

Three in the UK

03/03/03

The UK's first
3G network.

91.53%

Coverage of UK's
geography.

11.5m

UK customers.

13+

Customer satisfaction
score, the best of any
MNO.

10.4GB

Average monthly
customer data usage.

3x

More data usage than
the industry average.

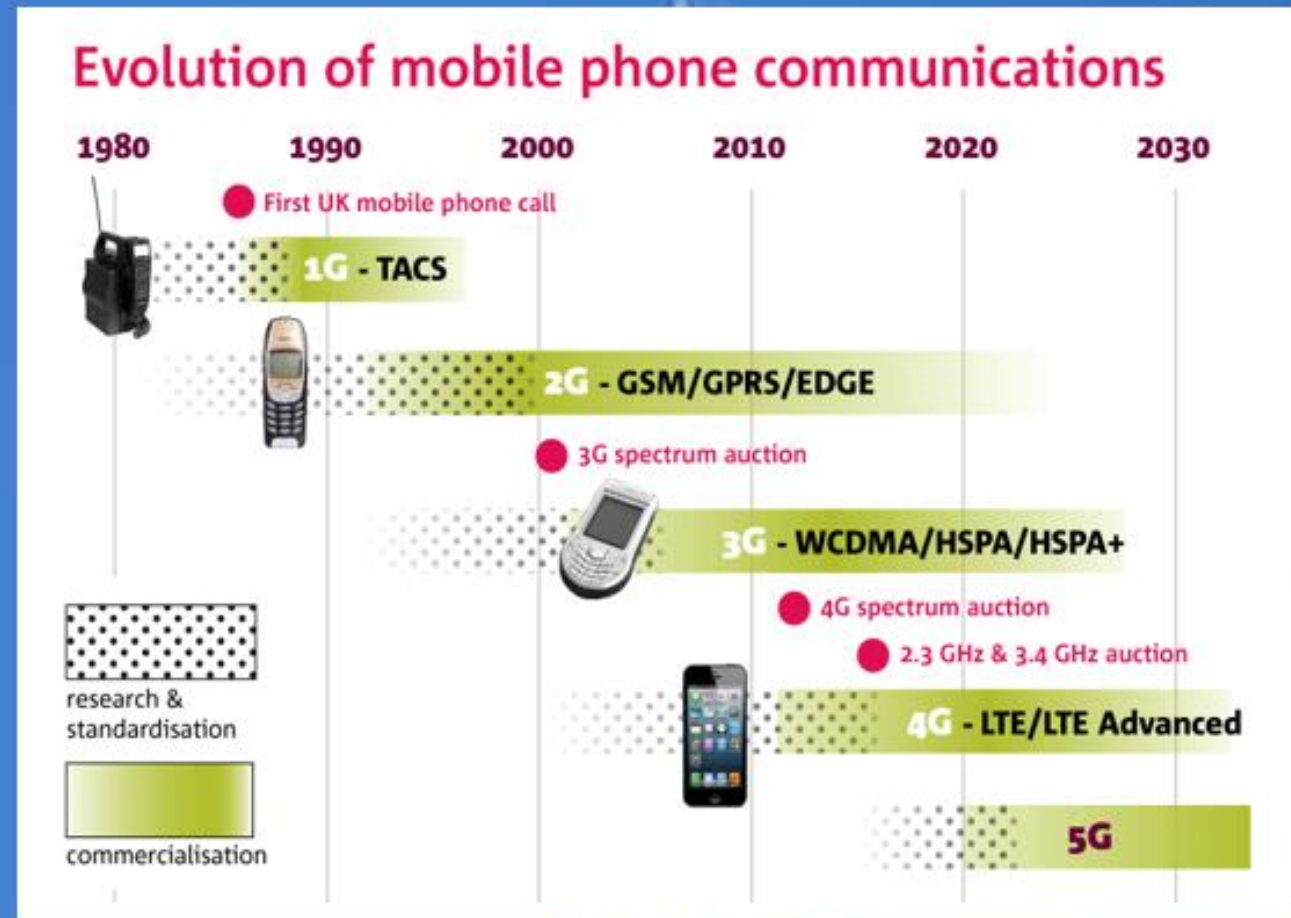
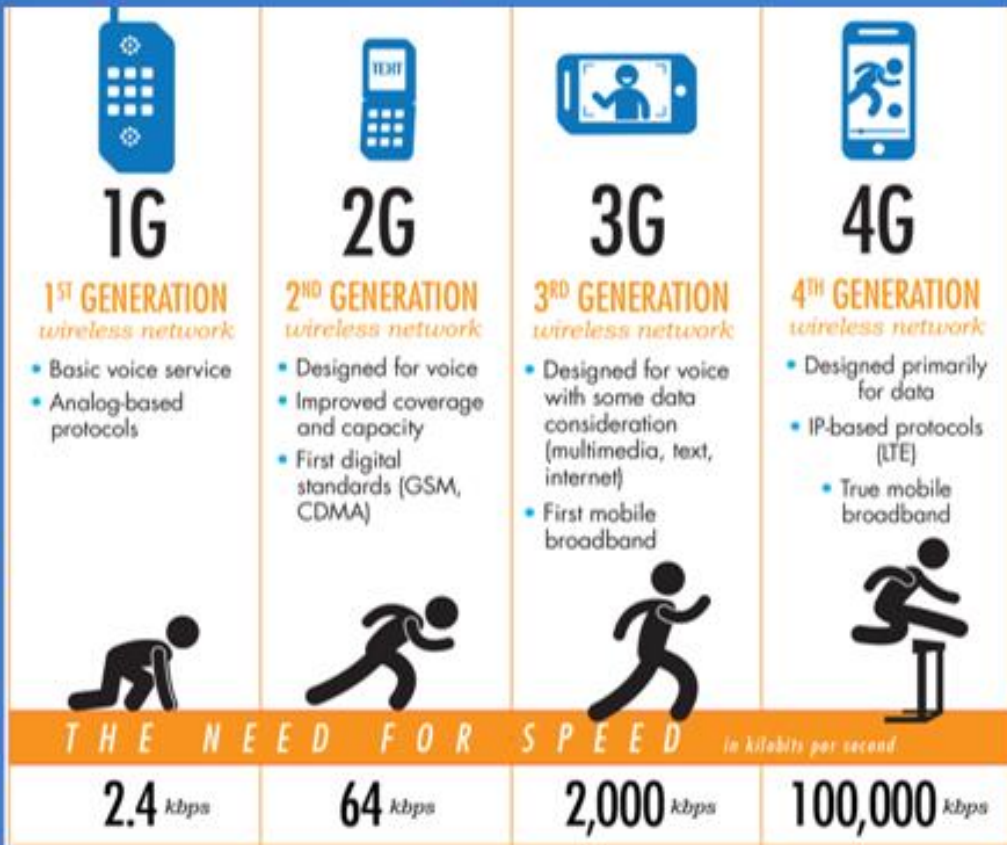
Rolling out the UK's fastest 5G network

