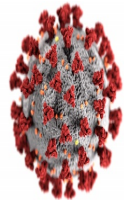


Tackling Covid-19 Misconceptions

Coronavirus and 5G: Is there a Connection?

Click to edit Masthead



le style



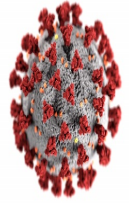
Dr. Louis-Ray Harris
Lecturer, Department of Physics
Faculty of Science & Technology
The University of the West Indies, Mona

August 2020

Overview

- Arrival of Coronavirus
- Covid-19 Trending
- 5G Claims





Arrival of Coronavirus

China pneumonia outbreak: Mystery virus probed in Wuhan

3 January 2020



Coronavirus pandemic



The outbreak has occurred in the city of Wuhan

Chinese authorities have launched an investigation into a mysterious viral pneumonia which has infected dozens of people in the central city of Wuhan.

A total of 44 cases have been confirmed so far, 11 of which are considered "severe", officials said on Friday.

The outbreak has prompted Singapore and Hong Kong to bring in screening processes for travellers from the city.

Source: <https://www.bbc.com/news/world-asia-china-50984025>

Wuhan pneumonia outbreak: Mystery illness 'caused by coronavirus'

9 January 2020



Coronavirus pandemic



Scientists believe they may have found the cause of the mystery pneumonia that has infected almost 60 people in the Chinese city of Wuhan since December.

Preliminary tests indicated the illness may be caused by a new coronavirus, lead scientist Xu Jianguo told the official Xinhua news agency.

The World Health Organisation (WHO) had also said a coronavirus could be to blame for the outbreak.

So far, 59 cases have been reported, seven of which are considered critical.

Mr Xu, who is leading efforts to identify the cause, said they had found the "new type" of coronavirus by testing infected blood samples and throat swabs collected from 15 people.

Covid-19 Trending

By social media mentions, the most popular Covid-19 conspiracy theories

Bill Gates created the virus

1,382,889

5G causes Covid-19

1,062,192

Covid-19 is actually a bioweapon

703,204

Colloidal silver is a cure for Covid-19

685,329

Ibuprofen is dangerous to take

553,838

There could be a national quarantine in the US

334,551

George Soros created the virus

152,635

According to Signal Labs data, the conspiracy theory about Bill Gates and coronavirus has been mentioned at least 1,382,889 times online. This data includes social media information collected between January 1, 2020 and April 20, 2020.

Source: Signal Labs

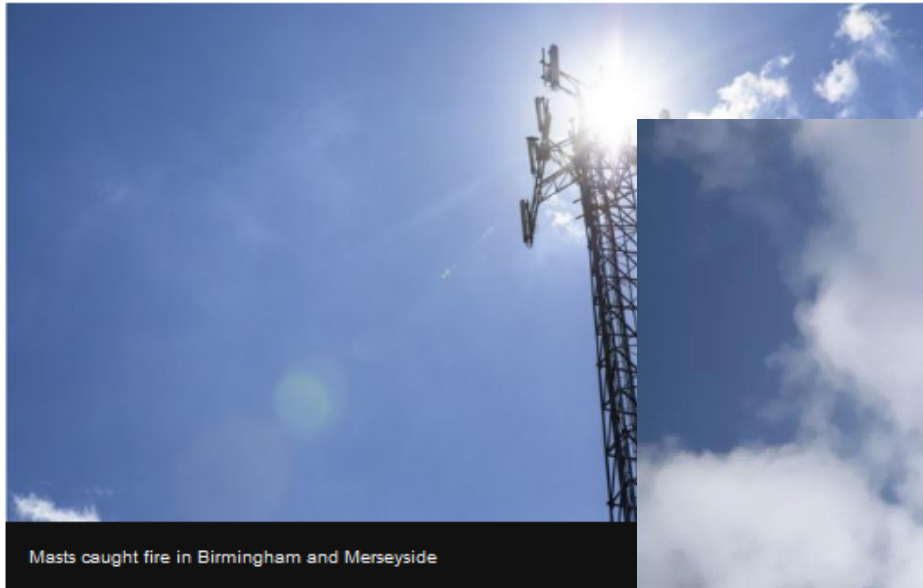
recode BY Vox

Mast fire probe amid 5G coronavirus claims

🕒 4 April 2020

[f](#) [💬](#) [🐦](#) [✉](#) [Share](#)

Coronavirus pandemic



Masts caught fire in Birmingham and Merseyside

Mobile phone mast fires are being investigated amid claims a link between 5G and coronavirus.

There have been fires at masts in Birmingham, Liverpool and Melling in Merseyside.

A video, allegedly of the blaze in Aigburth, was shared on YouTube and Facebook, claiming a link between the mobile technology and Covid-19.

Coronavirus: 20 suspected phone mast attacks over Easter

By Leo Kelion
Technology desk editor

🕒 14 April 2020 [📰](#)

[f](#) [💬](#) [🐦](#) [✉](#) [Share](#)

Coronavirus pandemic



GETTY IMAGES

Networks have reported a further 20 cases of phone masts being targeted in suspected arson attacks over the Easter weekend.

Trade group Mobile UK said it had been notified of incidents in England, Wales and Scotland.

One of the targeted sites provides mobile connectivity to a hospital in Birmingham.

Covid-19

5G fake news hurting Digicel & Flow

Baseless claims linking new technology to COVID-19 costing telecommunications providers millions of dollars

BY ARTHUR HALL
Editor-at-Large
halla@Jamaicaobserver.com

Saturday, May 09, 2020

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A cellular site outside of the Corporate Area

A myth which has taken root in Jamaica about a link between 5G technology and COVID-19 is costing the major telecommunications providers millions of dollars to repair infrastructure damaged by those who believe this baseless claim.

Coronavirus: Technicians held in Peru over false 5G Covid links

12 June 2020



Share

Coronavirus pandemic



GETTY IMAGES

Engineers have faced abuse over a conspiracy theory wrongly linking 5G masts and coronavirus

Villagers in the Huancavelica region of Peru are detaining eight technicians who were repairing an antenna, over fears their work would spread Covid-19.

