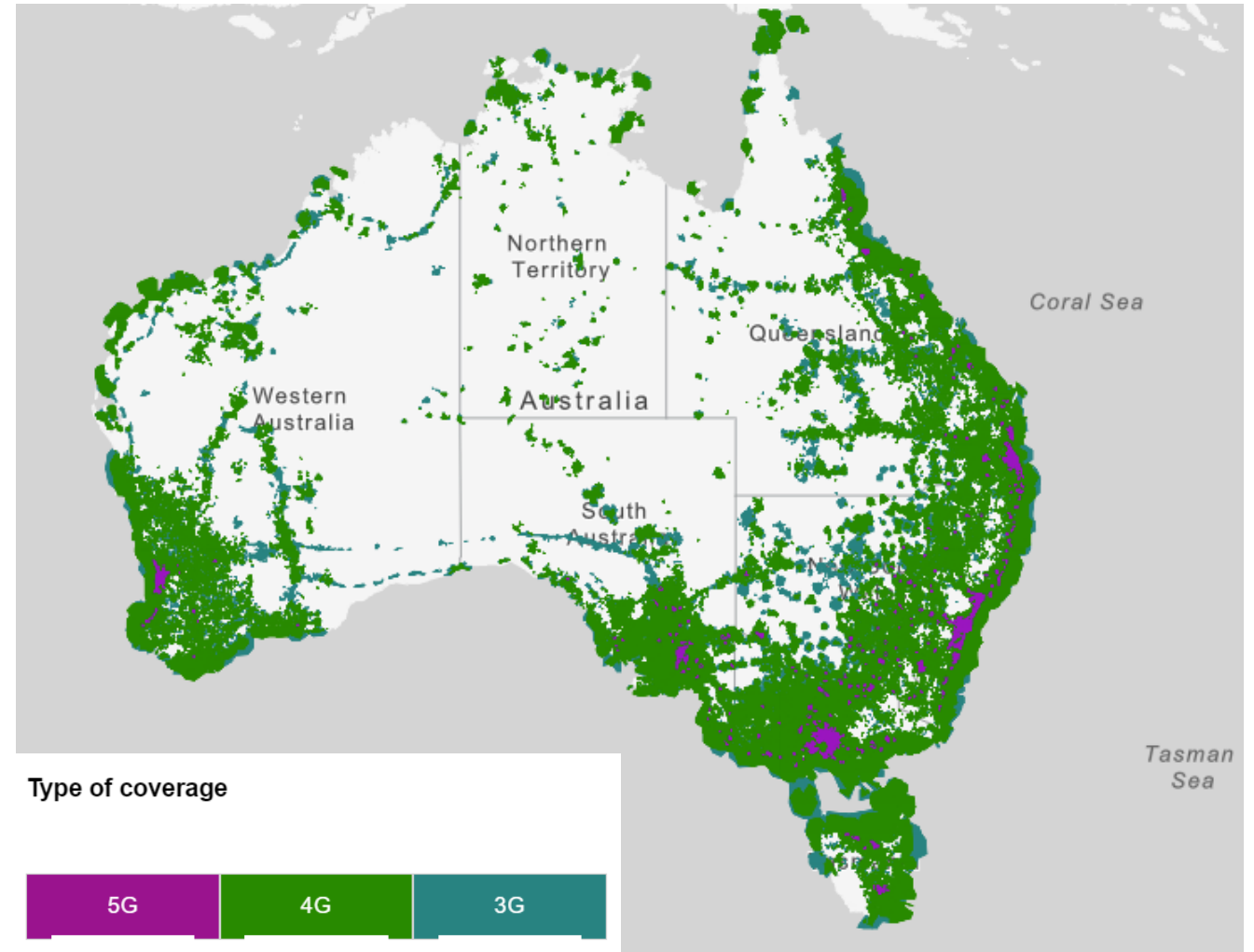
5G | NETWORK

5G, electromagnetic energy and your health: here are the facts

Telstra's Mobile Networks



- 3G, 4G, 5G technologies
- 99.6% population coverage
- Greater than 2,7 Million km²

