

ICNIRP, 5G, Guidelines & Health

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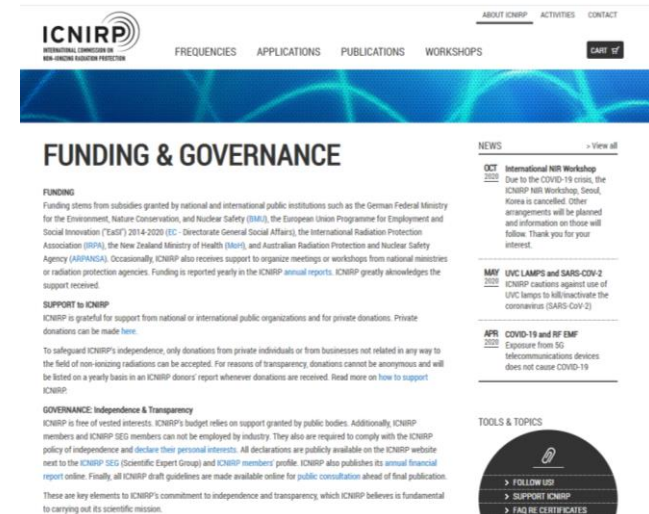
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What is the ICNIRP?

- Not-For-Profit Non-Governmental Organization in official relations with World Health Organization & International Labour Organization
- To develop and disseminate science-based advice on limiting exposure to non-ionizing radiation, including radiofrequency fields relevant to 5G

- Independent from industry; members declarations of interests available at www.ICNIRP.org



ICNIRP & 5G

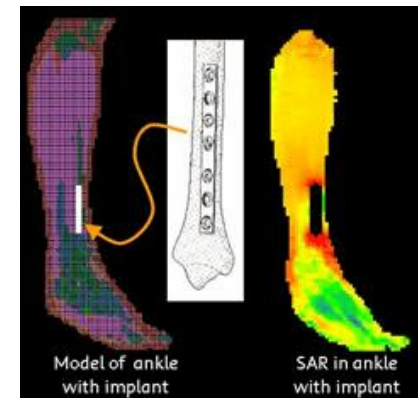
- Exposures from 5G infrastructure & devices fall within the ‘radiofrequency’ (RF) spectrum (100 kHz – 300 GHz)
- ICNIRP published updated RF guidelines in May 2020
- These provide restrictions that specify safe levels of RF exposure for humans
- People being exposed to RF from 5G devices will be safe providing that their exposures do not exceed the restrictions



THE ICNIRP RF GUIDELINES

Scope

- Radiofrequency (RF) EMF (100 kHz – 300 GHz)
- Provides protection against adverse health effects to humans under realistic exposure conditions
- ***Not included***
 - exposure for medical purposes (patients, carers and comforters)
 - exposure of medical implants
 - electromagnetic compatibility
 - compliance issues (e.g. measurement protocols)



Overall objective

- Define exposure levels, below which harm will not occur
- Not always possible for ICNIRP (e.g. UV radiation)
- No benefit in making exposures even lower!!!



Conservative nature of guidelines

- Reduction factors are only one of the conservative steps used to provide safety



Conservative nature of guidelines

- Many conservative steps added to guideline setting process
 - Incorporating **predictions** of potential harm based on mechanisms, even where RF EMF has not been shown to cause harm
 - Basing limits on **potential** health effects, which do not normally cause harm (e.g. small temperature elevations are normally uneventful)
 - Where only limited research is available for known effects, **reducing the degree of certainty required** to demonstrate RF-induced harm (i.e. accept best estimate)