- We're increasing connectivity across the UK:
- Customers can access at **no extra cost**.
- Building the infrastructure for **faster-than-fibre, 5G-enabled home broadband** to increase speeds and choice for consumers across the country.
- It's not all about 5G – we are also **supercharging our 4G coverage** across the UK.

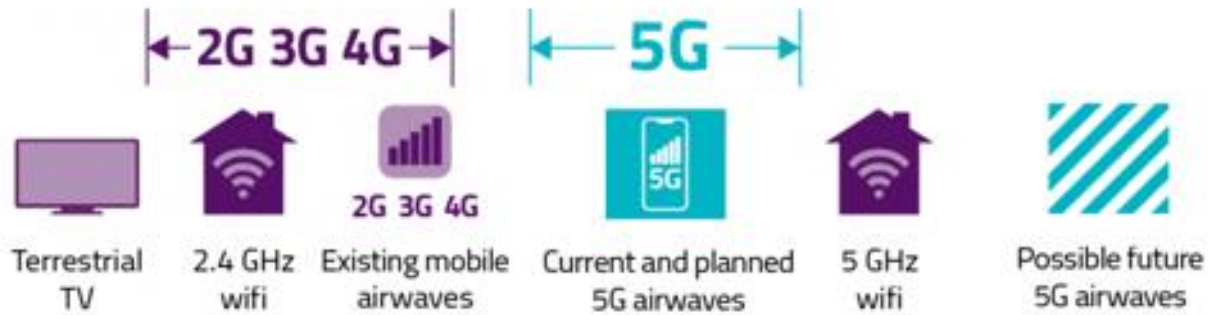
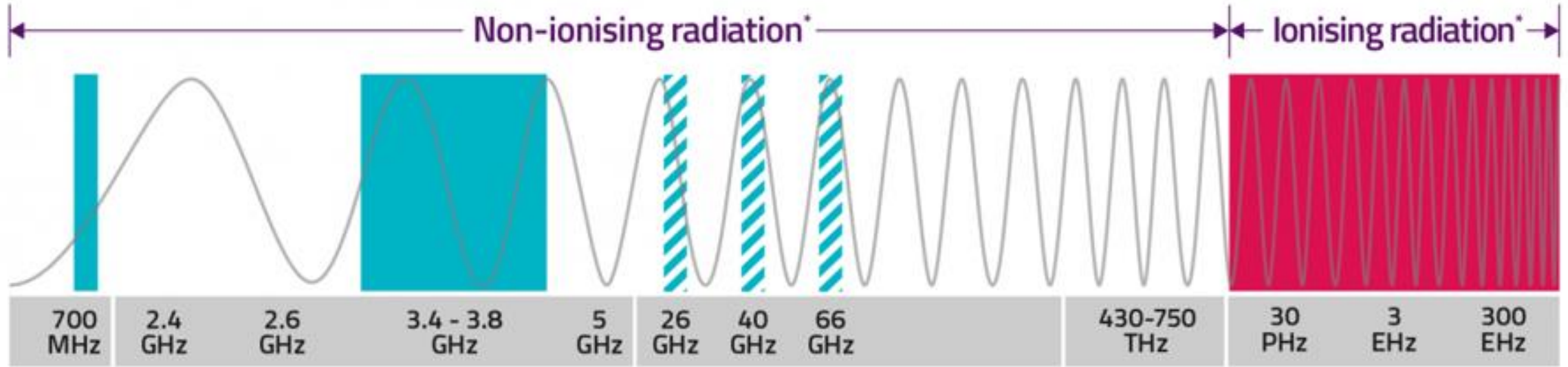


It is more than just upgrading our network; we are laying the foundations of the future