The villagers mistakenly believed that the workers - who had come to fix a wireless antenna - were installing 5G technology in the area.

Coronavirus: Ofcom assesses Eamonn Holmes 5G comments after complaints

🕒 14 April 2020

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Coronavirus pandemic



TV regulator Ofcom has said it is assessing comments made by presenter Eamonn Holmes about 5G technology and coronavirus "as a priority".

The watchdog has received 419 complaints about remarks he made on ITV's This Morning on Monday.

He cast doubt on media reports refuting the myth that 5G causes the virus "when they don't know it's not true".

Coronavirus: Scientists brand 5G claims 'complete rubbish'

By Rachel Schraer & Eleanor Lawrie
Reality Check

🕒 15 April 2020

f 💬 🐦 ✉️ Share

Reality Check



Conspiracy theories claiming 5G technology helps transmit coronavirus have been condemned by the scientific community.

Videos have been shared on social media showing mobile phone masts on fire in Birmingham and Merseyside - along with the claims.

The UK's mobile networks have reported 20 cases of masts being targeted in suspected arson attacks over the Easter weekend, including damage to a mast providing mobile connectivity to Birmingham's Nightingale Hospital.

FOR IMMEDIATE RELEASE

OUR's Statement on 5G Technology

(KINGSTON, Jamaica; 2020 April 15): The Office of Utilities Regulation (OUR) notes local comments about the existence of 5G technology (which stands for the fifth generation of mobile communications technologies) in Jamaica, and the rumored connection between that technology and the spread of the Coronavirus (COVID-19).

As the regulator of the telecommunications sector, the OUR advises that currently there is no deployment of 5G technology in Jamaica. As well, none of the existing mobile telecommunication providers has advised of any definite plans for the immediate implementation of this technology.

Furthermore, regulatory agencies and experts worldwide have repeatedly explained that there is no connection between 5G technology and COVID-19.

The OUR considers that 5G technology has the potential to facilitate increased productivity, data handling and the support of other new technologies.

The OUR condemns the spread of misrepresentation about the connection between COVID-19 and 5G technology and urges persons to obtain information from credible sources only.

NO LINK BETWEEN 5G AND CORONAVIRUS

Flow and Digicel are aware of malicious messages and video content that are being circulated referencing 5G technology and linking it to the spread of Coronavirus. To be certain, there is absolutely no scientific or technological proof connecting 5G technology with the spread of the Coronavirus.

On top of this, neither Flow nor Digicel have deployed any 5G infrastructure on our mobile towers to date. Any reports to the contrary are absolutely false.

Our collective focus remains on providing services to new and existing communities across our country. Jamaica is currently navigating through this pandemic and now, more than ever, connectivity is required to support critical Government institutions, businesses and consumers.

Please continue to observe the recommended guidelines from the Ministry of Health and Wellness to prevent the spread of the Coronavirus. At a time of heightened fear around the world, we encourage everyone to only rely on information from credible sources so that together, we can all stay safe.

Source: <https://discoverflow.co/jamaica/no-link-between-5g-and-coronavirus>

5G Claims



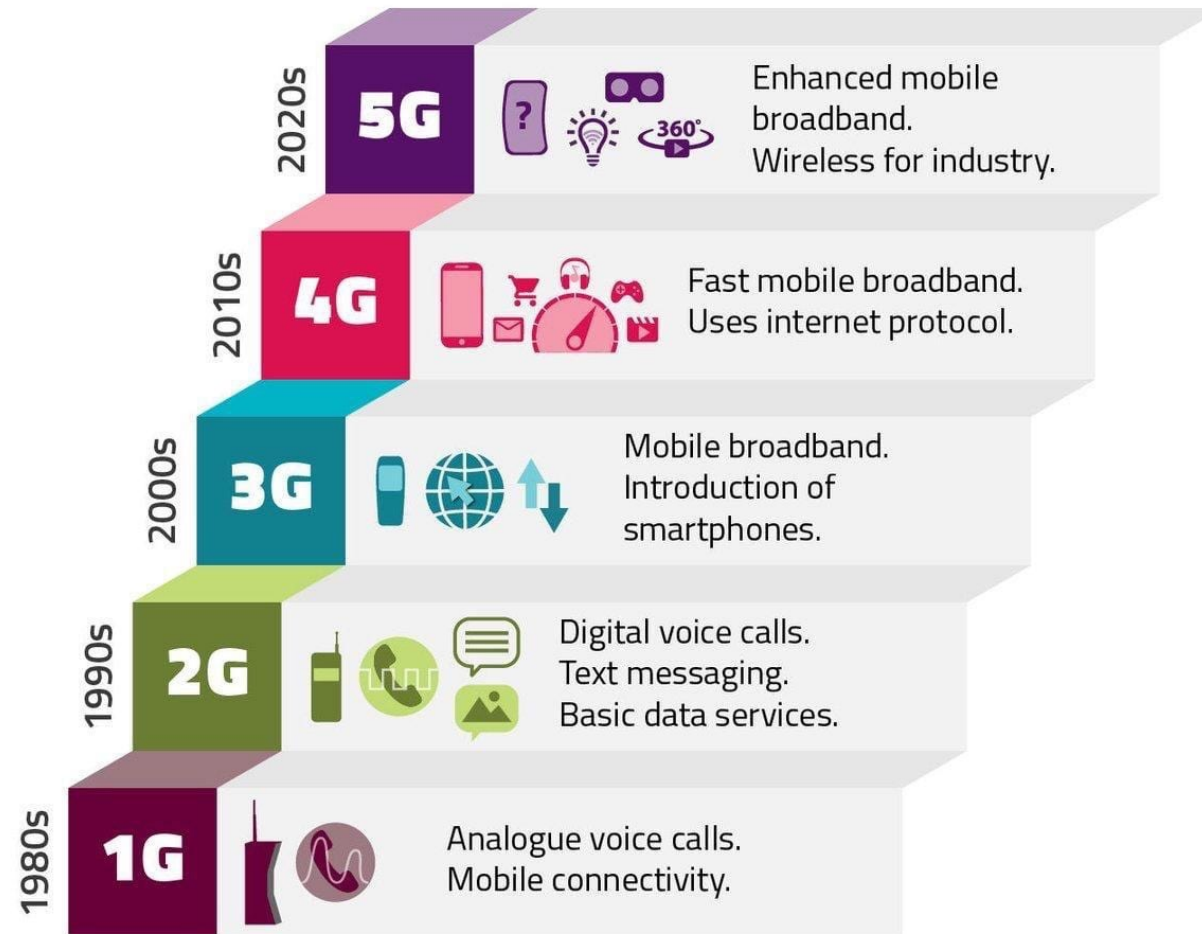
Claim 1:

