

People of colour! How many of you are feeling like a political football right now?

Well, that's all I'm going to say on that subject – for now, anyway. For a while I thought that the Black Lives Matter events were a distraction from the Covid-19 protests, but now I'm starting to wonder if Covid-19 is itself a distraction from... the thing that must not be mentioned in the same sentence.

All of us, even the people who live near Mount Everest are on the verge of having high-frequency electromagnetic waves transmitted through our localities – the places where we live and breathe – whether we choose to have them, or not.

Most people will have heard about the imminent arrival of 5G, and if you're anything like me, you'll realise that this is an upgrade from 4G, the network that the most advanced mobile phones currently operate on. 5G allows faster connectivity and data transmission speeds, as well as increased convenience through the "Internet of Things" where household gadgets can be digitised and accessed remotely.

Until recently, this was basically my understanding of 5G – i.e., that it was faster, and would employ higher frequencies, and that there were questions around whether it could be harmful to health.

However, a recently published paper that I read about 5G, explained what makes 5G different from the previous generation technologies, in such clear terms, that I can now hardly believe this is being allowed to go ahead in such a blanket coverage way.

The paper I read was from the European Parliament Research Service, and it's called "Effects of 5G wireless communication on human health". I'll put the link in the show notes.

It's kind of woken me up. I didn't I want 5G anyway, but I didn't fully realise to what extent we would all be exposed to this radiation, once it's up and running – or how inescapable it was going to be.

And by "we" I include plants, animals and all organic life – all of it could be at risk to some extent. There are just so many unknowns with this technology.

5G sounds as if it's just a faster progression from 4G. But there are very significant differences between 5G and the other "Gs" or generation technologies – 2G, 3G and 4G.

The main difference is that 5G uses higher electromagnetic frequencies, and because the wavelengths for these frequencies are shorter and don't travel so far, they require significantly more antennas, or cell towers, for transmission.

Many of the cell antennas that 5G uses are also known as "small cells" because they're not like the typical cell phone towers that are sometimes clumsily dressed up as trees in an effort to conceal them.

5G cell antennas have to be much closer together. According to the briefing paper I read, from the European Parliamentary Research Service, in order to ensure full 5G coverage, about 800 base stations per kilometre could be required.

Eight hundred per kilometre.

5G technology uses a system called "beamforming" to send the signal in specific directions.

The EU has allocated three frequency bands for 5G: 700 MHz , 3.5 GHz and 26 GHz. These frequencies move into the millimetre end of the electromagnetic spectrum, whereas the previous 2G, 3G and 4G were at the larger microwave end of the spectrum.

Millimetre waves are considered safe in appropriate dosage, but according to the European Parliamentary Research Service, the rollout of 5G technology, and I quote:

"will result in constant exposure of the population to millimetre wave radiation".

The issue for me is that there will be no escape from this radiation. No one really knows what effect this will have on human health, or on plant and animal health, so unless something is done about this, we are all going to be guinea pigs for a technology that only some of us even want.

I don't want this technology, and even if it only has a negligible effect on my health, I don't see why this should be forced on me, without my consent.

In fact, it increasingly seems that governments are dangerous to our health.

The European Commission plans to roll out 5G coverage in schools, universities, research centres, hospitals, public services, digitally-intensive enterprises, urban areas, urban and rural households, major roads and railways by 2025.

I don't know if there will be an "opt out" for any of this. Certainly, the UK government's response to a petition last year implies that it has little understanding of the full implications of 5G.

The petition called on the Scottish Parliament to urge the Government to support the recommendation for a moratorium on the roll-out of 5G until potential hazards for human health and the environment have been independently reviewed.

The petition cited two articles, which I'll reference below.

5G is not a devolved issue – in other words, it's being handled by the UK Government and Ofcom, which is the telecommunications regulator. In response to the petition, which got 32,000 signatures, the UK Government quoted Public Health England, with a pretty weak response:

"A considerable amount of research has been carried out on radio waves and we anticipate no negative effects on public health. 5G is the latest evolution in mobile communications technology and currently in its development stages. 5G will have a higher data capacity than current systems in order to transmit a larger volume of data. Some 5G technology will use similar frequencies to existing communication systems. Other 5G technology will work at higher frequencies, where the main change would be less penetration of radio waves through materials, for example, walls.

- "the main change would be less penetration of radio waves through materials"! I would say the main change with 5G is the massively increased proliferation of antennas and millimetre wave coverage.

And it continues...

'While a small increase in overall exposure to radio waves is possible when 5G is added to the existing network, the overall exposure is expected to remain low and well within the guidelines from ICNIRP.' [the International Commission on Non-ionizing Radiation Protection]

This statement is clearly playing the whole thing down, with generalisations like "research has been carried out on radio waves" and uncertainties like "we anticipate no negative effects on public health".

The government document continues to say:

"This response also directly addresses the NTP report cited by the petitioner, noting that there were two reasons why the findings were not applicable to humans:

In other words, they are basically saying that the findings of the reports cited by the petitioner are not applicable to humans. And, according to the government, here's why:

1) exposure levels and durations were greater than people may receive from mobile phones

2) the rats and mice in the sample received exposure to their whole bodies, while a person using a phone would experience only localised exposure in their pocket or next to their head.