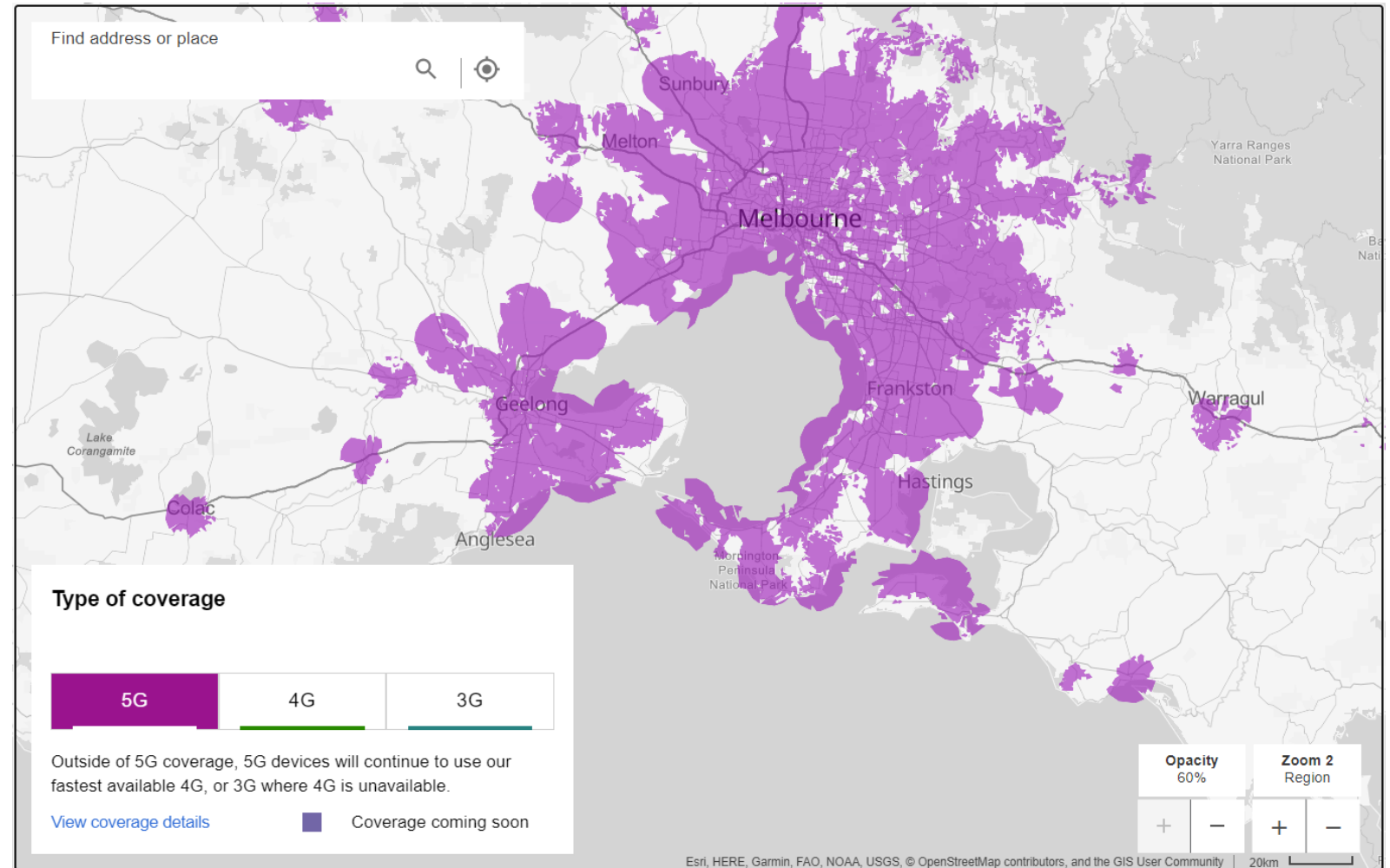
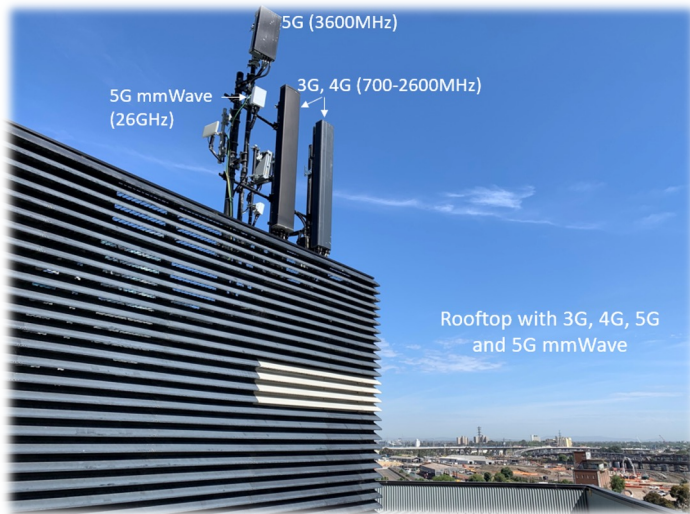


