

1st November 2019

The Hon. Dr. David Gillespie, Chairman
and members of the 5G Parliamentary Inquiry Committee
Federal Parliament of Australia, Canberra, ACT

Dear Dr. Gillespie and committee members,

Re: Parliamentary Inquiry on the deployment, adoption and application of 5G technology

My submission to this inquiry focuses on reference term 1. Investigate the capability, capacity and deployment of 5G. I am a subject matter expert (please refer to my bio herewith submitted) on the biological/health effects of **radiofrequency electromagnetic radiation (RF-EMR)** which is the agent generated and released in to the environment to operate wireless technologies such as 5G. My submission is related to the health impact of 5G. **Health risks associated with 5G technology need to be considered with the utmost priority when assessing the deployment aspect.** I earnestly request your careful attention to the information presented below.

As detailed in my Lancet Planetary Health paper¹, RF radiation is the most prominent component of environmental electromagnetic pollution, a relatively new but serious problem for the health of humans, other species as well as the natural environment.

I am one of 251 scientists with expertise in this area (from 42 countries) who are signatories to the International EMF Scientist Appeal to the WHO and the UN² which urges immediate measures to protect the health and wellbeing of humans and other species from man-made electromagnetic fields- the most widespread of which is wireless radiation (RF-EMR). This petition refutes the often repeated yet incorrect claim by the wireless industry and regulatory bodies such as Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) that the “scientific consensus” is that there is no evidence of health risks. In fact, there is no scientific consensus on this topic. Other Australian signatories to this expert appeal include Dr. Bruce Hocking. the former long-serving Chief Medical Officer of Telstra, Dr. Peter French who was at St. Vincent’s Hospital as lead scientist of the immunology research unit and renowned neurosurgeons Dr. Charlie Teo and Dr. Vini Khurana. These distinguished Australian professionals found in their research (years ago) credible scientific evidence linking wireless radiation to cancer: as an increased risk in people living near RF-EMR transmitters as per the epidemiology studies of Dr. Hocking³; in laboratory studies by Dr. French’s team⁴ and as an increased risk of brain tumours associated with mobile phone use by neurosurgeons⁵. These Australian findings or thousands of similar findings elsewhere are not addressed in Australia nowadays.

Recently, the US National Toxicology Program (NTP) of the National Institutes of Health released findings from a large study that consumed \$30 million and took over 10 years to complete. This study demonstrated clear evidence of carcinogenicity⁶ and genotoxicity (DNA damage)⁷ associated with exposure to RF-EMR, at currently permitted levels of exposure. This evidence is not only being

ignored, but even unscientifically discredited by the wireless industry and their working partners - regulatory agencies of many Western countries, notably in Australia. This unfortunately delays much needed steps to minimise people's exposure to RF-EMR in order protect public health. What happened with tobacco and other examples where financial conflicts of interest involving regulatory/public health protection agencies that put public health at risk, is unfortunately repeating with 'wireless radiation'.^{8,9,10} The consequences could be worse than of tobacco and asbestos combined when considering the cytotoxic potential of RF radiation and its population-wide exposure which other agents did not have.

Credible medical/scientific organisations warn on wireless radiation (RF-EMR) health risks:

European Academy for Environmental Medicine (EUROPAEM)¹¹

"Studies, empirical observations, and patient reports clearly indicate interactions between EMF exposure and health problems. Individual susceptibility and environmental factors are frequently neglected. New wireless technologies and applications have been introduced without any certainty about their health effects, raising new challenges for medicine and society."

"On the one hand, there is strong evidence that long-term exposure to certain EMFs is a risk factor for diseases such as certain cancers, Alzheimer's disease, and male infertility. On the other hand, the emerging electromagnetic hypersensitivity (EHS) is more and more recognized by health authorities, disability administrators and case workers, politicians, as well."

American Academy of Environmental Medicine (AAEM)¹²

"The fact that RF exposure causes neurological damage has been documented repeatedly. Increased blood-brain barrier permeability and oxidative damage, which are associated with brain cancer and neurodegenerative diseases, have been found."