Radio Spectrum and Evolution of the Mobile Phone



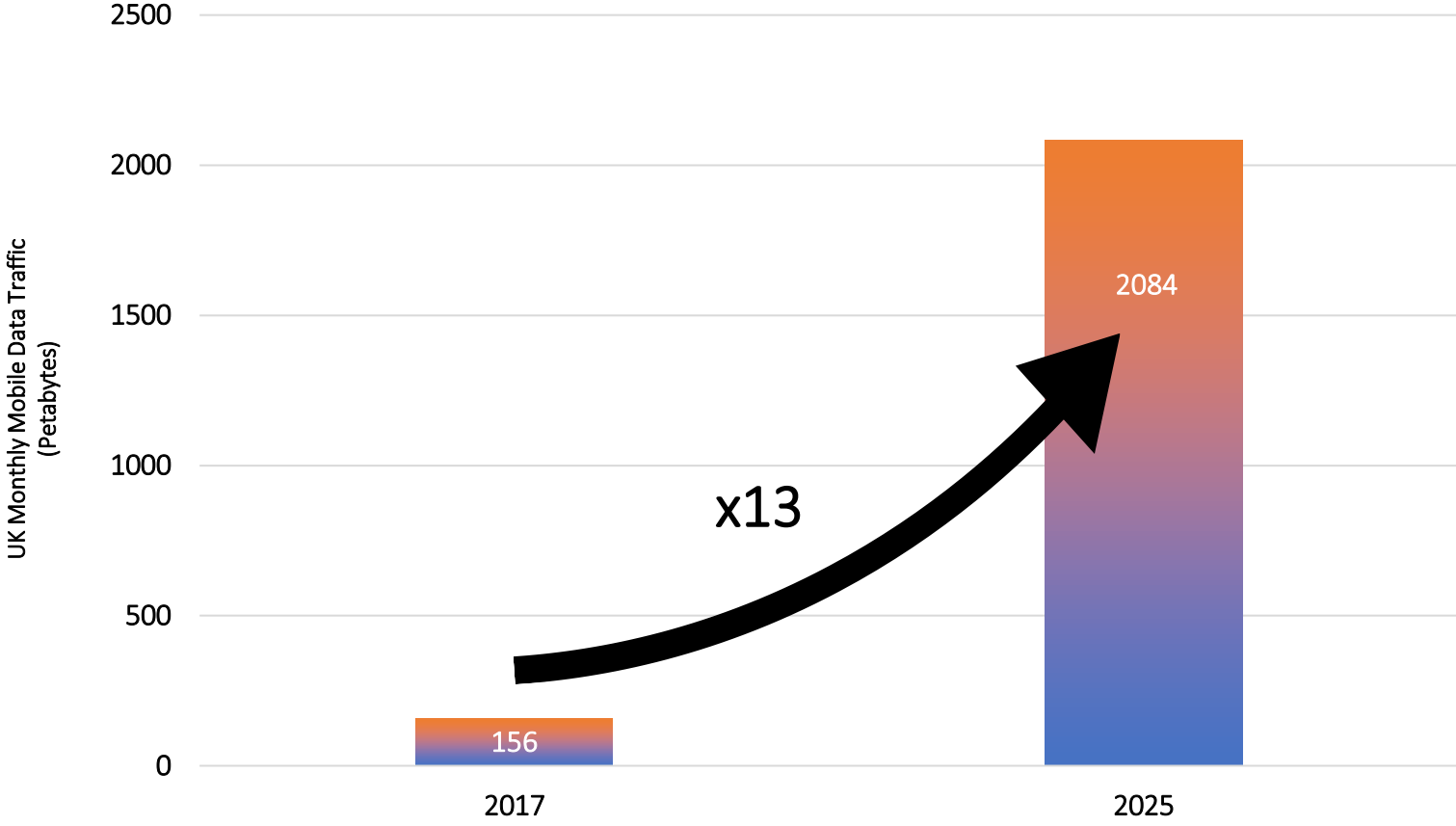
The Electromagnetic Spectrum



Hertz (Hz) key:
 kHz: kilohertz = 10^3 Hz
 MHz: megahertz = 10^6 Hz
 GHz: gigahertz = 10^9 Hz
 THz: terahertz = 10^{12} Hz
 PHz: petahertz = 10^{15} Hz
 EHx: exahertz = 10^{18} Hz

*Radio frequencies needed for common household items to work, from televisions to microwave ovens (usually between 3kHz and 300GHz), produce radiation which is classed as 'non-ionising'. This