I'm astonished at the sheer ignorance of the 5G issue that these statements betray. It shows that the government has little idea or understanding of the subject, or any concept of the magnitude of this coming change.

Apart from the fact that having a phone held next to your head is completely inadvisable and has been linked to brain cancer, even with 2G never mind the much higher 5G electromagnetic frequencies, we're all going to be surrounded by these waves 24-7, so our whole bodies will be exposed!

Another European Parliament briefing paper, called "5G Deployment –

State of Play in Europe, USA and Asia" says that there will be much higher exposure to radiofrequency electromagnetic radiation from 5G.

Increased exposure, the paper says, will not just be due to the higher frequencies, but also

"from the potential aggregation of different signals, their dynamic nature and the complex interference effects that may result, especially in dense urban areas."

It continues:

"The 5G radio emission fields are quite different to those of previous generations, because of their complex beamformed transmissions in both directions – from base station to handset and for the return."

388 scientists and medical doctors from all over the world have signed a document called "The 5G Appeal", which recommends a moratorium on the deployment of 5G until potential hazards for human health and the environment have been fully investigated by scientists who are independent of industry.

Despite being higher-frequency, it's often argued that the potency of 5G radiation is still in the harmless range. However, some of the scientists who signed the 5G Appeal point out that the issue is not the potency, but the high level of pulsations that 5G uses, the level of radiation that the population will be exposed to, and the dense network of antennas that is the concern.

There are also studies that suggest that 5G would also affect the health of animal, plant and insect life. Even trees have been found to be susceptible to the effect of EMF radiation.

And what about the effect on the earth's climate? Electromagnetic waves emit energy, and the higher the frequency, the more energy produced. Many people are worried about the potential effects of heating the skin cells if there was a concentrated dose of radiation from one of these transmitters. But what about the effect on the earth's atmosphere of millions of small cells all over the globe, pumping out high frequency electromagnetic waves?

Someone should tell Greta Thunberg!

I've heard that I'm living in a 5G test area – in fact, when I checked the coverage, it seems that my home is actually in a little oasis that is only covered by 2 and 3G. But the nearby streets are said to be in the 5G test zone.

I went out for a walk today, and I couldn't see anything that looked like an antenna, even in spots where an online map said they should be.

And just in case you're wondering, I was not planning to destroy any phone masts or cells! I just wanted to get an idea of how many masts or cells there were, and how close they were to my home.

The reason I was unable to find any might be because 5G cell antennas are not necessarily like your normal 3 or 4G masts. 5G "small cell" antennas are often just a grey box and they can be attached to street lights, bus stops, or even placed under manhole covers.

Another thing occurred to me – and I might be wrong here, but when the 5G roll-out begins in earnest – which it might already be doing – if people start to push back against it, maybe complaining of negative health effects, what if the phone companies say something along the lines of,

"We've already been testing 5G in your area for the past year, and you've never complained before"?

But how do we know how many antenna they were using in the test – and how do we know how many of those antenna were actually switched on? If, for example, they were only using 10 antenna per kilometre, at frequencies of 700 MHz in the test, and then the number of antenna increases to 800 per kilometre at 26 GHz, there could be health problems that appear once the technology is fully rolled out and switched on, that were not present during the so-called test period.

I think there are a lot of questions about this whole subject that need to be answered.

5G should be a matter of choice. There should be a way for people who don't want to be exposed to these millimetre waves to opt out.

But the plans are to roll out 5G everywhere, without asking people's consent. Who is authorising this? Why are our civil rights once again being trampled on?

Is there any evidence that most people even want this technology? If you're the kind of person who enjoys downloading films or games to your phone, or if you have a job that relies on instantaneous high-speed communications, maybe you'll welcome this kind of technology.

The European Parliamentary Research Service paper says that the military, hospitals, police and banks continue to use wired connections for their most essential communications, mainly for security reasons. It says that wired networks generally offer faster internet speeds and are considered to be more secure.

Insurers seem to share some of these concerns. A recent Swiss Re Institute insurance paper, on "New emerging risk insights" describes the risk of 5G as "high".

The paper says:

"... concerns are focused on cyber exposures, which increase with the wider scope of 5G wireless attack surfaces. Traditionally IoT [Internet of Things] devices have poor security features. Moreover, hackers can also exploit 5G speed and volume, meaning that more data can be stolen much quicker.

"There are also worries about privacy issues (leading to increased litigation risks), security breaches and espionage. The focus is not only on hacking by third parties, but also potential breaches from built-in hard- or software "backdoors." In addition, the market for 5G infrastructure is currently focussed on a couple of firms, and that raises the spectre of concentration risk.

"Information security and national sovereignty concerns might delay implementation of 5G further."

The idea of driving – or maybe being driven in a driverless car, that could be hacked, does not appeal to me.

From my perspective it seems that the real importance of 5G could be to keep tabs on us, in effect to spy on us, to monitor our comings and goings and to impose controls.

Is this really something that I want to risk my health for?

As the European Parliamentary Research Service paper says,

"The UN Universal Declaration of Human Rights, the Helsinki Accords and other international treaties recognise that informed consent prior to interventions that might affect human health is an essential, fundamental human right, which becomes even more controversial when considering children's and young people's exposure."