In 2013, AAEM specifically recommended only wired communications in schools including wired internet (instead of WiFi) to reduce the microwave RF radiation of more vulnerable children :

<https://www.aeemonline.org/pdf/WiredSchools.pdf>

American Academy of Pediatrics (AAP)¹³

"Children are disproportionately affected by environmental exposures, including cell phone radiation. The differences in bone density and the amount of fluid in a child's brain compared to an adult's brain could allow children to absorb greater quantities of RF energy deeper into their brains than adults. The current exposure limits may not reflect the latest research on RF energy"

Ministry of Health of Israel (MoH)¹⁴

"Although the MoH lacks authority under the Non-Ionizing Radiation Law, the Ministry publishes recommendations on reducing public exposure. The MoH recommends sensible use of cellular and wireless technology, including: considering alternatives like landline telephones, use of a speaker while talking on a cellphone, and refraining from installing the base of wireless phones in a bedroom, work room, or children's room" (page 69). The Israeli Ministry of Health recommends

reducing exposure to wireless radiation and advises against having cordless phones in areas where people spend time most or near children!

“recommends that students remain at a distance of at least 1.5 meters from electrical cabinets and that use of wireless communication networks in schools be reduced.” “The MoH recommends not using cellphones in closed places (for example, elevators, buses, trains) due to amplified radiation in such places.” (page 70).

“Findings in Israel clearly indicated a link between cellphone use for more than 10 years and the development of tumors in the salivary glands, particularly among people who held the telephone on the same side where the tumor developed and individuals in the highest category of exposure (heavy use in rural areas).” (page 71)

At least the Israeli MoH is telling their people the truth about the health risks of wireless communications (RF-EMR) and recommends steps to minimise exposure even though they are powerless to control public exposure levels. In contrast, no health authority is giving this vitally important advice in Australia and instead false assurances of safety are propagated through all communication channels.

French National Agency of Health Security of Food, Environment and Labour (ANSES)¹⁵

“the Agency emphasises that children can be more exposed than adults because of their morphological and anatomical features, in particular their small size, as well as the characteristics of some of their tissues. It is issuing a series of recommendations aimed at adapting the regulatory limit values in order to reduce the exposure of children to electromagnetic fields, which starts from a very early age due to the expansion of the use of new technologies.”

“ALL wireless devices, including tablets, cordless phones, remote controlled toys, wireless toys, baby monitors and surveillance bracelets, should be subjected to the same regulatory obligations as cell phones.”

France has in recent years taken several steps to reduce children’s exposure to RF-EMR such as banning marketing mobile phones to children, banning wireless systems such as WiFi in small children’s facilities and restricting the use of WiFi for older students in schools¹⁶.

Russian National Committee on Non-Ionizing Radiation Protection (RNCNIRP)¹⁷

“the following health hazards are likely to be faced by the children mobile phone users in the nearest future: disruption of memory, decline of attention, diminishing learning and cognitive abilities, increased irritability, sleep problems, increase in sensitivity to the stress, increased epileptic readiness. Expected (possible) remote health risks: brain tumors, tumors of acoustical and vestibular nerves (in the age of 25-30 years), Alzheimer’s disease, “dementia”, depressive syndrome, and the other types of degeneration of the nervous structures of the brain (in the age of 50 to 60).”

National Committee on Environment and Children's Health of Cyprus.

This series of 5 min information videos¹⁸ to protect children from wireless radiation explains the issue clearly - a must watch for this committee: <https://www.youtube.com/watch?v=H43IKNjTvRM>

Australian health agencies and regularly authorities have been negligent

Honourable Chairman and committee members, other government agencies and medical organisations have been warning their people of serious short- and long-term health risks including cancers and a range of neurological and neuro-behavioural problems for years. However, in Australia we have only heard assurances of safety. This must be either due to the incompetence of our health regulatory agency ARPANSA and the primary research body on RF biological/health effects ACEBR or something more complex, which must be investigated.

Australian health statistics show that our nation is burdened with a wide range of adverse health outcomes (physical and mental health problems) that have been linked to wireless radiation (RF-EMR) exposure. Yet wireless radiation remains 'the elephant in the room' when Australian health ministers are presented with health of the nation reports. Adverse health effects of RF-exposure have been long-referred to as "microwave sickness/illness"^{19,20}, initially identified in people occupationally exposed to RF-EMR, mostly military radar. While both cited papers on microwave sickness are by highly qualified /experienced medical professional in occupational and environmental medicine, reference 20 is by Dr. Bruce Hocking, former Chief Medical Officer of Telstra who found clear physiological changes involving nerves in some people upon exposure to mobile phone radiation in objective provocation tests.²¹⁻²³ These studies are far superior to subjective testing²⁴ which is the method used by medically-untrained psychologists at Australia's top research centre on RF-EMR health effects at ACEBR where much of the funding comes from the wireless industry.