Coronavirus was caused by 5G technology

What is 5G?

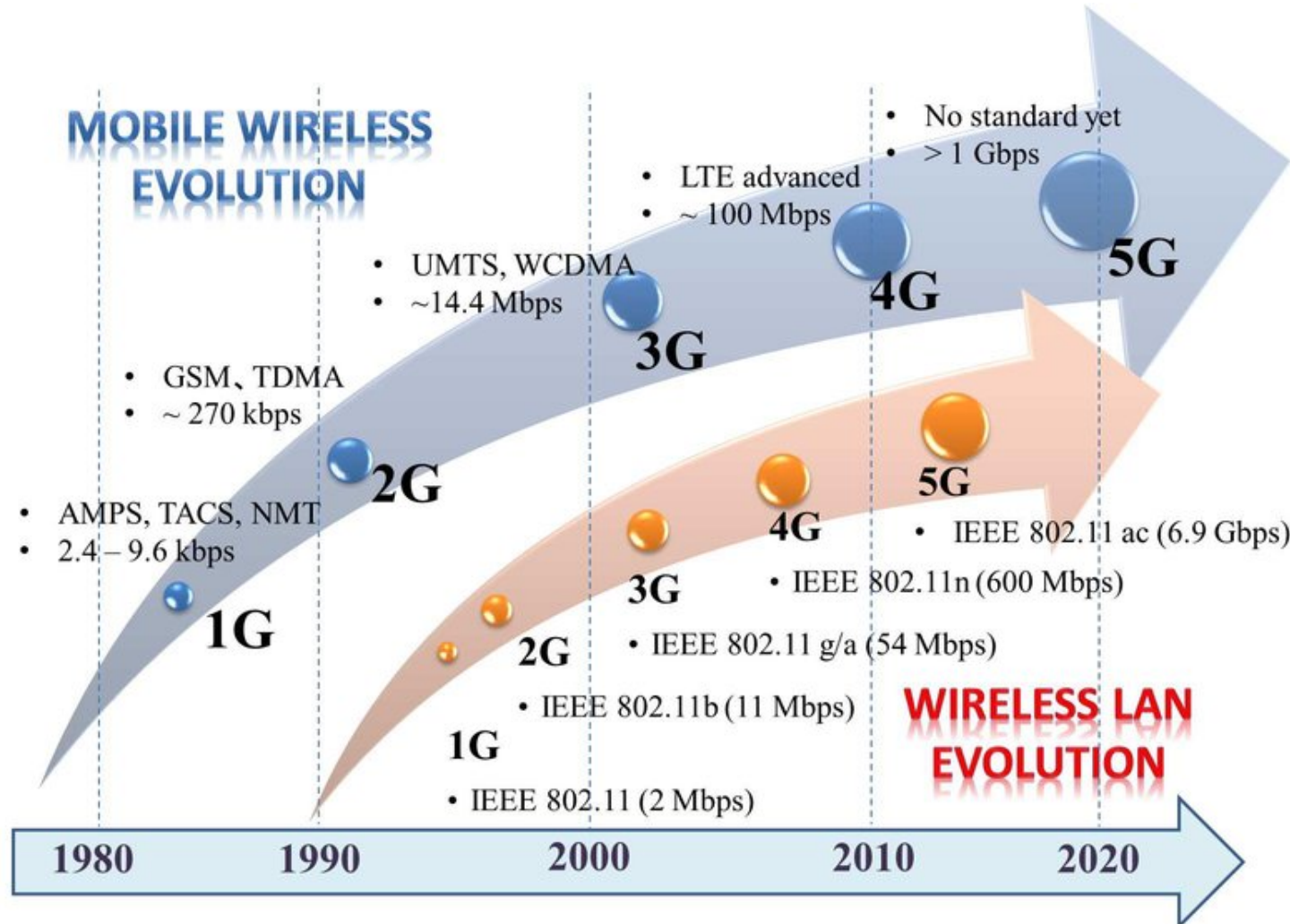
- Fifth Generation (5G) of mobile broadband technology that will either replace or at least augment existing Fourth Generation (4G) LTE connections.
- 5G will have much faster download and upload speeds.
- With 5G, the time taken for devices to communicate with wireless networks (latency) will significantly decrease.