Note - 3G is being turned off in 2024
Spectrum reused for 5G

Telstra's Mobile Networks – 5G



- Capital cities
- Metropolitan
- Regional



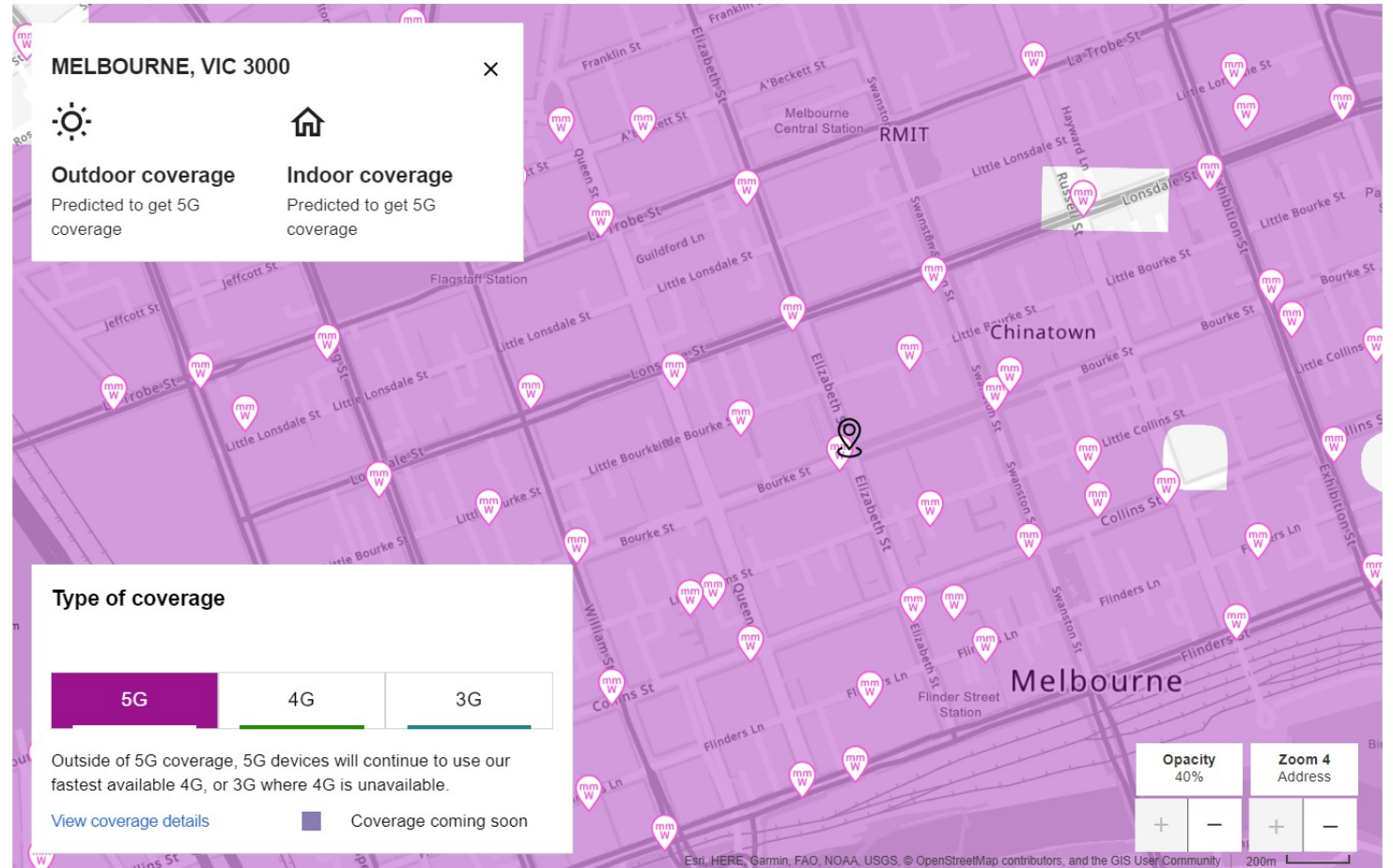
Telstra's Mobile Networks – 5G mmWave



- Capital cities
- Sporting stadiums
- High traffic areas



Enter your address to check coverage in your area



5G mmWave locations

Source <https://www.telstra.com.au/coverage-networks/our-coverage>

Telstra's Public EMF communications



Telstra has a proactive public and community engagement program on EMF

- EMF Website
- Public Information Blogs
- EMF Site Surveys
- Social Media
- Customer SMS

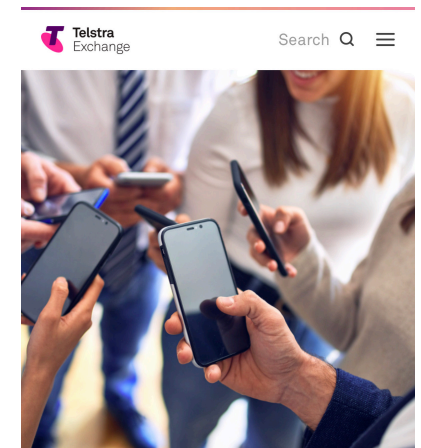


5G Q&A and 5G Myth Busters



To answer the many questions on 5G, we have a detailed [5G Q&A page](#) on our EME internet site. We also got our “5G Chief Investigator” to take a look into the myths around the new technology.

[Link 5G Chief Investigator](#)



5G | NETWORK

Five years of 5G EME testing – what have we found?