Sadly, such poor-quality studies are being used as the basis on which health risks of wireless radiation are denied. In an ABC report titled "Phone tower anxiety is real and we're worrying ourselves sick"²⁵, an ACEBR PhD student claimed "*Decades of scientific research has found no evidence of any adverse health effects but still the public remains concerned*" (parroting ARPANSA/industry) referring to his study on 3 people which recorded unreliable subjective symptoms! His psychologist supervisor who headed ACEBR (therefore the lead health researcher in Australia) for many years is frequently featured in media denying any health risks of wireless. These industry-funded psychologists are misleading Australians, including medical professionals to believe that symptoms are due to a "nocebo effect" arising out of fear of wireless technology rather than RF radiation. They dismiss, discourage medical investigations and even ridicule Australian people who suffer from exposure to wireless radiation such as in the cases published in the ABC^{26, 27} In these two cited reports (there are many more), suffering Australians include a Sydney University physics professor who suffers from WiFi at work place, an unwell family with young children who live near a mobile phone base station (MPBS) and an older female claiming to have suffered severe neurological symptoms after an NBN WiFi tower was erected near her home. It appears from the older woman's case where the patient's GP, apparently without any education on adverse health effects of RF radiation, and misled by the false statements of ACEBR and ARPANSA, is not even trying to investigate if RF-radiation could be affecting her patient. If the GP was properly educated, she would be referring this patient to an expert neurological investigation by someone like Dr. Bruce Hocking and colleague Dr. Westerman who have conducted objective neurological tests with specialised equipment in the past. Australian doctors are not educated on this topic. These ABC reports are typical of countless such orchestrated propaganda by wireless proponents to mislead

Australians to believe that wireless radiation is safe. If that is the case, why do credible medical organisations in other parts of the world and hundreds of expert scientists give warnings?

Dr. Gillespie, as a medical professional, you will understand well why it is crucially important to investigate the health impact of wireless tech **before** the deployment of 5G when ARPANSA/industry/ACEBR/ACMA position is at odds with expert bodies like those mentioned above and thousands of scientific studies.²⁸⁻³⁰

Moreover, if RF-EMR exposure cannot cause any health problems, why has there been a specific WHO ICD code to diagnose adverse health effects caused by exposure to RF-EMR? The WHO International Classification of Diseases (ICD) for years has maintained W90 for RF-EMR caused health effects: <https://icd.codes/icd10cm/W900>

Accumulated scientific evidence indicates that wireless radiation can cause cancer

RF-EMR from all wireless sources was classified by the WHO's International Agency for Research on Cancer (IARC) as a **Group 2B Possible Carcinogen** in 2011^{31,32} This further warranted the long-held recommendation for the Precautionary Principle (i.e. reduce exposure due to potential risks). The scientific evidence related to cancer has markedly increased since 2011 and based on this new evidence, some experts from the IARC expert panel in 2011 have called for an upgrade to the IARC classification to **Group 1 Carcinogen** (established cancer-causing agent)^{33,34} As a scientist familiar with the empirical evidence in this field of research, I concur with these cancer experts – the scientific evidence as a whole shows that RF radiation is a carcinogen. WHO's IARC has recently announced that RF-EMR needs to be re-evaluated with high priority due to this increased evidence related to cancer causation³⁵.

It is clearly not the time to increase the exposure of people of Australia to wireless RF radiation with 5G, instead we need to reduce it by encouraging safer wired communications. The 4G deployment added a large network of small cell (micro cell) antennae mobile phone base stations (MPBS) to telegraph poles on residential streets. This increase in numbers of transmitters will be accelerated further with the introduction of the second phase of 5G which will require a closely located antenna array. There has been a massive increase in the exposure of Australian people to toxic RF radiation in the last decade which will get much worse with 5G.

My own review of the scientific literature has revealed that low levels of RF radiation (typical exposures) cause biological effects including oxidative stress which is a known mechanisms of cell damage (including DNA damage) causing a wide range of degenerative diseases and cancer. **Out of 242 peer-reviewed studies, 89% found oxidative stress related to RF-EMR exposure**³⁶. This research paper (Bandara P. and Weller S. Biological effects of low-intensity radiofrequency electromagnetic radiation – time for a paradigm shift in regulation of public exposure, 2017) provided evidence to substantiate the claim that ARPANSA's evaluation of the experimental evidence in this area is flawed and risks public health in Australia.