5G Evolution - Timeline



Source: <https://prc.chapters.comsoc.org/2019/04/01/5g-evolution-wireless-communications/>

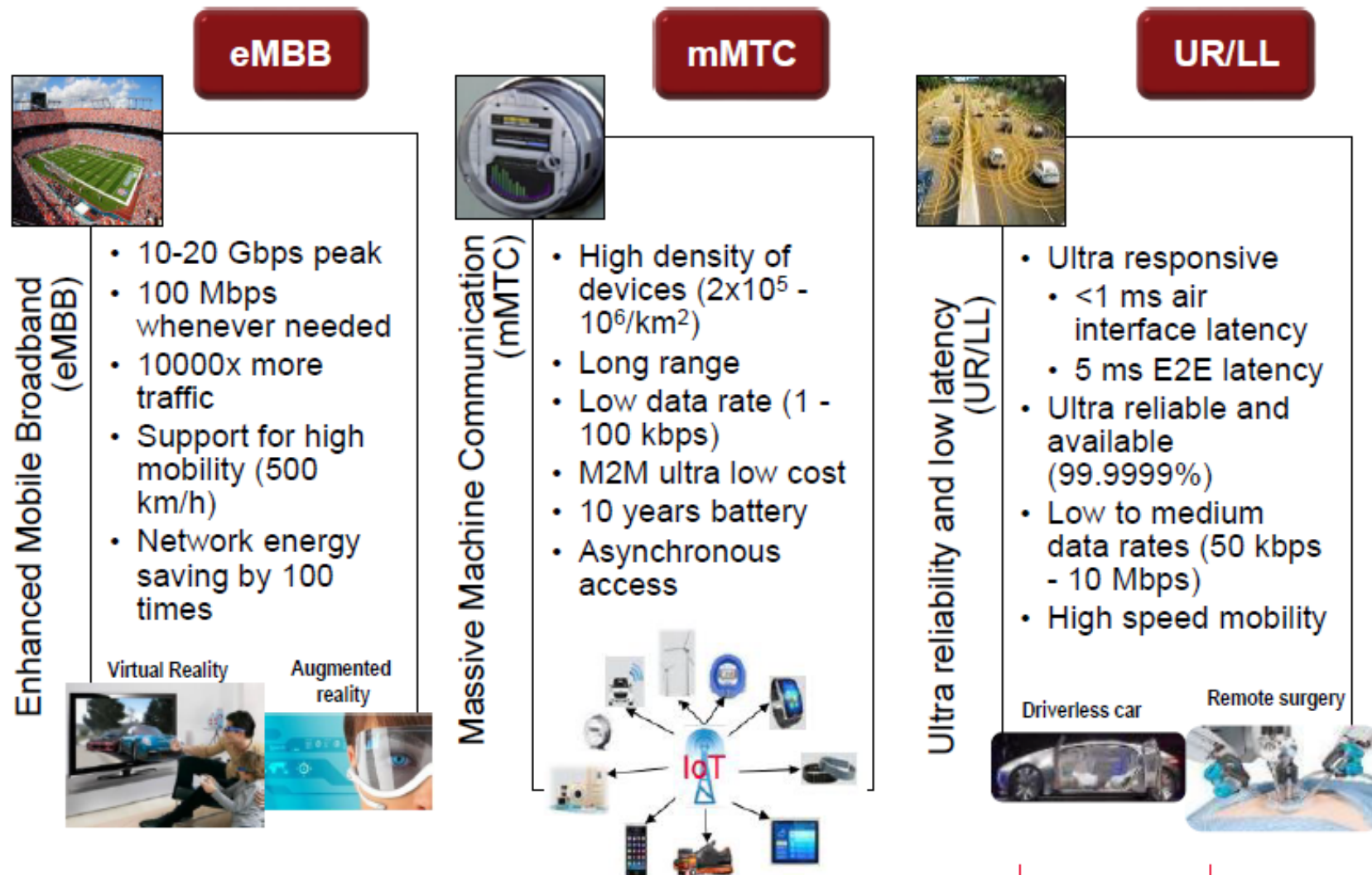
5G Evolution - Timeline



Justification for 5G Development

- Dramatic increases in monthly data traffic since 2011.
- Increase of >30% compound annual growth rate (CAGR) in per-subscriber traffic by users of smartphones, tablets, and laptops.
- Cellular networks became the primary platform for connecting everything to everyone.
- Trends driven by the Internet of Things (IoT) and machine-to-machine (M2M) communications
- Predictions for > 20 billion connected IoT devices by 2020.

5G Applications



Timeline of 5G Deployments Worldwide

- In 2019, over 50 operators launched 5G services worldwide
- Service providers deployed > 200,000 new 5G Sub-6GHz base stations
- Relatively small coverage areas (mainly providing 5G service to major city centres that require greatest usage)

Source: <https://www.electronics-notes.com/articles/history/cellphone-history/5g-history-timeline-dates.php>

Is coronavirus caused by 5G technology?



Claim 2:

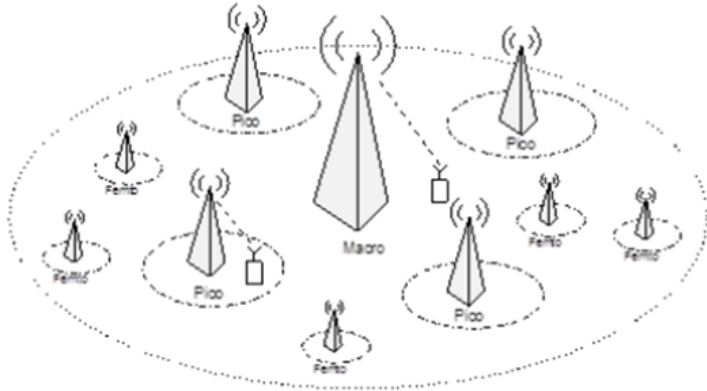
Electromagnetic Waves are Responsible for
the Spread of Coronavirus

Reason for this Concern

The number of 5G antennas is much higher than that of 2G, 3G and 4G

Coexistence of Macro and Small Cells

- Increases heterogeneity in the infrastructure elements
 - Macrocell, picocells, femtocells, and distributed antennas
- **Increases irregularity in the BS locations**
 - Small cell locations are not as carefully planned



Heterogeneous Cellular Network (HetNet)

Densification: Macro vs. Small Cells

High CapEx

High OpEx

Cell site
restrictions



VS.