By Mike Wood
October 19, 2022

Mobile Base Station Deployment Code



- All base stations must follow the Deployment Code – regulated by Government
- Community consultation and information
- Compliance with EME safety standards

C564:2020 MOBILE PHONE BASE STATION DEPLOYMENT

[C564:2020 \(pdf 1,063kb\)](#)

[Explanatory Statement \(pdf 115kb\)](#)

The Mobile Phone Base Station Deployment Code is designed to:

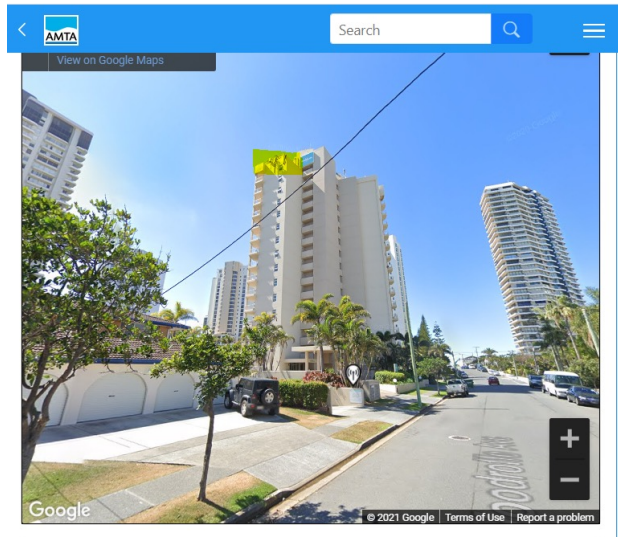
- provide greater transparency to local community and councils when a Carrier is planning, selecting sites for, installing and operating mobile phone radiocommunications infrastructure; and
- allow the community and councils to have greater participation in the decision-making process of Carriers when deploying mobile phone base stations.



Public Site information & EMF Reports



- All base stations have an Environmental EMF Report
- Publicly available on internet database
- Includes site details, location, and safety information



Environmental EME Report

Location: 46-52 PACIFIC ST, MAIN BEACH QLD 4217
Date: 10/10/2018 RFNSA No.: 4217056

How does this report work?
This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at 46-52 PACIFIC ST, MAIN BEACH QLD 4217. These levels have been calculated by Ericsson using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). A document describing how to interpret this report is available at ARPANSA's website: [A Guide to the Environmental Report](#).

A snapshot of calculated EME levels at this site

The maximum EME level calculated for the existing systems at this site is	There are currently no proposed radio systems for this site.
0.56% out of 100% of the public exposure limit, 206.41m from the location.	

EME levels with the proposed changes	
Distance from the site	Percentage of the public exposure limit
0-50 m	n/a
50-100 m	n/a
100-200 m	n/a
200-300 m	n/a
300-400 m	n/a
400-500 m	n/a

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at <http://www.rfnsa.com.au/4217056>.

Mobile Site Safety by RFNSA

Search: southport

By keyword(s) Near address

1-10 of 34 records found in: 2.39s

Map Satellite

Map

Full screen

Map data ©2021 2 km

<https://www.rfnsa.com.au/4217056>



Public Site information – Consultation new sites

- All proposed base stations have online information
- Community Consultation & resources
- Important transparency and trust

The screenshot shows the RFNSA website interface. The search bar contains '2000' and shows '1-10 of 30 records found in: 3,14s'. The results list includes:

- 2000131: Utility Pole on road reserve adjacent to 260 Pitt St SYDNEY NSW 2000
- 2000282: CNR, PITT & LIVERPOOL STS. SYDNEY NSW 2000
- 2000344: 33 York St SYDNEY NSW 2000
- 2000600: (road reserve) adjacent to King Street Courts SYDNEY NSW 2000

<https://www.rfnsa.com.au/2000344/consultation>

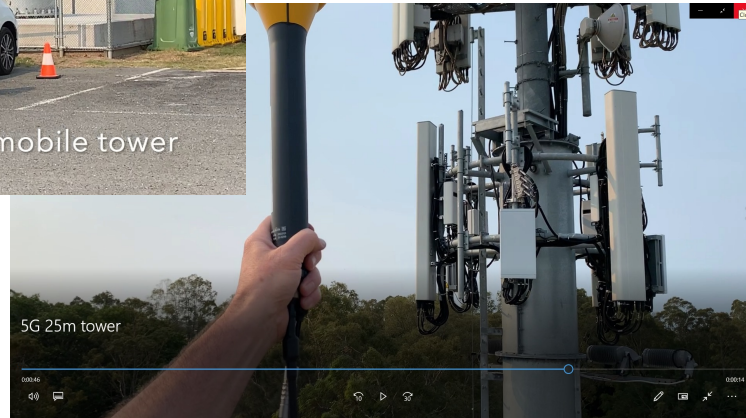
The screenshot shows the 'Community Consultation - Telstra - 9 Mar 2021' webpage. It is divided into several sections:

- Proposal Summary:**
 - What is proposed?** Telstra proposes to install a mobile telecommunications network base station to be located on the rooftop of 33 York Street, Sydney ("the Proposed Facility").
 - Why is this required?** Telstra has identified the need to improve mobile service for our customers in the Sydney CBD. The Proposed Facility is required to:
 - Meet the increased demand being placed on the network;
 - Accommodate growth in our customer base;
 - Improve and maintain local mobile network services.
- Proposal Details:**
 - Site proposal details:** The Proposed Facility will be comprised of:
 - The installation of telecommunications facility of the rooftop of 33 York St Sydney NSW 2000;
 - The installation of Six (6) panel antennas onto the rooftop (with a length not exceeding 2.8m);
 - The installation of New antenna mounts;
 - The installation of a new equipment Shelter;
 - The installation of ancillary equipment such as radio remote units (RRUs), transceivers, amplifiers, antenna mounts, cable trays, feeders, cabling, combiners, diplexers, splitters, couplers, jumpers, filters, electrical equipment, security fencing, handrails, kick plates, signage, bollards and other associated equipment.
 - This facility is exempt from Local & State Government approval in accordance with Telecommunications (Low-Impact Facilities) Determination 2018 Part 1 Item 4, Part 3 and Part 3 Above Ground Housing and Low-Impact facilities, 3.1 - Facilities, Clause (4).
- Community Updates & Announcements:**
 - 1 May 2018** Telstra's Community Consultation Program runs from Friday 5th March 2021 to Thursday 8th April 2021. Telstra has appointed Kordia Solutions as Planning Consultants to undertake the Community Consultation Program on their behalf.
- Location:** A map showing the location of the proposed facility at 33 York Street, Sydney, near Wynyard Station and Wynyard Park.
- Additional Information:**
 - Deployment Code FAQ's
 - EME Information
 - Deployment Code Information Portal
- Document List:**
 - Consultation Plan

EME Surveys – Live testing



- EMF Surveys – demonstrate actual EMF levels
- Provides live information
- Community engagement answers community questions



5G EME – Public Q&A



- We often get asked questions when out surveying
- Great opportunity to engage, show what we are doing and answer questions



EME Surveys – encouraging our graduates



- Graduates and Young Engineers are our future
- We provide field practical experience and encourage them to engage on EMF testing



Search C



Search Q

nbn 5G



Telstra Exchange | Our young engineers put mmWave through its paces with 50 tests of 5G

5G Smart Apartment – Putting 5G to the ultimate test

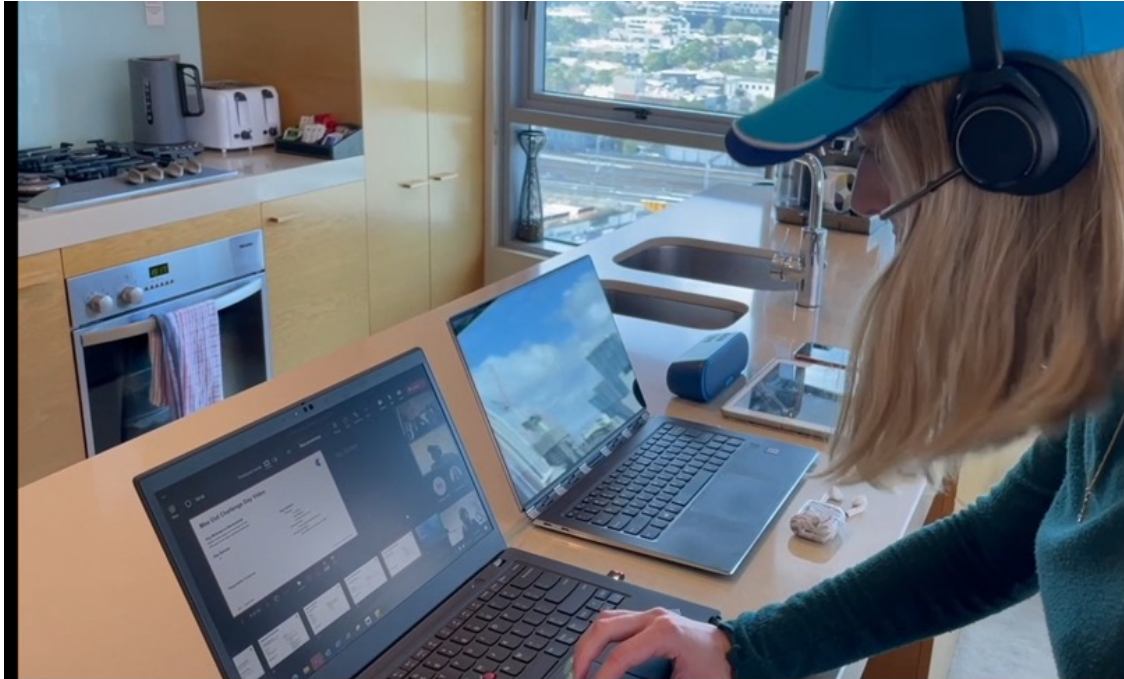


We set up three different use case scenarios in the smart apartment to test the EME levels

1. Tourist – using a mobile, laptop and apartment Wi-Fi (casual use)
2. Family & teenagers – multiple devices, 5G powered Wi-Fi (gaming, movies, multiple devices)
3. Tech savvy Graduates – 100+ devices, 5G mobiles, 5G Wi-Fi (Max out challenge, multiple devices, gaming, streaming, working, live streams, social media, google smart home)