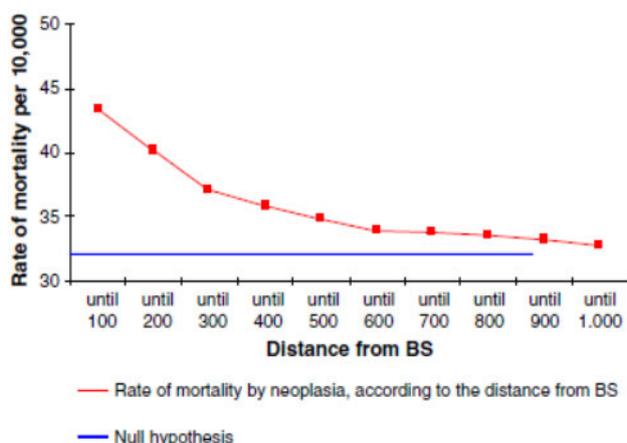
Reviewing the literature in 2016, I found that six out of eight studies that investigated if there was an increased risk of cancer in people living near mobile phone base stations (MPBS) reported evidence for an increased cancer risk. Some of these were detailed by neurosurgeon Dr. Vini Khurana (formerly ANU/Canberra Hospital) in his 2010 review titled “Epidemiological evidence for a health risk from mobile phone base stations”³⁷

Careful analysis of the two studies that did not find an increased risk of cancer near MPBS indicated that errors in methodology may have precluded such observations, i.e. missing an effect that exists. I would be happy to elaborate on these if given an opportunity

Intriguingly, Australia has not undertaken a single study to investigate if people living near RF-EMR transmitters like MPBS have an increased risk of cancer (or other diseases) since ex-Telstra Chief Medical Officer Dr. Bruce Hocking and colleagues conducted their study in the mid 1990s³. This is a national shame considering that there are hundreds of thousands of RF transmitters in close proximity to millions of Australian people. Most notably, **Australia is the nation with the world’s highest cancer incidence rate³⁸ (the rate of new cancer diagnosis) out of 185 countries.**

While no one is investigating detrimental cellular effects such as oxidative stress and DNA damage or their consequences like cancer in Australian people, elsewhere academic medical researchers are publishing disturbing findings:

- In a large study conducted in a Brazilian city investigating cancer deaths over 10 years, researchers found a marked increase in cancer death rate near mobile phone base stations (MPBS) as per the graph below. Further, 93.5% of 7191 cancer deaths had occurred within 500m of MPBS. It took 1 km distance from a MPBS for the observed cancer death rate to reduce down to the expected cancer death rate (see graph). Based on their findings, the investigators claimed current ICNIRP public exposure standards (also followed in Australia) is not protective and urged immediate changes. The RF-EMR levels measured in this study varied between 0.4 – 12.4 V/m (4.2×10^{-4} – 0.4 W/m²), only a small fraction of the levels allowed by the ARPANSA standards. These levels are typical already in Australia and levels near MPBS often exceed these. The city prosecutor took legal action against some mobile operators following this study³⁹.



If the mobile phone base stations had no association on cancer deaths, the researchers expected the flat blue line (null hypothesis), but what they saw was an increasing cancer death rates with proximity to MPBS.

Older studies conducted before everyone in the population became heavily exposed to RF radiation are far more powerful in assessing health risks than newer studies. This is because a study needs a comparison group (negative control) against which it can benchmark the observed effects. Sadly,

the much needed population studies have been delayed so far, that it is almost impossible to derive meaningful data in situ because everyone is exposed to wireless RF radiation.

- A study conducted by independent German GPs in Naila⁴⁰ investigating nearly 1000 newly diagnosed cancer cases during 1994-2004 found cancer risk to be increased by three times if patients lived within 400 m of the city's MPBS compared to the outer area, after five years of its operation. In addition, those who lived within 400m of the MPBS developed cancer at a younger age – by an average 8.5 years. The average age of females in inner area who developed breast cancer was 50.8 years as opposed to 69.9 years in the outer area – nearly 20 years younger. The German national average age for breast cancer at the time was 63 years. The same medical investigators did a subsequent study near a MPBS in another city and found a similar increased cancer risk near it.⁴¹

Similar findings of an increased cancer risk were made in studies by medical doctors and academic researchers without financial conflicts of interest in Israel⁴² and UK⁴³.