Lower deployment cost

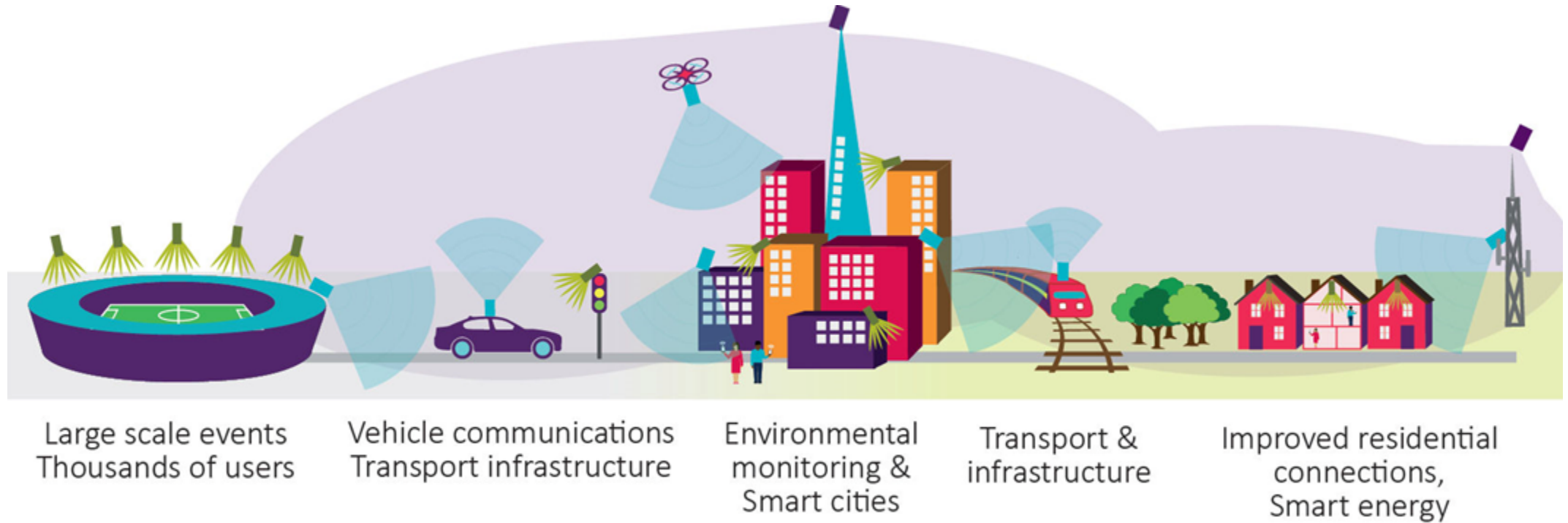
Smaller transmit power

Organic capacity-driven
deployments possible

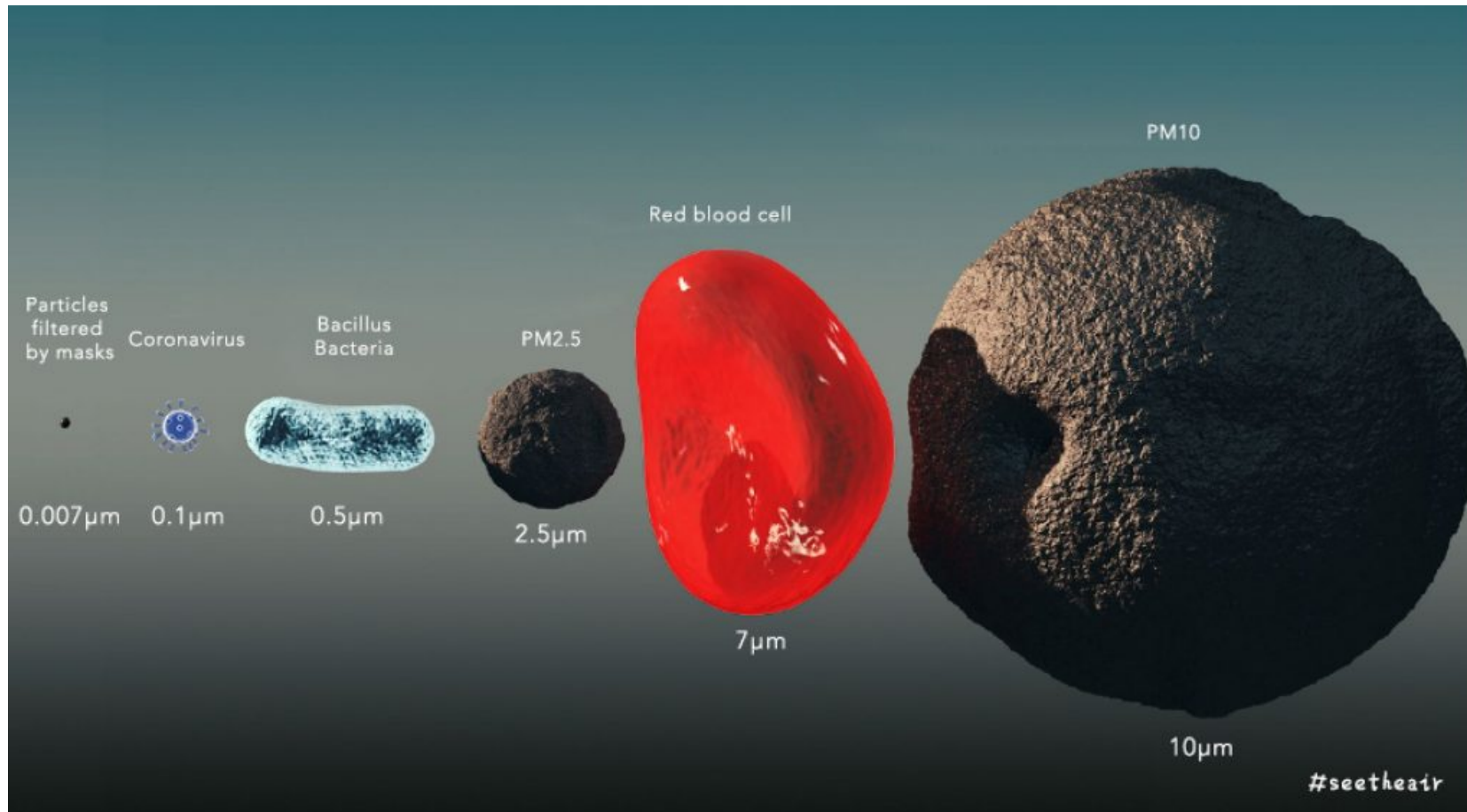
**Small cells are clearly a better
option for extending coverage
and/or adding capacity**