Conservative nature of guidelines

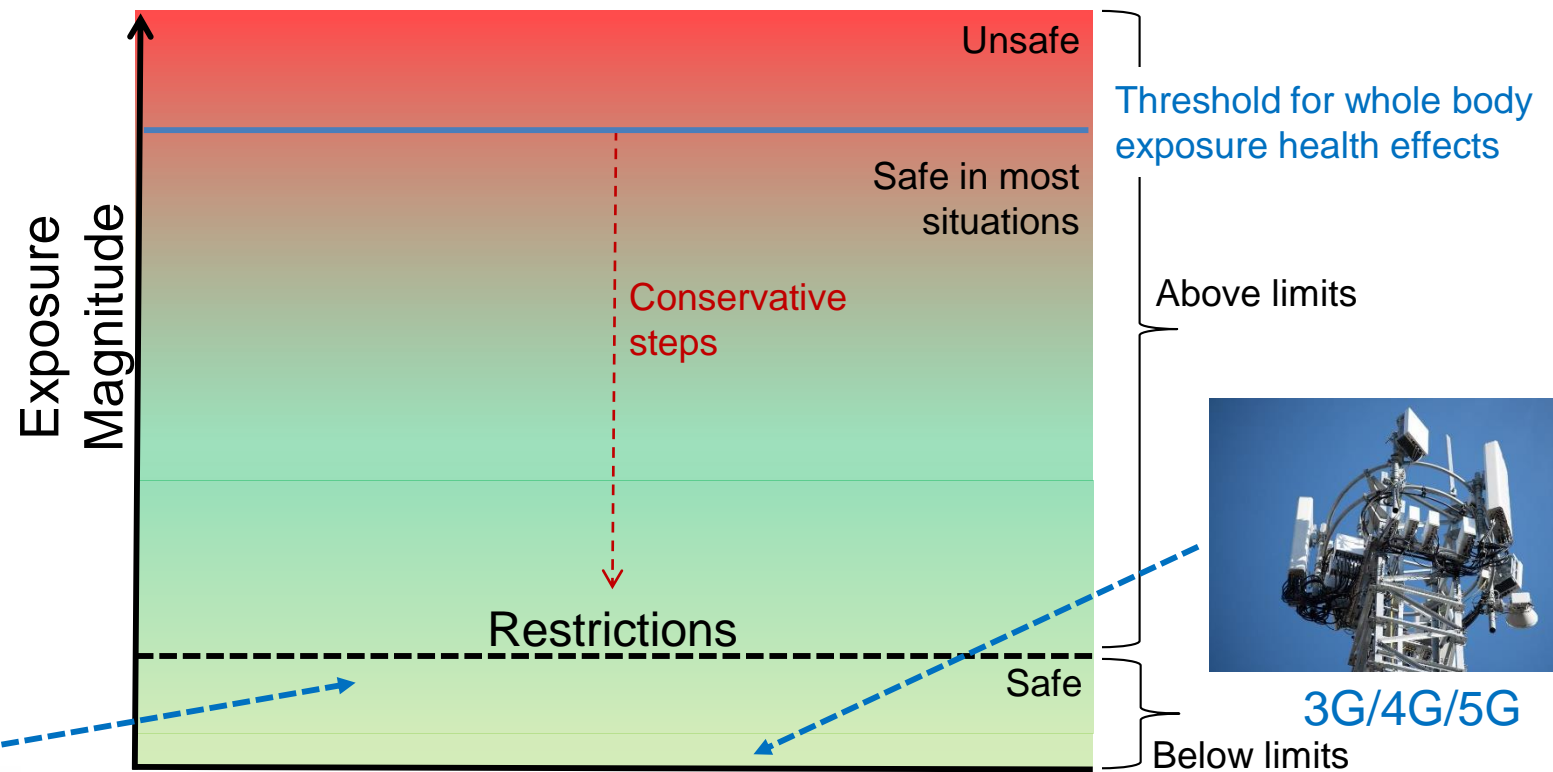
- Many conservative steps added to guideline setting process
 - Application of **reduction factors** to provide a buffer to harm
 - Applying reduction factors **consistently**, even where, individually, less stringent reduction factors may appear justified
 - Conservative **derivation of Reference Levels** for most cases (e.g. plane wave exposure)



Adherence to the ICNIRP Guidelines will permit...

