

**Objection by XXXXX to 5G mast XXXX Road, Suburb name, City Name, Post Code (Application Number: XXXX/YYYY/PA)**

I would like to **object strongly** to the installation of a 5G mast on XXXX Road, Suburb name, City Name, Post Code, for the following reasons:

1. Key scientific literature points to **very real, non-thermal negative biological effects of electromagnetic radiation (EMR)** which is being ignored by the mobile and broadband industry as well as bodies like the ICNIRP. Our government relies upon the PHE, which in turn relies on the ICNIRP, to give us guidance regarding the safety of 5G.
2. These negative non-thermal biological effects occur as a direct result of **extremely low EMR levels**, (2-10  $\mu\text{W}/\text{cm}^2$ ) which are several orders of magnitude lower than the current safety limits (10,000,000  $\mu\text{W}/\text{m}^2$ ) set by ICNIRP. Ofcom's published results <sup>(23)</sup> at 5G sites (1.5% of 10,000,000  $\mu\text{W}/\text{m}^2$  for 3G-5G) and (0.039% of 10,000,000  $\mu\text{W}/\text{m}^2$  for 5G only) still equate to **150,000 fold higher and 3,900 fold higher** than the safe levels (<1  $\mu\text{W}/\text{m}^2$ ) set by the Building Biology and Austrian Medical Association standards which don't ignore the above negative effects.
3. Cornerstone quote the Stewart report (updated in 2010), saying the evidence did not suggest that exposures to EMR below international guidelines could cause adverse health effects. They state that they adhere to the Stewart report and ICNIRP rules, but since 2010, there have been many publications **pointing to actual harm of EMRs on children's health by mobile base stations** – e.g. Meo et al (2019) <sup>(22)</sup> studied exposure of adolescents at 2-10  $\mu\text{W}/\text{cm}^2$  EMR exposure from a mobile base station 200 metres from a school and this resulted in **impairment of spatial working memory and attention, and delayed motor skills**. They state that mobile base stations should be **'installed away from thickly populated residential zones particularly in or near the school buildings or there must be some system to shield human beings from RF-EMFR'**.
4. The planned 5G mast at Suburb name, City Name, Post Code is within 150 metres to XXXX school where children will be studying and will be exposed to **untested frequencies of 5G EMR which is dangerous**.
5. **Wireless carriers have conceded** to U.S. Senator Richard Blumenthal that they are **not aware of any independent scientific studies on the safety of 5G technologies**. <sup>(7)</sup>
6. Safer **underground fibre optic wired technology** has already been used for **Northumberland County Council and National Parks England** – we should be doing the same for the safety of our children and the public. <sup>(24)</sup> **Lower cost 5G masts should not be installed at the expense of damaging our health.**
7. The current plans for the roll out of 5G are **misguided** by Public Health England (PHE) which relies entirely on ICNIRP safety guidelines on EMRs which have been shown to be **deeply flawed** – see Pall, M. (2018) <sup>(1)</sup>, Hardell & Nyberg (2020) <sup>(3)</sup>, Naren et al. (2020) <sup>(15)</sup>, and Hertsgaard & Dowie (2018) <sup>(13)</sup>.
8. The ICNIRP safety guidelines are **flawed** because:
  - a. They **assume average EMR intensities and average SAR** can be used to predict biological effects and therefore safety. In fact, negative non-thermal biological effects occur approximately 100,000 times below current allowable levels.
  - b. They **ignore demonstrated biological heterogeneity** and established biological mechanisms
  - c. They **ignore pulsed EMRs which are much more biologically active than are non-pulsed EMRs** of the same average intensity
  - d. They **ignore complex sinusoidal dose-response curves**