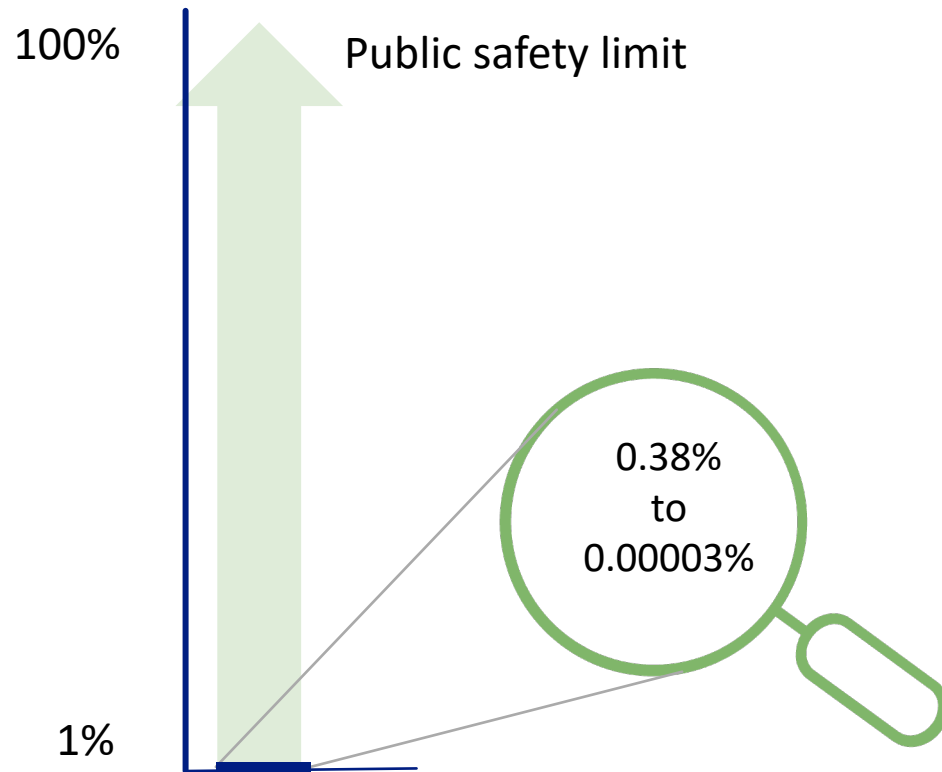


5G Smart Apartment – Tech Savvy Graduates



- 5G Wi-Fi
- 100 devices
- Google smart home
- Multiple Gaming
- Movies
- Streaming
- Social Media
- Working
- Network & EME testing
- Online meetings
- Livestreams
- Presentations

5G Smart Apartment – test scenario results



EME measured from Wi-Fi and 5G is less than 1% of the public safety limit

EME levels - % public safety limit

	Wi-Fi	5G	5G mmWave
Tourist	0.011	0.007	0.00003
Family	0.15	0.009	0.0012
Tech Savvy Graduates	0.38	0.06	0.0015