- At worst, a maximum local temperature rise for the general public of 0.5 degrees (e.g. in skin), or 0.2 degrees (e.g. in deeper tissue)
- No detectable increase in body core temperature
- No increased risk of any adverse health effect

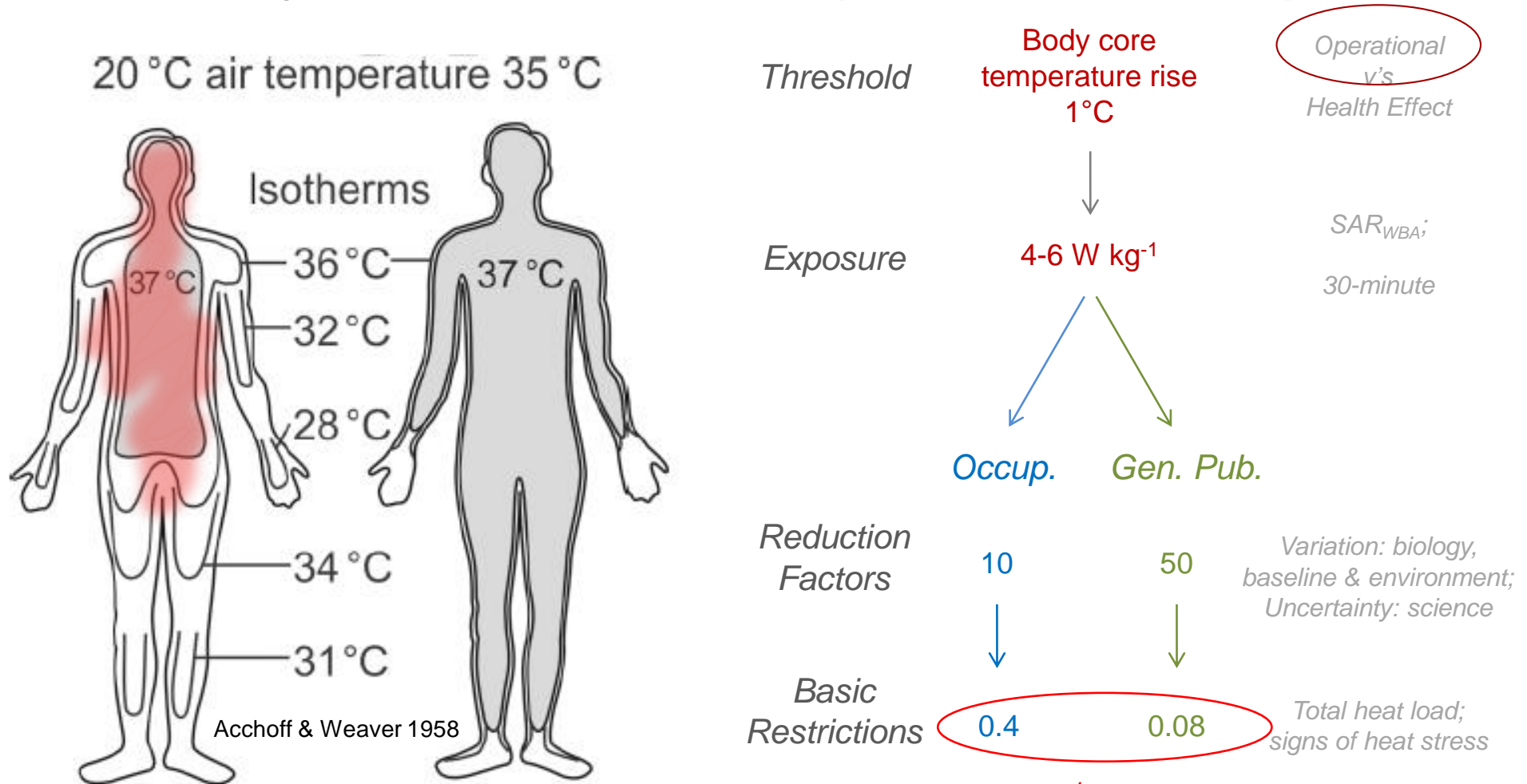
*Indeed all restrictions are highly conservative estimates that will remain protective unless they are **exceeded by a substantial margin***