Reason for this Concern

The number of 5G antennas is much higher than that of 2G, 3G and 4G

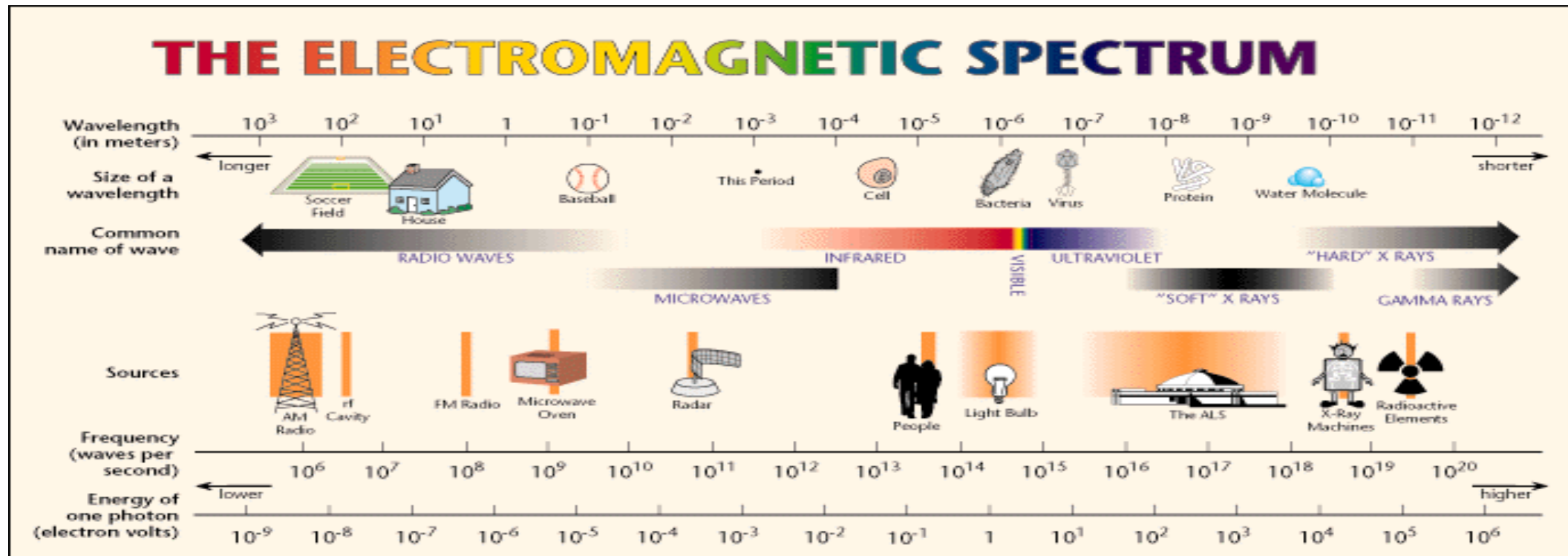


Coronavirus Size Comparison



Source: <https://abcdust.net/how-large-is-a-corona-virus-virion-compared-to-the-mp10-2-5/>

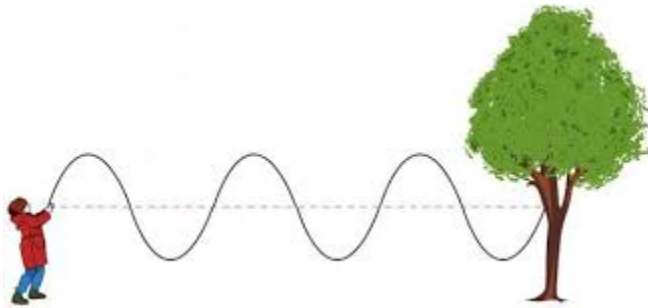
Electromagnetic Spectrum



Source: <https://www2.lbl.gov/MicroWorlds/ALSTool/EMSpec/EMSpec2.html>

Can Electromagnetic Waves Propagate Coronavirus?

- Waves are caused by some disturbance that transports energy away from a source
- Waves transport **ENERGY and INFORMATION**



- Mechanical waves (seismic, sound, etc.) require a medium
- Electromagnetic waves do not require a medium, e.g. Radio waves, Visible light, and X-rays.

- Electromagnetic waves do **NOT** transport matter



Source: <http://jamaica-gleaner.com>

Are Electromagnetic Waves Responsible for
the Spread of Coronavirus?