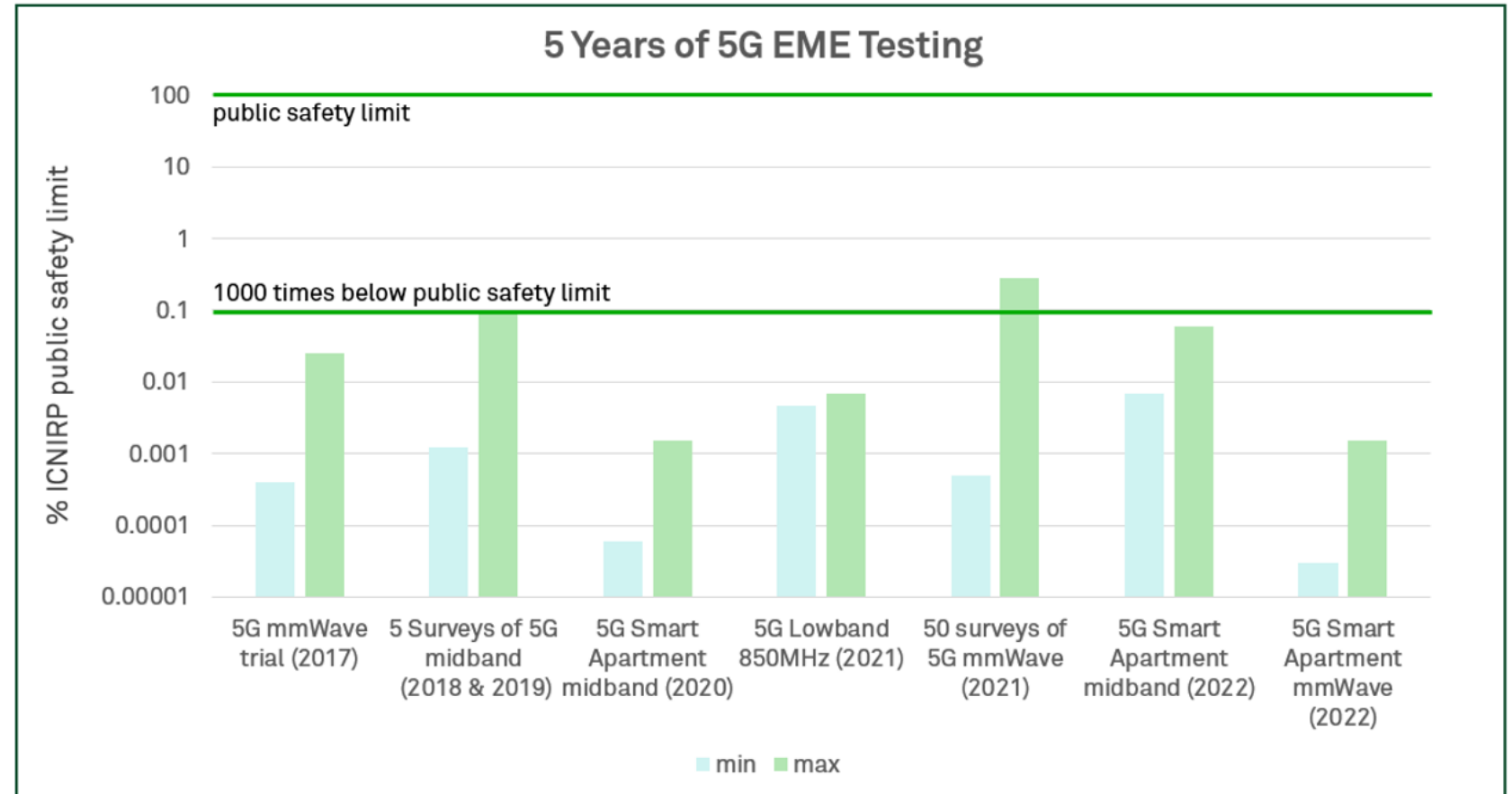
30 min time average exposure

Source <https://exchange.telstra.com.au/5g-smart-apartment/>

5 years of 5G EME Surveys – What have we found?



- **5G tested in real world settings** – cafes, homes, apartments, CBD's sports facilities, residential streets, schools
- 5G EMF levels are typically more than 1000 times below the public safety limits
- 5G EME levels under **high capacity** are similar to 3G and 4G
- 5G EME levels under **normal use** are lower than 3G and 4G, as 5G is more efficient.



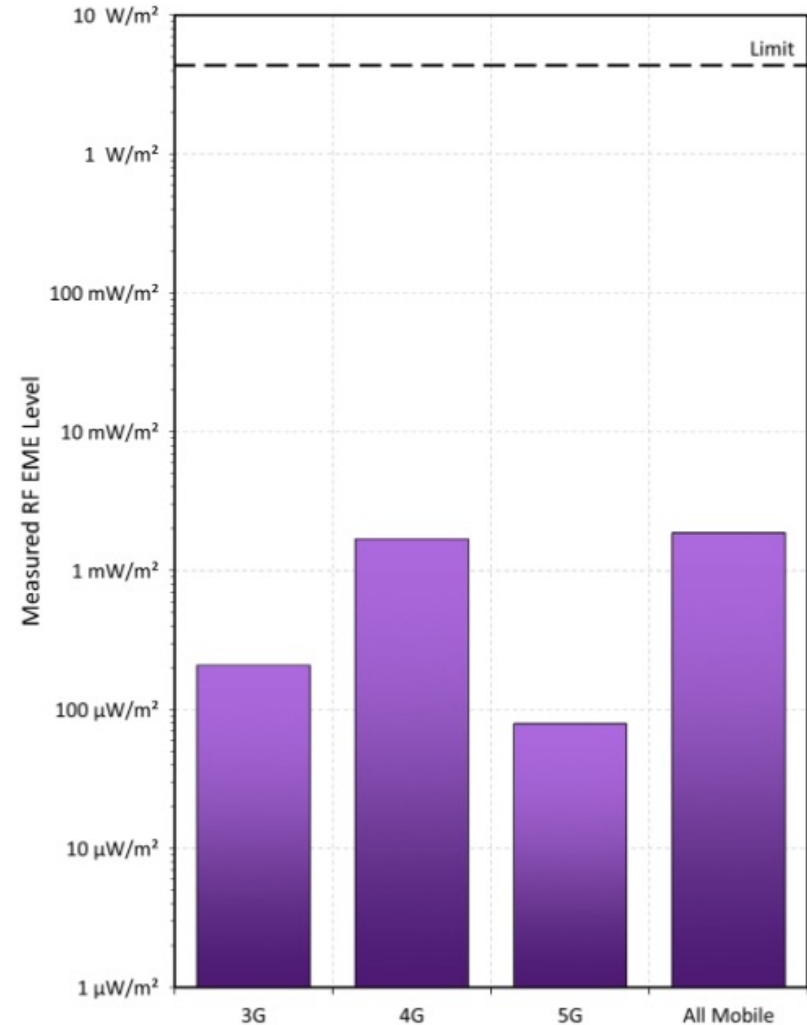
ARPANSA Survey of Residential Radio Waves (2022)