Example of how restrictions are derived

Whole-body exposure

Whole-body exposure protection (100 kHz - 300 GHz)

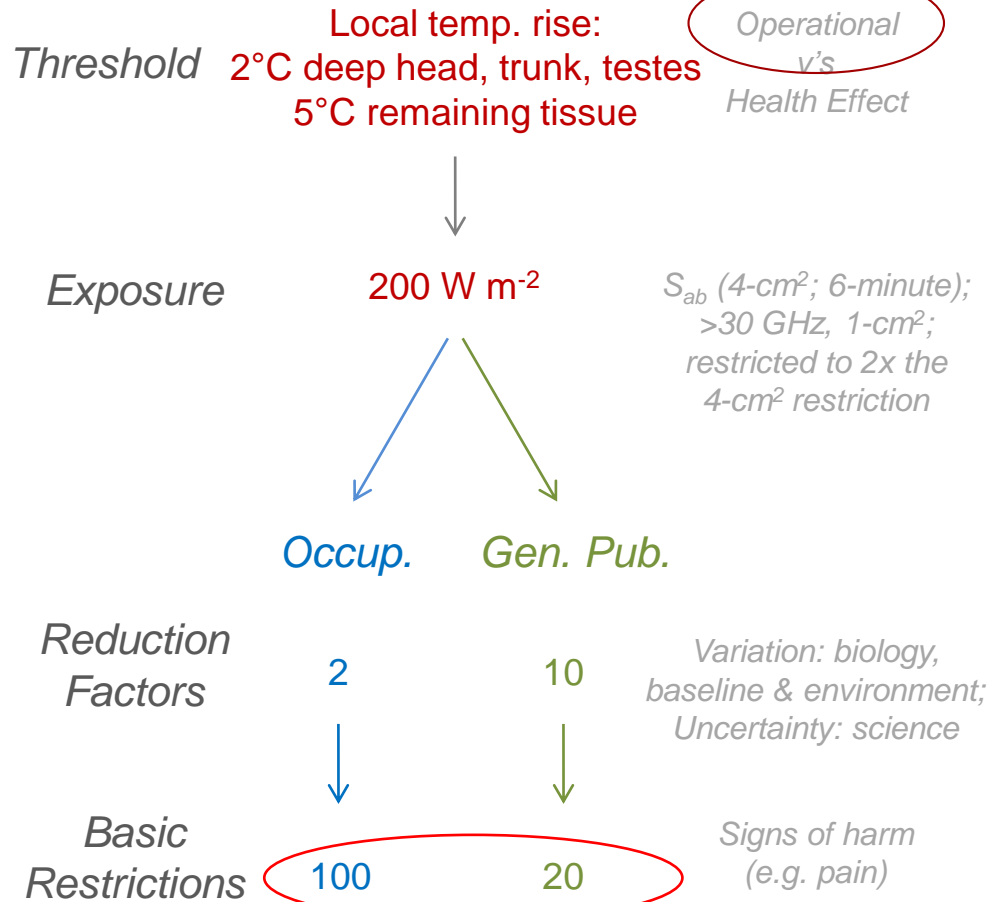
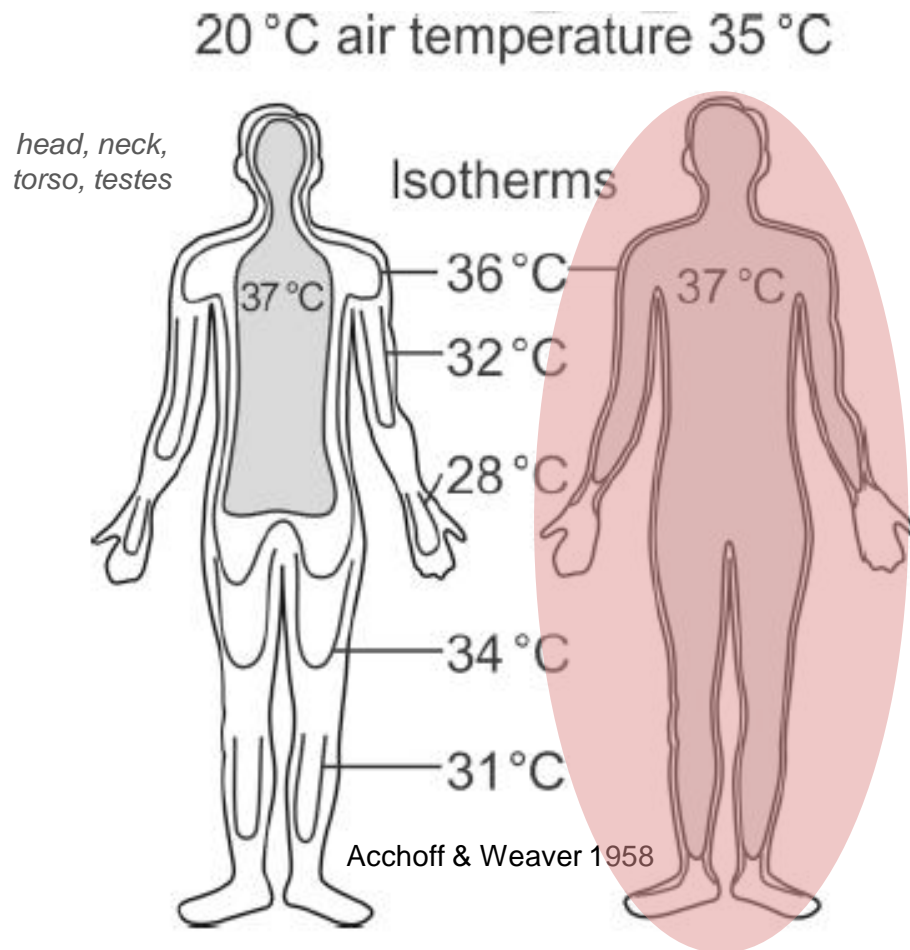