- e. They also **ignore many important scientific reviews which show non-thermal negative biological effects** caused by EMRs
  - f. There are many articles which state **that EMRs produce diverse non-thermal effects through voltage gated calcium channels (VGCCs) in cells and produce negative biological effects such as oxidative stress, cellular DNA damage and increased calcium signalling** but the voltage sensor of the VGCC is ignored by the 2020 ICNIRP safety guidelines. (see the following articles for which Pall, M. 2018 (1) & Doyon PR et al, (2017) <sup>(4)</sup> Herbert MR & Sage C (2013) <sup>(9)</sup>, Panagopoulos et al (2002) <sup>(10)</sup> .
9. **Negative non-thermal biological effects of electromagnetic radiation** listed in the literature across humans and other species are : (see References below from Pall (2018) <sup>(1)</sup>)
- a. Lowered adaptive immune responses or immune system dysregulation
  - b. Cardiac effects, including tachycardia, bradycardia and arrhythmias, and ventricular developmental defects
  - c. Cancer including initiation, promotion and progression (Morgan et al 2015) (18)
  - d. Pathological damage to multiple organs (e.g. liver, kidneys, uterus, bladder, testis)
  - e. Trace element disturbances in tissues
  - f. Ocular damage
  - g. Lowered fertility
  - h. Hormonal dysregulation
  - i. Neurological / neuropsychiatric effects
  - j. Sleep disruption
  - k. Memory, motor skill, attention, cognition impairment
  - l. Apoptosis / programmed cell death
  - m. Oxidative stress / free radical damage
  - n. Single strand and double strand breaks in cellular DNA
  - o. Increased intracellular calcium levels causing chronic effects
10. Therefore, **many scientists globally have asked for a moratorium on the deployment of 5G** until the electromagnetic radiation risks associated with this new emerging technology have been fully investigated by industry-independent scientists, but this is falling on deaf ears. The responses from the EU seem to have thus far **prioritized industry profits to the detriment of human health and the environment**. Hardell & Nyberg (2020) <sup>(3)</sup>
11. This means that the current situation in the United Kingdom is a **violation of Human Rights** similar to that which has been tabled to the United Nations Human Rights Council in early 2019 for Australia by S.J. Toneguzzo. (See <https://www.radiationresearch.org/wp-content/uploads/2019/03/pace-UN-Human-Rights-Council-5G-statement.pdf>)
12. The **deployment of 5G without safety testing in the UK violates over 15 international agreements, treaties and recommendations**, including article 7 of the International Covenant on Civil and Political Rights and principle 9 of the Declaration of Helsinki of 1964. (see links as follows:  
<https://treaties.un.org/doc/publication/unts/volume%20999/volume-999-i-14668-english.pdf>  
 and <https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/>)
13. Clearly if existing low level EMRs are having damaging biological responses such as those listed in point 5 above, surely untested frequencies such as 5G, should mean that we should **be invoking the precautionary principle on 5G, and re-evaluating and revising current safety limits, as well as putting a moratorium on the roll out of 5G?** Naren et al. (2020) <sup>(15)</sup> have stated that 5G should only be deployed after having safety testing, as the EMR

exposure levels they see with 2-4G are well over the safe limits set by Building Biology, Austrian Medical Association, and the BioInitiative standards which do take into account non-thermal negative biological EMR effects. Also the denser networks needed to support 5G will mean that the **unsuspecting public will be exposed to continuously higher levels of electromagnetic radiation indoors and outdoors.**

14. The **precautionary principle has already been applied** by multiple local city councils in England (Brighton, Hove, Devonshire, Shepton Mallet, Somerset, Frome, Totnes, Wells, Glastonbury, Trafford) as well as other rightly concerned countries like Nigeria, Slovenia, etc. – see URL links 5 and 6 in References for a full list.
15. Central Government should not be dictating to local planning authorities and contending with them to insist that they “**not seek to determine the health safeguards of the planning proposal**” (paragraph 116 of the National Planning Policy Framework) and whether the ICNIRP guidelines for public exposure are deeply flawed. Scientists world-wide have been writing to governments for years now asking them to revise the safety guidelines of wireless exposure for the public, as they know it is harmful to the health of not just humans, but also other species in our ecosystem. This is **interfering with local planning authority decision making, authority and independence** in choosing outcomes that are best for its people and community.
16. We should be insisting that **adequate safety testing is done for 5G**, and that **current safety limits are re-evaluated** in the light of the overwhelming body of current scientific literature which points to non-thermal negative biological responses across multiple species, not just human beings. (see reference 8) Naren et al. (2020) <sup>(15)</sup> state that “If 5G networks are deployed without careful analysis of expected exposure levels, almost all people in the area of coverage may be exposed to dangerous levels of power flux density, the outcomes of which, in the near future, may turn out to be **calamitous.**”
17. Only after safety testing of 5G had been done by the mobile and broadband industry and by independent non-industry scientists who have no economical allegiance or scientific bias towards such emerging technology, should 5G have even be considered to be deployed in the UK. Any such safety testing data needs to **be independently verified by a non-industry scientific committee** (ISC -see below for composition).
18. We should be **consulting and informing constituents of their rights in those parts of the UK, for whom 5G has been rolled out**, without safety testing, as well as putting a halt to access to 5G, until we are aware of the full impact of 5G on, not just humans, but also on all species. This is because we now know that existing low level EMRs, is already damaging humans as well as less complex species such as plants, insects, birds and lower mammals (see References below and Naren et al. (2020) <sup>(15)</sup> ).
19. Having assessed the latest data on EMR (see References section below) we should be trying to:
  - a. protect our public from harmful EMR by doing safety testing of 5G
  - b. prioritise/incentivise the use of safer wired fibre optic solutions in our homes, shopping centres, airports, hospitals, workplaces and schools
  - c. encourage families to protect their future generations by minimising the use of portable devices (mobile phones, tablets, laptops) (see letter requesting the same in reference 8 below)
  - d. suggest urgent research on the safety and efficacy of shielding methods combined with use of generators emitting weak pulses of similar frequency, intensity, and waveform with the natural atmospheric resonances - Panagopoulos & Chrousos (2019) <sup>(10)</sup>