comparison of 3G, 4G and 5G



Summary

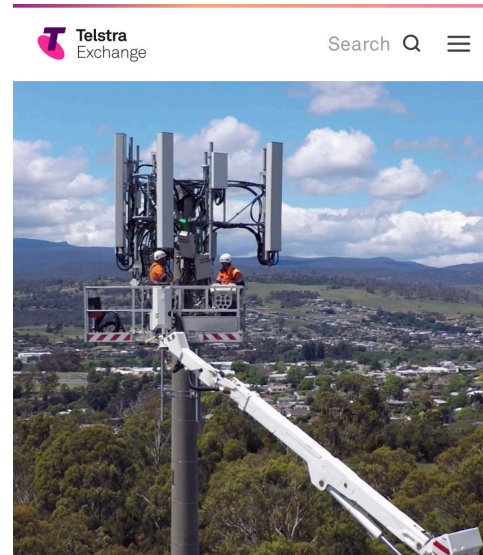
- Data from mobile phone towers were also presented according to the technology being used (3G, 4G, 5G). Overall, the environmental exposure to radio waves from 5G was found to be lower than 4G at the places measured. ARPANSA expects this to change over time as more people start using 5G-enabled devices.
- The graph shows the largest measured values from each of the three current mobile phone technologies as well as the largest combined value from all mobile phone towers and the permitted exposure limit.





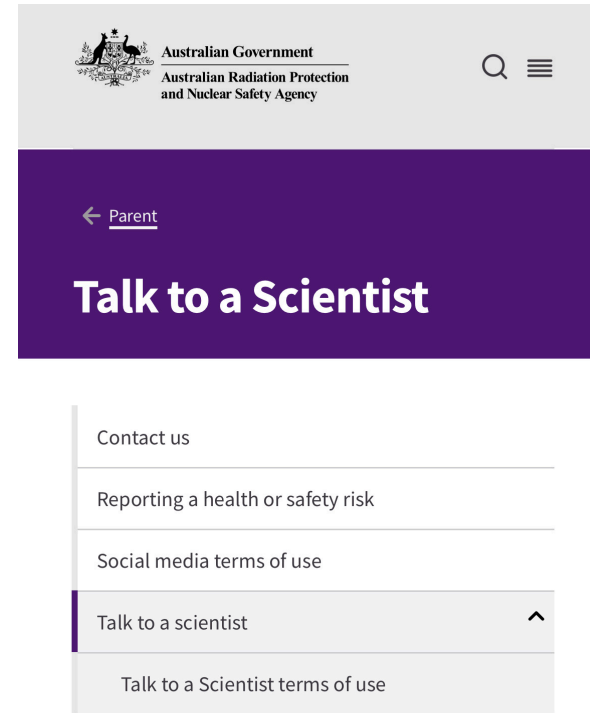
EME Information Resources

Australia has an extensive range of EMF information resources



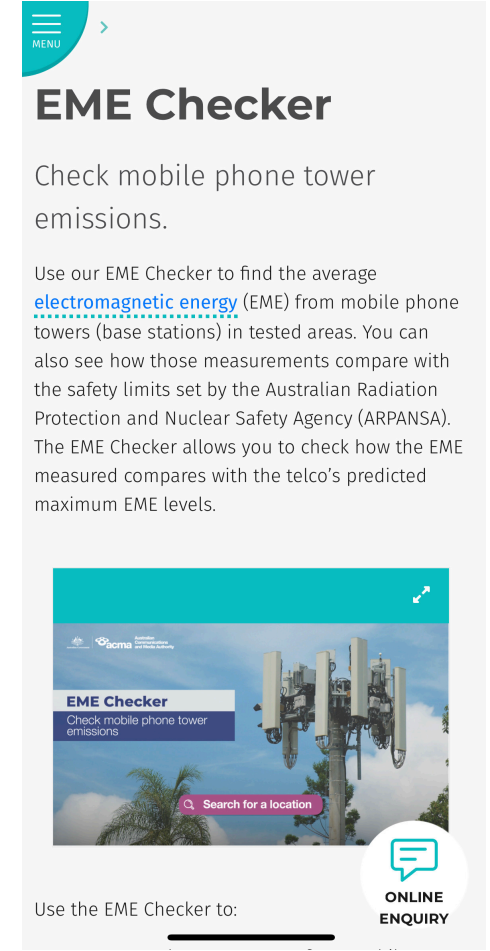
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Telstra EMF Information



ARPANSA provides a unique opportunity for the public and community to talk directly with our scientists on issues about radiation exposure and protection in Australia

Government Laboratories



Government Regulator

Thank you – Questions?



Contact: mike.wood@team.telstra.com