means that it does not have sufficient energy to break chemical bonds or remove electrons, as opposed to 'ionising radiation', which occurs at much higher frequencies and is generally considered to be hazardous to humans. (Source: International Commission for Non-ionizing Radiation Protection (ICNIRP))

Demand for data continues to grow



Source: Ofcom's Mobile Data Strategy, June 2016

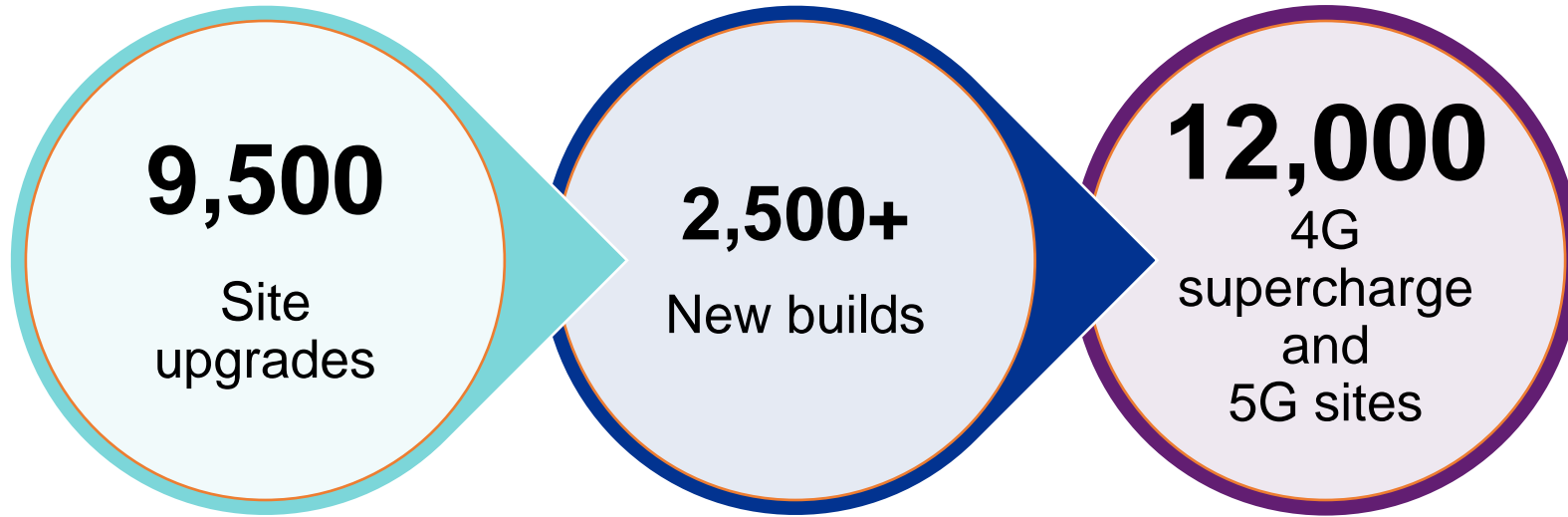
At current Ofcom projections, an average Three UK customer will use