Meanwhile, three separate studies by academic researchers in India⁴⁴⁻⁴⁶ have reported increased DNA damage and oxidative stress in health young people (independent of smoking, alcohol intake, diet) who live near MPBS (in different areas) compared to age- and gender-matched controls. Interesting, these toxic effects that increase the risk of cancer were associated with personal mobile phone use as well. A dose-response was also noted in that an increased RF-EMR exposure corresponded to an increased biological damage suggesting a causal association.

Financial Conflicts of Interest are obfuscating research on RF-EMR and the regulation of public exposure in Australia

Financial sponsorship by the wireless industry (which is the case for a large number of studies in this field) has been demonstrated to influence the outcomes of research studies (i.e. reporting less health/biological effects than independent studies)⁴⁷. The Swiss researchers who did the analysis of sponsorship concluded: ***“The interpretation of results from studies of health effects of radiofrequency radiation should take sponsorship into account.”***

Despite the ARPANSA claim⁴⁸ that it is an independent radiation regulator protecting the health of Australians from RF-EMR (i.e. independent from wireless industry and other government departments), this claim is NOT supported by the evidence:

- According to the AFP Hansard records of the 2001 Senate Inquiry, ARPANSA has been receiving funding from the mobile & wireless industry (as part of an annual levy collected by the ACMA for health effects investigation since 1997)⁴⁹

Quoting the Hansard records: *“Funding for the whole program has been made available at the rate of \$1 million per year starting on 1 January 1997. Of the \$1 million, \$700,000 goes to the NHMRC for the research program and the remaining \$300,000 covers the involvement in the WHO International EMF Project (\$US50,000 per year) and also the public information program (\$131,000 spent by June 2000).”*

Therefore, both health agencies, ARPANSA and the controversial International EMF Project (IEMFP) at the WHO have been funded by the wireless industry revealing serious financial conflicts of interest (CoI). This CoI is not monitored by any higher authority. Given that ARPANSA and WHO's IEMFP have clearly ignored/down-played a vast body of scientific research published in peer-

reviewed literature showing evidence of harm, it is reasonable to attribute this conflict of interest to a lapse in a public health protection, similar to what happened with tobacco. Interestingly, this also reveals that the public information ARPANSA disseminates to Australians on the safety of wireless radiation is sponsored by the wireless industry.

- ARPANSA is operating in partnership with the wireless industry:

The information on the ARPANSA website indicates this: *“The 2007 - 2013 survey of mobile phone base station EME levels was carried out by ARPANSA with financial support from the Mobile Carriers Forum (MCF), a division of the Australian MobileTelecommunications Association (AMTA) the peak industry body for the telecommunications industry”* ⁵⁰

Moreover, the suitability of ACMA as the regulator of RF-EMR emissions from wireless infrastructure such as MPBS is questionable when ACMA collects billions of dollars of revenue from the sale of the RF spectrum to the wireless industry, introducing a clear conflict of interest. Would a regulator that financially depend on the same industry that generates RF-EMR put health matters of RF first?

ACMA also regulates media and it is yet to be clarified whether its conflicts of interest have resulted in suppression of independent media reporting on the issue of wireless health risks. For example, in 2016, the ABC retracted a well-researched and professionally conducted piece of scientific journalism – the Catalyst episode “WiFried?” where risks of RF-EMR were investigated. Among the experts interviewed, Prof. Bruce Armstrong, the eminent physician epidemiologist from the University of Sydney who headed the Australian arm of the 13-country INTERPHONE study admitted that there is an increased risk of brain cancer associated with prolonged use of mobile phones. Passing such information to the Australian public is vitally important to reduce their risks by reducing exposure to wireless radiation. However, proponents of the wireless industry (mostly those who have received funding from the same) such as the psychologist head of ACEBR, a sociologist (in public health arena) who has no scientific expertise in RF-EMR and a physicist partnering with ACEBR unfairly criticised and defamed this program and subsequently ABC retracted⁵¹ that episode and stopped the entire Catalyst program. Staff, including prominent science journalist Dr. Maryanne Demasi lost their jobs as a result. This was one example where more qualified experts (such as Prof. Armstrong who was also one of the 30 cancer experts invited by the WHO’s IARC in 2011 to review RF-EMR evidence on cancer) were overcome by apparently more influential “experts” with financial conflicts of interest, not only crushing independent journalism in Australia, but also compromising public health.