- e. understand the molecular mechanisms underlying the EMR potential challenges to multiple biological systems, to improve preventive strategies - Santini et al. (2018)<sup>(11)</sup>
  - f. put in place mobile and broadband industry-independent safety and usage regulations to protect our public and all species
  - g. advise appropriate restrictions on the use of EMR emitting mobiles and all portable devices in order to protect the health of all users, i.e. not with respect to only one organ but with respect to our bodies as a whole, as well with respect to the health of the delicate ecosystem around us.
20. Barnes & Greenebaum (2020)<sup>(16)</sup> state that we don't yet know whether biological effects seen due to lower level, long term EMR exposure are resulting in medical problems for a much larger number of people. Therefore, governments need to investigate long-term exposure to weak EMRs, and put in place safety guidelines to address this issue.

I strongly urge the council to:

- i. use an independent scientific committee and PHE to re-evaluate the body of scientific evidence on extremely low EMRs (continuous and pulsed)
- ii. put a moratorium on the roll out of future 5G installations until adequate safety data is available
- iii. decommission the operation of existing 5G installations until safety testing has been verified and approved by not just the mobile and broadband industry but by a non-industry working group of scientists, physicians and members of the public who can assess the data independent of 5G manufacturers
- iv. contact the public in any area where 5G is going to be deployed or already deployed and ask them if they still want to have the greater connectivity of 5G despite the potential long term harms associated with exposed to very high levels of power flex density emitted by 5G EMR. Leave the choice to the public, and where they still want access, ensure that 5G is made available **only through wired fibre optic technology** thereby protecting us all
- v. take action now for all those persons with Electromagnetic Hypersensitivity (EHS) where they have been already subjected to 5G to inform them that the existing 5G masts will be decommissioned and a wired fibre optic technology solution put in to replace 5G masts
- vi. to take action to immediately to rectify masts that are close to residential buildings and schools which should be protected from close by sources of EMR.

Not everyone in every community in this country needs or wants superfast broadband / mobile connectivity. Individual connectivity needs are different across this country. 5G roll out should only ever have been considered after appropriate safety testing had been completed by the mobile and broadband industry as well as independent scientific bodies and after consultation with people in this democratic country as to its downstream health, economic and sociological impact on our future overall wellbeing.

If gigabit connectivity is necessary for particular industries, the council needs to ensure that it doesn't compromise the safety, health and wellbeing of people, where lower speed connectivity is sufficient for a given community. Where gigabit connectivity has to be installed for functional and

economic reasons, they should remove long term EMR exposure of all constituents in that area, by using wired fibre optic solutions, which protects populations from chronic and possibly acute diseases. Naren et al. (2020) state: “The carcinogenic nature of EMR which results in mutation of sperm cells as well as testicular cancer has also been reported. Thus, the probability that future generations will inherit unhealthy or low-immunity genes is also increased.” This has a massive impact on residential areas and schools.

The literature shows the existence of damaging outcomes to multiple reproductive systems both human (Santini et al 2018) and other species like rat (Yang et al 2018 <sup>(20)</sup>) and mice (Li et al 2017 <sup>(21)</sup>), by EMR, backing up Naren et al. (2020) <sup>(15)</sup> in their prediction that future generations are most at risk.

Both Pall (2018) <sup>(19)</sup> and Wilke (2018) <sup>(12)</sup> advocate getting rid of Wi-Fi in schools to protect future generations as well as teachers from EMR damage. Santini et al. (2018) <sup>(11)</sup> after showing oxidative stress effects of EMR in male and female reproductive systems urge that we should be aiming to get “a better understanding of the molecular mechanisms underlying EMR potential challenge to our reproductive system in order to improve preventive strategies.”