90GB

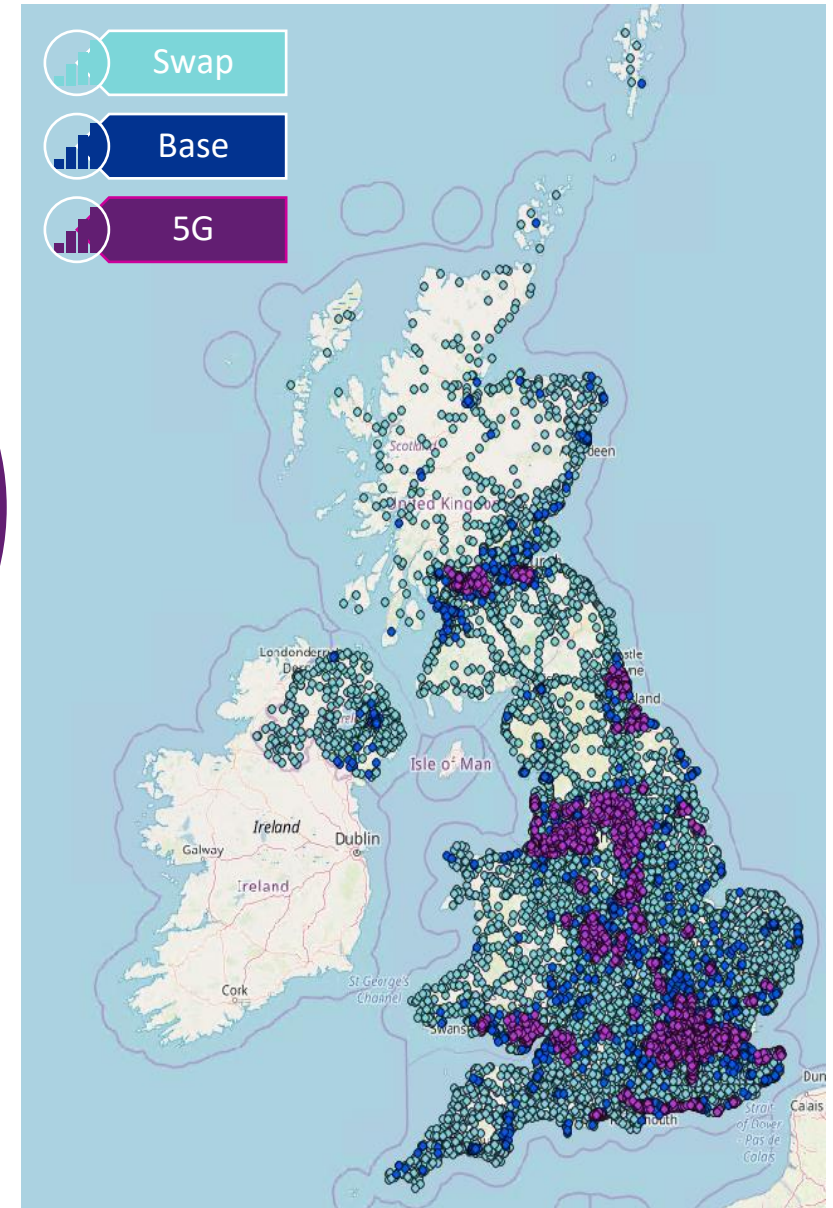
per month by 2025

5G will be a key part of meeting demand for data

In 2020/21 we are upgrading our network to meet that demand



We're accelerating our plans to meet customers demand for better connectivity





Example of Infrastructure



3's 5G Antennae

3's 3&4G Antennae

Safety of 5G Transmissions

- Government have been clear that any link between 5G and Covid-19 is "**baseless**" and is working with social media companies to get such content removed.
- https://www.gov.uk/guidance/5g-and-coronavirus-covid-19?utm_source=e75b62d9-0857-4b95-8106-cd8405b7ae9e&utm_medium=email&utm_campaign=govuk-notifications&utm_content=daily DCMS 6th May 2020.
- **World Health Organisation (WHO) and UK's National Institute for Health Protection (ex-Public Health England)** are responsible for research in this area and setting appropriate guidelines – as has been the case for 2G, 3G and 4G technology.
- NIHP/PHE has clearly said that **5G does not represent an increase in any risk** “the overall exposure is expected to remain low relative to guidelines and, as such, there should be no consequences for public health”. NIHP/PHE Feb 2020.
- The publication of the updated radio frequency (RF) exposure guidelines by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) has also confirmed that after an additional 20 years of research, the international limits remain protective of all people (including children) against all established health hazards.
- NIHP/PHE has said that, if ICNIRP is kept to, no further precaution is necessary regarding masts*.

Ofcom statement on its measurements of 5G

17th April 2020

- <https://www.ofcom.org.uk/about-ofcom/latest/features-and-news/clearing-up-myths-5g-and-coronavirus>
- “To date, we have carried out EMF measurements at 22 locations near 5G mobile phone base stations in 10 cities across the UK
- “At every site, emissions were a small fraction of the levels included in international guidelines. These guidelines are set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).
- “The maximum measured at any mobile site was approximately 1.5% of those levels – including signals from other mobile technologies such as 3G and 4G. The highest level from 5G signals specifically was 0.039% of the maximum set out in the international guidelines.”

Resources available.

- National Institute for Health Protection (ex-PHE) website: <https://www.gov.uk/government/publications/mobile-phone-base-stations-radio-waves-and-health/mobile-phone-base-stations-radio-waves-and-health>.
- HMG guidance for councils on importance of delivering 5G, land valuations and myth-busting. 27 August 2020. <https://www.gov.uk/government/news/ministers-call-on-councils-to-help-deliver-digital-connectivity-ambitions>
- Useful information can be found on [BBC News reality check article](#) or [fullfact.org](https://www.fullfact.org).