ACMA’s regulation of emissions from RF-transmitters is not reliable and risks public health

Importantly, there should be NO further deployment of thousands of new RF radiation emitting antennae for 5G when there is evidence that existing RF emitters are not properly regulated for RF emissions. Although ACMA is commissioned to ‘police’ the wireless industry to ensure all RF antennae that expose Australians to RF-EMR, at least meet the disputed ARPANSA Standard, there is evidence that this regulation has failed. As a consequence, Australians could be at risk. The mysterious breast cancer cluster at ABC’s Toowong studios is my selected example. The expert investigation⁵² recognised that the breast cancer cluster was real, and it was related to some environmental aspect of that building, even though the exact cause was concluded to be unidentified.

There are many gaps in the ABC investigation (some as discussed by Maisch et al ⁵³) and it is questionable why the site was quickly demolished without carrying out a detailed investigation to

find out what exactly was the environmental hazard that caused the cancer cluster. In addition, I note with interest that at RF staff security card readers, the emitted RF-EMR level was exceeding the ARPANSA standard:

“in proximity to security card readers [magnetic (H) fields up to 1.93A/m and electric fields up to 121.3V/m (next highest 37.4 V/m)]. Staff members were concerned that if their hands were full carrying books, bags or equipment, they would bring their chest into close proximity to the card reader and, perhaps, be exposed to intermittent high levels of RF radiation.” (page 20 of the expert report).

My questions are:

- How did these card readers emit 121.3V/m when the maximum RF field allowed under the Australian ARPANSA standard is 61V/m?
- What steps did ACMA take to investigate how this breach occurred?
- What steps did ACMA take to make sure similar RF card readers elsewhere weren't emitting RF-EMR at exceedingly high levels like in this example?
- What steps did ACMA take to ensure that other RF emitters such as mobile phone base stations are independently tested for compliance?

Furthermore, after extensively studying the scientific literature on biological effects of RF-EMR, I suspect that unnatural electromagnetic fields, including RF-EMR could be causally linked to the ABC Toowong breast cancer cluster. We cannot rule out that such high RF-EMR exposure, even that briefly occurring on a daily basis, but accumulating considerably over the years, did not contribute to the development of those breast cancers. There is concerning related evidence in the scientific literature. For example, clinicians in the USA have reported unusual multi-focal breast cancers (multiple primary cancers) in healthy young women (without other risks factors) who kept mobile phones tucked in bras for convenience. The cancers were mapped to the location of the mobile phones⁵⁴ However, such important medical case reports are not reportedly even collected by ARPANSA or WHO IEMFP let alone considered in their risk evaluation (they refer to original research articles and reviews only). Moreover, the population studies that have identified an increased breast cancer risk and DNA damage in women who lived near mobile phone base stations (as discussed above) provide further supporting evidence that RF-EMR was a likely causal factor in the ABC Toowong cancer cluster.

I also note that the main source of RF-EMR at the Toowong site was a satellite dish operating at **14 GHz** which is similar to the high frequencies used by **5G**:

“The THL RF Hazard control document¹⁰ indicates that the most prominent RF source is the 7 meter satellite dish on the TV Building rooftop, operating at 14 Ghz. The three VHF Comms 3-metre antennae have high maximum power and operate between 168 and 172 MHz. Overall the RF sources on site cover a wide range of frequencies and power outputs.”

It is plausible, that this high RF-EMR exposure at the site, including 5G-like exposure at 14 GHz, contributed to the development of those breast cancers.

I urge this parliamentary inquiry to commission an independent health survey of all the employees at that ABC site in retrospect to assess risks beyond breast cancer. This is a vital step before allowing 5G deployment in Australia. This should be a case-control study with age- and gender-matched controls who have not had such high exposure to RF-EMR. I recommend a credible epidemiologist such as Prof. Bruce Armstrong (now Professor Emeritus, USyd) who headed the Toowong ABC

Cancer Cluster investigation to lead this further inquiry with **independent** academic researchers. This study should be entirely independent of ACMA, ARPANSA and ACEBR personal/researchers who have conflicts of interests due to funding by the wireless industry or by their obligation to defend the ARPANSA/ICNIRP exposure guidelines. It had been determined by the Ethics Committee of Karolinska Institute in Sweden, in response to a complaint by Prof. Olle Johansson that anyone affiliated with the private NGO body ICNIRP should declare their affiliation with ICNIRP as a potential conflict of interest.⁵⁷ This is because the ICNIRP is defending their guidelines for public health protection from non-ionizing radiation including RF-EMR. As ICNIRP guidelines have been adopted by ARPANSA as the Australian standard, both bodies are conflicted, effectively disqualifying both ARPANSA and ACEBR (affiliated with ICNIRP) from any independent inquiries into this matter.