Exposure from 5G must remain below these values

Example of how restrictions are derived

Local exposure

Protection against local exposure (6-min) > 6 GHz

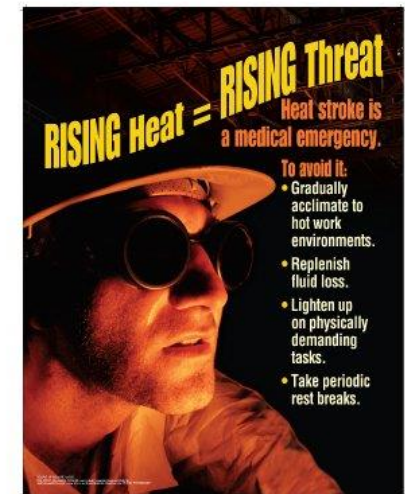


Exposure from 5G must remain below these values

Common misconceptions about the Guidelines

But what about (#1)

- “the GDLs only protect against *thermal* effects”
 - all potential effects are considered; the GDLs specifically look for ANY evidence of health effects, regardless of the mechanism
 - however, where a mechanism is known (such as *thermal*), this enables us to use a larger body of science to ensure appropriate restrictions



But what about (#2)

- “but there is evidence that RF causes diseases such as cancer (e.g. IARC 2B *possibly* carcinogenic classification, 2011; NTP Report, 2019)”
 - These have been considered in detail by ICNIRP, but the science does not show that RF EMF causes or promotes cancer

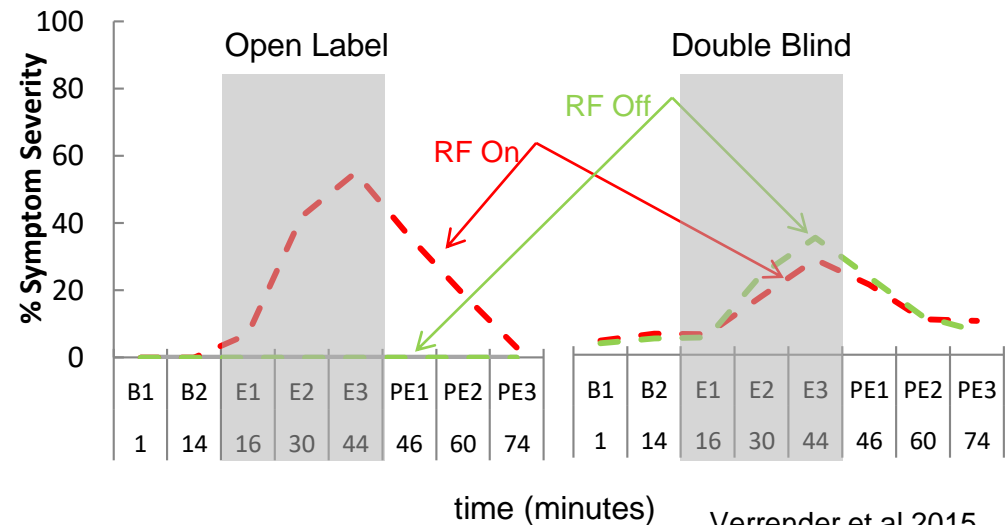


But what about (#3)

- “but the GDLs don’t protect *electro-hypersensitive* people”
 - all potential effects are considered; even though some report RF hypersensitivity, there is no evidence that it is caused by RF
 - indeed, the only strong evidence coming out of this domain is that belief (and not exposure) is sufficient to cause symptoms



EHS sufferer in
“Better Call Saul”



But what about (#4)

- “but why do the GDLs ignore all those studies that show that RF causes harm?”
 - No research is ignored
 - Some excluded because not relevant (e.g. a biological effect without health consequence, such as the RF-EEG effect)
 - Some is not interpretable due to methodological limitations
 - Some has been shown to be erroneous (e.g. by failed replication attempts)
 - i.e. both ‘X’ and ‘NOT X’ cannot be true



But what about (#5)

- “but the GDLs only consider acute effects”
 - reports of both acute and chronic effects are considered; however there is no evidence supporting the claims that there are chronic effects (such as cancer)
 - by basing the restrictions on the only substantiated effects, protection is provided against ALL effects of RF EMF



But what about (#6)

- “but 5G is new and there is no research on that!”
 - This is a misunderstanding of how science works
 - If we have a new brand of tobacco cigarette; we don’t need to spend another 70 years to check if this is safe, we use our scientific understanding to conclude that it is NOT safe
 - This is appropriate



But what about (#7)

- “but 5G is new and there is no research on that!”
 - It is the same with RF-EMF and 5G
 - We have an extensive body of science clarifying how RF-EMF affects the body *as a function of frequency*
 - We have an extensive body of science showing how 5G will differ from 3G/4G in terms of health
 - Science can conclude that 5G is safe



But what about (#8)

- “but I’ve heard on the web that 5G causes coronavirus!”
 - 5G DOES NOT cause or spread coronavirus!!!

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One in eight Australians believe 5G is spreading coronavirus

May 19, 2020

5G

New polling shows one in eight Australians buy into 5G conspiracy theories about coronavirus. Image: Getty

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