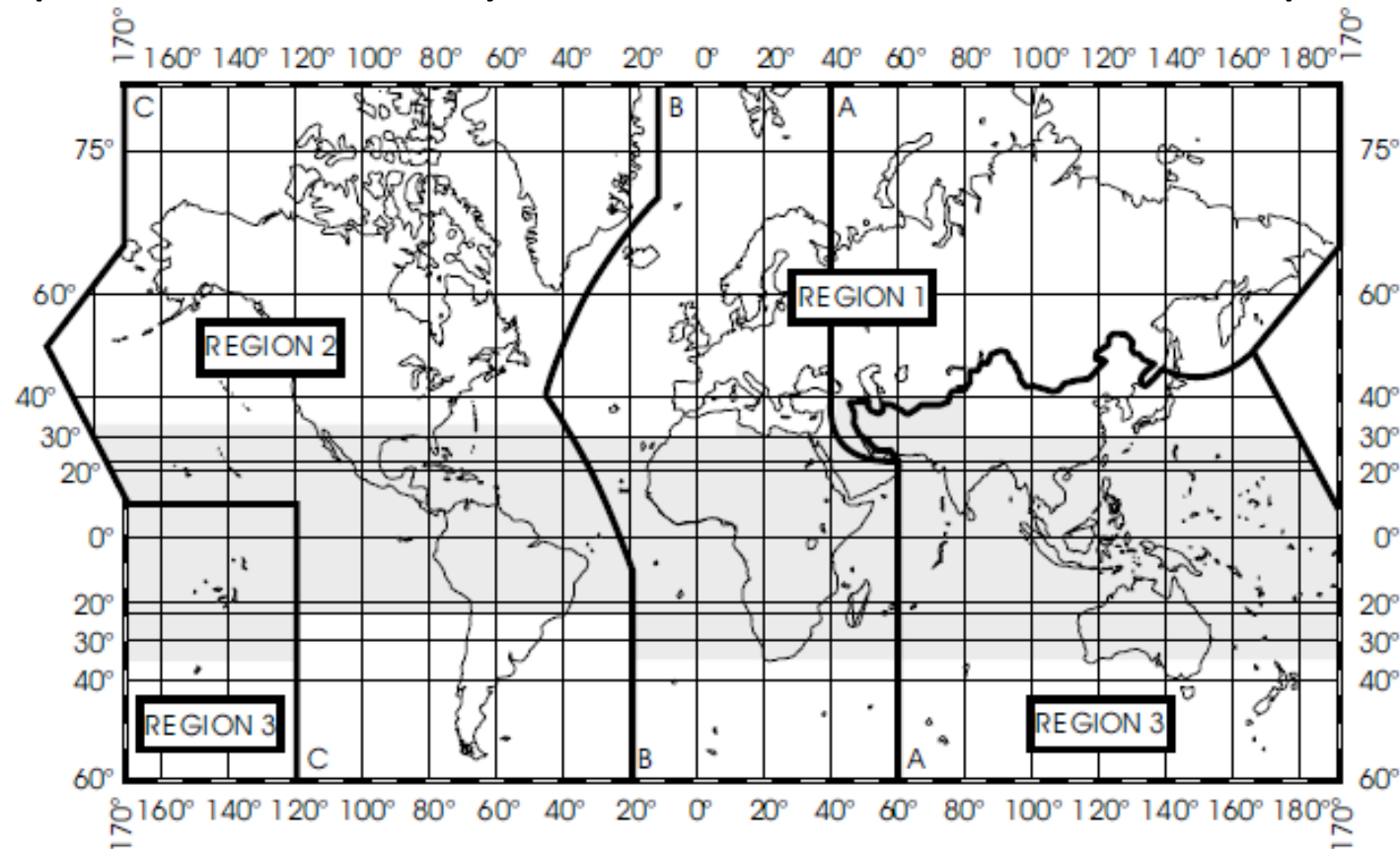


Claim 3:

...But Don't the Specific Frequencies Used by 5G Make it Different from Other Mobile Technologies with Respect to Coronavirus Propagation?

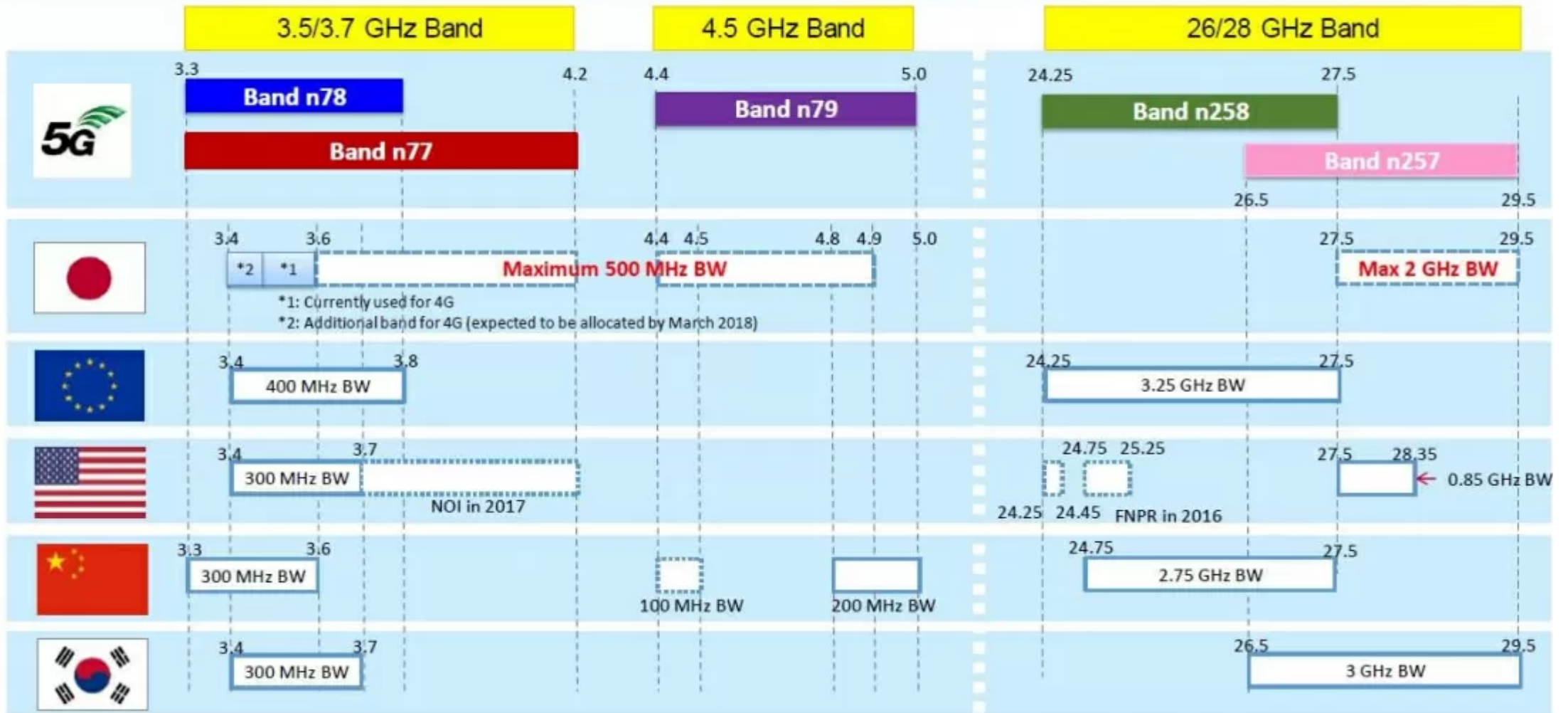
ITU Regions

The International Telecommunications Union (ITU) governs the assignment and allocation of spectrum frequencies for use by radio and TV stations, mobile providers, etc.