Given the aforementioned situation with regards to a large body of scientific evidence showing biological harm, expert warnings, conflicts of interests in regulation and also the fact that Australia has the world’s highest incidence rate of cancer, I strongly oppose any further increases to the Australian population’s exposure to RF-EMR with 5G. Our nation’s unacceptable level of cancer incidence, which has increased in recent decades indicate that we are poor at controlling factors that cause cancer, should prompt us to investigate RF-EMR as a plausible cause. There is some evidence, as per published studies and my own casual measurements over the years (unpublished data) that levels of RF-EMR exposure in some Australian locations are substantially higher than in many other parts of the world. The graph below from published research⁵⁵ compares outdoor exposure levels in some Australian locations with several other overseas locations.

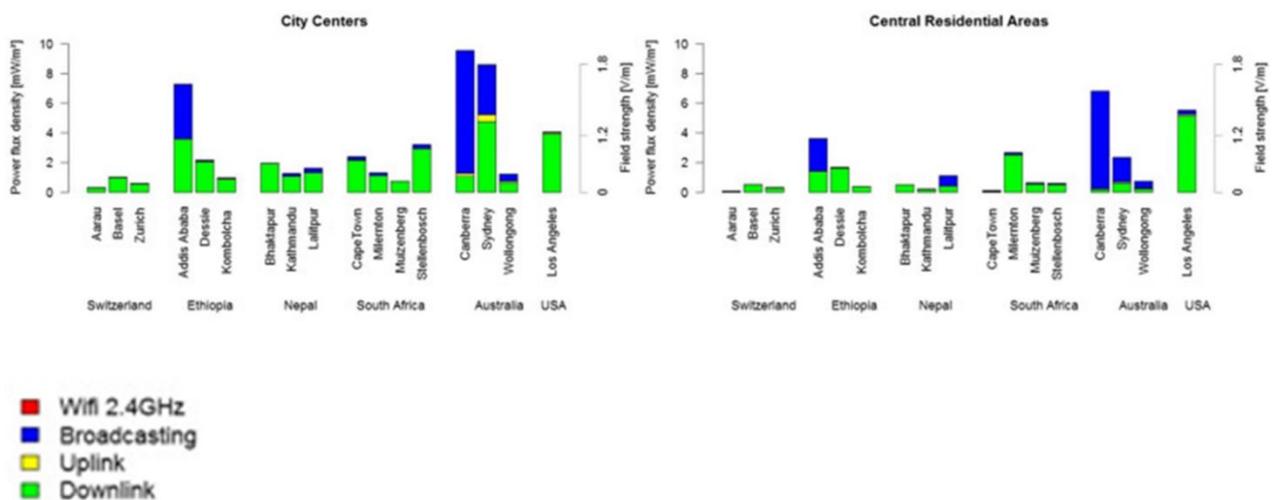


Figure from Sagar S. et al., Environment International,114, 2018, 297–306

There has been a tremendous push for wireless tech in Australia. Aside from heavily marketed wireless communication devices such as mobile phones, the National Broadband Network (NBN) delivers internet to substantial proportion of the population wirelessly, adding to the RF-EMR exposure levels which could be completely avoided with safer wired options such as fibre. Similarly, the “Digital Education Revolution” has resulted in high RF-EMR exposure in classrooms in Australian schools from constantly emitting WiFi access points and wireless devices. The health risks of such practices involving RF radiation exposure to both mental and physical health of people, including more vulnerable children have been discussed by many medical organisations. I have published a rebuttal on the flawed ARPANSA RF measurement study at schools.⁵⁶

Most critical factor – the ARPANSA standard CAN NOT protect public health!