- The UK mobile phone operators' trade association, **Mobile UK**, is the voice for the industry on this issue and would be happy to provide you with briefings or arrange meetings to discuss. Please contact Gareth Elliott on ge@mobileuk.org.

Mobile^{UK}

Reality Check

Coronavirus: Scientists brand 5G claims 'complete rubbish'

By Rachel Schraer & Eleanor Lawrie
Reality Check

🕒 5 April 2020

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Coronavirus pandemic



How can you help us supercharge connectivity?

1. Ground-based and building-based masts may need to be **stronger** and **increased in diameter**.

- 5G kit is small but heavy.

2. **Taller new** masts may be needed.

- 5G antennae need to sit on top of other antennae and be separated from them.
- 5G antennae may also need additional height for coverage reasons and to comply with existing regulations.

Because now, more than ever, connectivity is important

How can you help us supercharge connectivity?

3. Access to sites, especially now, is critical.

- Government has published advice confirming that repairing and upgrading mobile infrastructure is critical works during the current coronavirus lockdown.
- We have changed our H&S practices on site in light of Covid-19. We understand that everyone is facing difficult conditions now, but our preference is to work together to find a solution.

4. Facilitate our engagement across your teams.

- Historically gaining planning permission, along with other factors, has slowed our rollout in many areas.
- Therefore, at the earliest opportunity, we are keen to have the support and understanding of your Highways, Planning, Digital Connectivity and Economic Development departments.

Early response allows alternative proposals to be discussed.

Because now, more than ever, connectivity is important

In Summary

- Improved connectivity is important for businesses and residents
- We are bringing 5G and improving 4G
- For phones and fixed broadband
- Upgrades to existing sites
- Building new sites

We want to discuss how to work with you to bring this about

Because now, more than ever, connectivity is important

How councils can help us bring connectivity

1. Ground-based and building-based masts may need to be **stronger** and **increased in diameter** – the 5G kit is additional and heavy.
2. **Taller and new** masts are needed – 5G signals are shorter, do not travel as far and need to transmit over and down to users, rather than through buildings etc.
3. **Access to sites**, especially now, is critical.
4. **Facilitate our engagement across council teams** - Highways, Planning, Digital Connectivity, Social Inclusion and Economic Development.
5. **Early engagement with planning officers** allows assessment of alternative possibilities to address their concerns.

Thank you!

Because now, more than ever, connectivity is important