

# #5G CHECK THE FACTS

## Mobile telecoms masts

### What is a mobile phone mast and how do they work?

A mobile phone mast is a supportive structure that holds in place mobile radio equipment used to broadcast mobile signals. Mobile phone masts send and receive signals to and from mobile phones and other connected devices to enable calls, texts and access to the internet. Masts are fitted with radio receivers and transmitters which maximise a network signal within a local area. When the phone signal becomes weaker from one mast and the user moves away, the network automatically transfers the device to the next one to ensure good signal is maintained.

### What are the different types of masts?

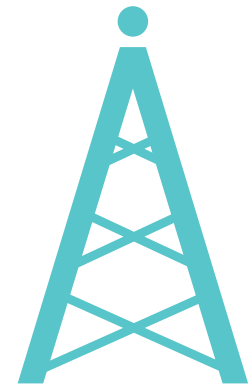
There are two main types of masts: towers and poles (also referred to as monopoles and look like larger lampposts). There are also smaller structures installed on top of buildings.

### Why are some masts taller than others?

The taller the mast, the wider the network coverage. Signals can be sent and received over several kilometres and using taller masts enables a greater number of phones and devices to be covered.

### How are masts installed?

Mast locations are picked by telecoms engineers based on technical, logistical and economic requirements. They are spaced to provide seamless network coverage. It can take around 18 months to install a mast, with many phases for site surveying, legal terms, planning permission, construction, etc.



### Why do we need 5G?

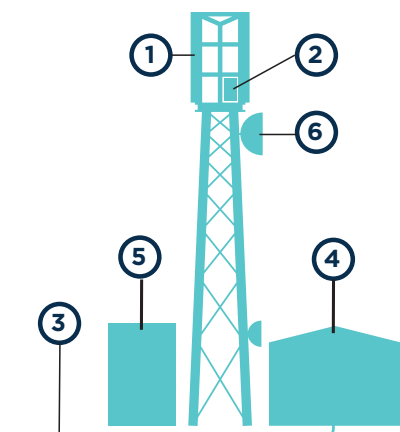
- On 5G devices, any network delay (known as latency) is decreased so significantly that it is virtually non-existent, delivering perfect conditions for online streaming and video calling.
- 5G provides reliable, low-latency connectivity to sensors, computers, and other devices.
- 5G will facilitate the rollout of the Internet of Things -connected smart devices that will transform many aspects of our lives.
- 5G will allow crucial industries like energy, transport, healthcare and manufacturing to make unprecedented advances, improving their operations and our quality of life.

For more information visit [mobileuk.org](https://mobileuk.org)



Mobile<sup>UK</sup>

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- 1 Antennas** - Transmit and receive calls, texts and data to and from your mobile phone via radio waves.
- 2 Radio Unit** - Generates the radio waves transmitted by the antennas.
- 3 Transmission/Backhaul** - Connection back to the mobile operator's network.
- 4 Cabinets** - Contains computers that communicate with other masts. May also contain backup battery power.
- 5 Power** - Provides electrical power to the telecommunications equipment.
- 6 Microwave Dish** - Connection back to the mobile operator's network where no fixed/cable backhaul available.



The fast speeds offered by 5G are 10-100 times faster than 4G.



5G offers latency around 5ms, which is quicker than the human brain and provides instantaneous connection.

## Frequently asked questions:

### Why do we need more masts for the 5G network?

There are almost 95 million mobile devices in the UK all of which need to be within the range of a mast to function. This also includes over 10 million other connected devices such as smart meters, burglar alarms and vending machines - this number is going to increase dramatically in the future. This means more masts or supporting structures will be needed in areas of high mobile usage. Masts may be only a few hundred metres apart in large cities but several kilometres apart in rural areas.

### Do masts affect wildlife and bees?

There is currently no scientific evidence to establish that birds, bees or wildlife are negatively affected by 5G radio waves.

### Are 5G masts harmful to health?

For decades, extensive research has been carried out to assess whether mobile phones or network signals pose a potential danger to human health. To date, no adverse health effects have been established.

### Why can't we stay with 4G and existing masts?

5G is not intended to replace 3G and 4G networks, it works alongside them to maximise connection speeds. 5G has significantly higher data capacity to enable mobile devices to handle many requests simultaneously.

### Why do masts have cabinets?

The cabinets found next to mobile masts host cabling, power supply and equipment for the mobile transmitters. Multiple cabinets are often required where there are more than one operator or if different generations of technologies (i.e 4G or 5G).

## About Mobile UK

Mobile UK is the trade association for the UK's mobile network operators - EE, O2, Three and Vodafone. Our goal is to realise the power of mobile to improve the lives of our customers and the prosperity of the UK.

## Other sources of information

- ▶ #5GCheckTheFacts > 5G benefits | [Mobile UK](#)
- ▶ Radiation: 5G mobile networks and health | [who.int](#)
- ▶ 5G technologies: radio waves and health | [www.gov.uk](#)
- ▶ Ofcom

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