ARPANSA adopted the guidelines of the small industry-friendly NGO professional body the International Commission for Non-Ionizing Radiation Protection (ICNIRP) in 2002 against the advice of CSIRO and other Australian experts. This inquiry must find out why ARPANSA relaxed the previous more protective Australian exposure standard against the recommendations of the 2001 senate inquiry. ICNIRP and the WHO's IEMFP were both founded by the same person and both entities engage in dubious 'industry-friendly' conduct ignoring a vast body of scientific evidence of biological effects have come under heavy criticism.^{57,58} The WHO's IEMFP by endorsing ICNIRP guidelines has put public health at great risk because ICNIRP guidelines are only based on short-term (acute) heating (thermal) effect, and as such they cannot protect anyone against long-term effects or non-thermal effects. This is a well-known fact, and indeed, it was the explicitly-mentioned reason for the US government to commission its National Toxicology Program to undertake the above-mentioned large study. The biological effects such as oxidative stress^{36,44,45}, DNA damage^{7,46,59} potentially leading to cancer and other disease are non-thermal. ARPANSA regulation is therefore entirely ineffective in public health protection. These are addressed in detail by myself and colleagues at Oceania Radiofrequency Scientific Advisory Association (ORSAA) in important publications^{36,60,61} that this panel must investigate in detail. I freely offer my services to the panel when they get to this phase of the inquiry.

Most surprising – ARPANSA has no medical expertise to deal with this health matter

I find it extremely disturbing that ARPANSA had no medical expertise to assess health impact of wireless technology on millions of Australian people who are subjected to 24/7 exposure to RF-EMR. I urge this inquiry to find out why ARPANSA appointed only 4 individuals to review the vast body of complex scientific literature on RF-EMR biological/health effects⁶² when it should have been conducted by a large panel of multi-disciplinary experts -mostly biomedical experts. The expert team's formal qualifications appear to be limited to physical sciences, psychology and epidemiology. Where was the much-needed biomedical expertise to understand cytotoxic effects such as oxidative stress, DNA damage, mitochondrial damage, altered enzymic functions, effects on voltage-gated ion channels etc. and their consequences related to chronic diseases such as cancer? Is it not ludicrous that Australia's "Review of Radiofrequency Health Effects Research – Scientific Literature 2000 – 2012" had no medical expertise? I brought this matter to the attention of the Chief Medical Officer in 2016 who then asked the head of ARPANSA to answer. However, my question was evaded in a template letter from ARPANSA.

Why did ARPANSA appoint a single person to review⁶² thousands of experimental studies when that is clearly an impossible task? That review was flawed as proven by scientists at ORSAA with evidence presented in publications^{36,60,61}. ARPANSA has subsequently admitted to not doing a proper review as per Karipidis and Tinker, 2018⁶³ and instead relying on similar flawed reports from elsewhere. This unfortunately created the situation where there was no independent expert evaluation of the scientific evidence for the Australian government. Therefore, the alarming reality is, despite the assurances of safety by ARPANSA and the wireless industry, Australia has not properly studied the health effects of wireless radiation and the work done by ARPANSA is flawed and lacking medical expertise. Under these circumstances, it would be a serious offence on the unsuspecting millions of Australians to subject them to even higher levels of RF radiation with 5G deployment which has the

capacity to cause further harm. I urge this committee to immediately recommend a moratorium on 5G.

I apologise for any typographical errors and inconsistently formatted references in this letter written in a rushed manner.

Yours sincerely,

Priyanka Bandara

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Consultant/Educator in Environmental Health

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Advisory Board Member, Environmental Health Trust, USA (<http://ehtrust.org/>)
Executive Member, Oceania Radiofrequency Scientific Advisory Association (<http://www.orsaa.org/>)

I declare no conflicts of interest as an independently operating (on a charitable basis) researcher in this field. My impetus to investigate this area of health research came from an entirely unexpected resolution of multiple diseases/disorders of neuro-immune nature in multiple members of my family, including young children, after I removed all wireless devices from my family home in April 2012. This was prompted by curiosity caused by an educational video by a Canadian academic researcher (Dr. Magda Havas). The protective steps I took, without the slightest expectation of observing any health benefits (i.e. operating with “just in case” attitude), in fact healed multiple health problems and we could discontinue medications. My research in this area on a full-time basis (and at immense financial and other sacrifices) is intended to protect millions of people, particularly children who are harmed without their knowledge or their doctors’. I am inspired by honest and brave researchers in our region such as, environmental scientists Prof. Niel Cherry (<http://neilcherry.nz/>). Prof. Cherry warned Australia not to increase public exposure to RF-EMR in the 1990s and early 2000s. He went to meetings even in his wheelchair as he was battling a terminal neurodegenerative disease. He fought bravely to protect public health from wireless radiation, but unfortunately, his noble efforts were futile in the face of massive economic conflicts of interest.

References

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