Affected residents near 5G masts should be informed about scientific data that points to negative non-thermal biological responses to pulsed electromagnetic radiation, and that existing 5G has had no safety testing. Existing installations should be decommissioned until further notice, and future 5G roll outs halted, until adequate safety testing has been conducted. Deployed installations of 5G are already having a direct, negative, cumulative effect on the short term and long term health of the UK public.

Government, PHE, AGNIR, HPA, local authorities and Ofcom need a rethink of how they assess the safety, ethics and use of not just mobile and broadband technologies. They heavily rely on a non-independent body (ICNIRP) for their safety guidelines on current EMR limits and are too heavily reliant on segregated government bodies and the mobile and broadband industry, for their understanding of EMR emitting emerging technologies. Members of the public should be used as independent scrutinisers in order for government to be held accountable to ensure that they are indeed acting in the best interests of all of the UK population.

<https://www.gov.uk/government/publications/radiofrequency-electromagnetic-fields-health-effects/health-protection-agency-response-to-the-2012-agnir-report-on-the-health-effects-from-radiofrequency-electromagnetic-fields>

“AGNIR’s main conclusion is that, ...there is no convincing evidence that RF field exposures below guideline levels cause health effects in adults or children.” AGNIR concludes there is increasing evidence that RF fields below guideline levels do not cause symptoms and cannot be detected by people, even those who consider themselves sensitive to RF fields. HPA agrees with AGNIR that this does not undermine the importance of the symptoms that are experienced, but it does suggest causes other than those directly related to RF fields should be considered.”

As long as the health governing bodies that advise the government and the council, like the PHE, AGNIR, HPA, and Ofcom are **blinded by the flawed guidelines of the ICNIRP**, and not bothering to look at actual biological data that is in Entrez Pubmed (a scientific database containing peer reviewed articles), our council too, will continue to make **misguided decisions**.

Government and councils need to understand that **real scientists are speaking out** to alert them of the dangers of EMR to the public. They need to stop allowing industry to upgrade mobile and digital technology **without doing adequate safety checks and without consulting the public**. This is the

case, especially when it comes to wireless connectivity, which involves exposure of the unaware public, of just how damaging low level EMR is, to humans, as well as all species. **There is enough data out there now, for the UK government and local city councils to be held accountable for blinded decisions.**

The PHE, AGNIR or HPA are not independently assessing the scientific data, or they would have come to the conclusion that **low level EMRs are having a direct, visible, detectable, measurable and negative biological impact on multiple species not just humans**, which needs to be understood and managed safely, rather than allowing the mobile and broadband industry to upgrade to more penetrating and more pervasive digital technologies like 5G. 5G base stations will be more dense in the network, exposing the public to several fold higher and continuous EMR than before, (see Naren et al 2020 <sup>(15)</sup> ) without any safety data.

Councils need to be aware that due to the base station density required for 5G to be effective, the UK public will be exposed to 60GHz frequencies of EMR indoors and outdoors with no chance of ever being able to switch it off. This is dangerous and all the scientific peer reviewed data for 2G-4G frequencies (1900 MHz – 2.6GHz) is already pointing to **damaging biological effects for frequencies of electromagnetic radiation from existing digital sources**. It is important when scientists worldwide, are calling for a moratorium, on the roll out of 5G, for reasons that lower frequencies than 5G are already causing negative biological responses, **that questions should be asked** of government, local authorities, Ofcom and the mobile and broadband industry, by an independent scientific committee.

We know that already deployed EMR at lower frequencies than 5G has negative effects on our physical wellbeing, and exposure to these frequencies is having a negative effect on future generations.

Barnes & Greenebaum (2020) <sup>(16)</sup> believe a carefully targeted program of research funds is called for, from both governmental and private entities that emit RF signals to elucidate and define threshold signal levels for the generation of long-term biological effects.

If a body such as the ICNIRP displays any scientific bias when assessing the biological impact of emerging EMR technologies such as 5G from the mobile and broadband sectors, without adequate concern for public health, this results in **misguided policy making** by this government and councils, which will result in definite harm to our UK population.

MP's, Mayors, PHE and planning committees need to use **joined up thinking** with respect to the public's concerns of how and where and what 5G / gigabit installations are implemented. Mayors, MP's, PHE, Ofcom, planning committees and local city council digital teams should **all work together to resolve matters of safety and public welfare** – be they regarding our health, economic, sociological or environmental welfare. Each of these bodies need to be **accountable** and have a good understanding of the impact of their decisions regarding emerging technologies and their impact on existing and future generations as well as our environment. Currently, they seem to be **passing the buck from one government department to the other**, instead of taking ownership of the problem.

The disregard of the ICNIRP of important scientific data on EMR harms, has resulted in the current situation in the UK where current PHE safety guidelines used by this government are deeply flawed, and unfortunately **reams of peer reviewed scientific data pointing to very real negative biological responses to EMR, in humans and other species, have been ignored**. This problem can only be resolved by concerned scientists like myself speaking out, to highlight current **misguided decisions by government stakeholders**, without truly considering independent science which has been

shouting to the tree tops, that the global health of humans and other species is being **damaged by rampant and ever increasing electromagnetic radiation.**

The UNESCO 2005 Precautionary Principle (PP) <sup>(14)</sup> states: "Companies need to become partners with the public and the administration, and they thus need to adopt a principled attitude of transparency and knowledge sharing....Yet, precaution typically involves public consultations, deliberations and hearings that may focus on selected side effects or possible harms.

Where in the roll out of 5G has there been any address to the public of its safety?

Where is the scientific data which should have been scrutinised by many parties regarding 5G being a good solution for better and safer connectivity?

I have seen none.

There has been no attempt by the companies that have rolled out 5G to become 'partners with the public.' In fact the public are **unaware of the safety data around 5G**, they have **not been involved in its roll out**, and there has been **no deliberations involving the public** in the UK that have addressed **side effects or possible harms**. In fact the Precautionary Principle has been **completely ignored with respect to 5G roll out**. This needs to be **addressed urgently** by the government and councils.

Much of the scientific evidence is pointing to deep concern regarding the dangers of 5G to our human population as well as even greater danger to delicate smaller mammals, birds and insects which "will be heavily impacted because of their large surface to volume ratios. The same thing will be true of plants where even large trees have their leaves and reproductive organs highly exposed." Pall 2019 (2) This is because the type of radiation that 5G consists of, is the type where due to its "**low penetration and very high energy deposition per unit distance**, this can lead to generation of high levels of free radicals in a short distance which in turn increases the risk of skin cancer." Mortazavi & Mehdizadeh (2019) <sup>(17)</sup>.

Naren et al (2020) <sup>(15)</sup> state: "5G is set to use frequencies between **30 GHz and 100 GHz and would have a bandwidth of 60 GHz, which is much higher than all previous generations**. Owing to the increased frequency, the wavelengths in 5G communications will be in the order of few millimeters. Shorter wavelengths travel shorter distances; therefore, 5G networks will **be much denser compared to existing networks**. This necessitates that **more base stations be placed at much closer distances** in order to achieve good coverage... in the case of 5G networks, the base station (BS) density is expected to be increased to about **40-50 base stations/km<sup>2</sup>** due to the high propagation loss of millimeter wave technology. ...The high data rate requirement of 5G, which is around 1000 times more than 4G, is expected to be solved by the use of massive-MIMO technology, which incorporates a large number of antennas. ..Due to the extremely high density of BSs, street light access points, separate indoor BSs, relays and Massive MIMO technology employed in 5G, a person will be exposed to **very high levels of power flux densities (PFDs), whether he is indoors or outdoors, or whether or not he is using any wireless devices in close proximity**. In other words, it may be suspected that even the ambient PFD which a person is exposed to in most situations throughout the day may fall under the category of '**Severe Concern**' according to the Building Biology Standard, '**Far above normal**' according to the AMA standards, and may be **higher than the precautionary action level** recommended by the BioInitiative Guidelines."

Pall (2019) <sup>(2)</sup> predict that similar but much more severe effects are likely to be produced by 5G than seen currently. He also predicts that because of the roles of aqueous dissolved ions in producing

these deep effects, that regions of the body with large such internal “bodies of water” may be expected to produce particularly severe problems such as:

1. birth defects because of the role of the amniotic fluids and the increased extracellular water content in the tissues of the foetus
2. blindness due to the role of the aqueous and vitreous humours of the eye
3. kidney failure due to the water in the kidney
4. cardiac changes in the electrical control of the heart, because of the large blood fluids in the heart, circulatory problems, possibly including aortic and other arterial aneurisms.

Hertzgaard and Dowie (2018) <sup>(23)</sup> state that “ the wireless industry has obstructed a full and fair understanding of the current science, aided by government agencies that have **prioritized commercial interests over human health** and **news organizations that have failed to inform the public about what the scientific community really thinks**. In other words, **this public-health experiment has been conducted without the informed consent of its subjects**, even as the industry keeps its thumb on the scale.”

5G technology that has been implemented in this country is **untested** as to the dangers it is placing mankind under. This is **irresponsible** and needs to be addressed as a matter of **great urgency** by our government and all our regulatory health bodies and the council.

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