Source: <https://www.fcc.gov/engineering-technology/policy-and-rules-division/radio-spectrum-allocation/general/table-frequency>

Overview of “5G” spectrum



FCC Action on 5G Spectrum

Low-band spectrum:

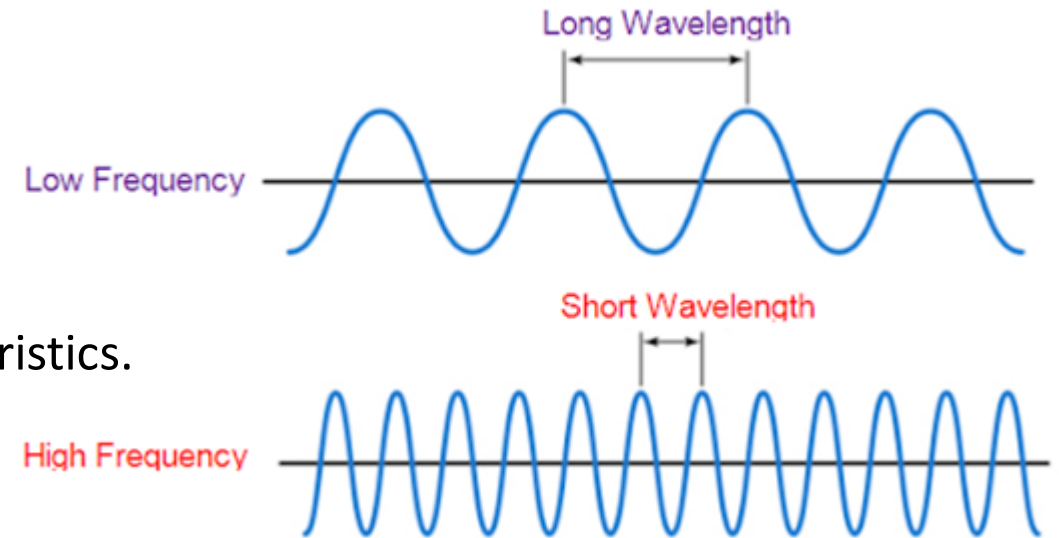
- Useful for wider coverage.
- Specific frequencies between 600-900 MHz

Mid-band spectrum:

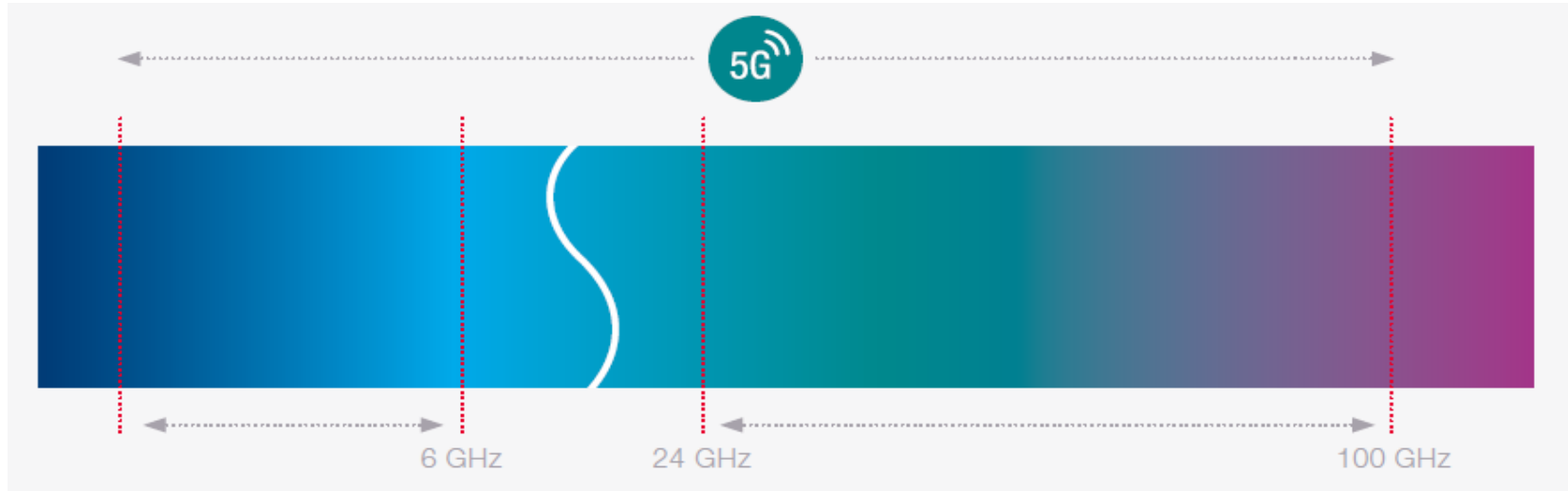
- Enables balanced coverage and capacity characteristics.
- Includes frequencies in 3 GHz band.

High-band spectrum (mm-wave):

- Best for high-capacity applications. Extends from 24 GHz upwards.
- Wavelengths vary in length from 1-10 mm, compared to wavelengths of existing smartphones, which are several tens of centimetres.
- Primary use of mm-wave band has been for satellites and radar systems.



Bandwidth/Capacity Advantage



Low- and mid-band spectra



High-band (mm-wave)
spectrum

FCC Action on 5G Spectrum

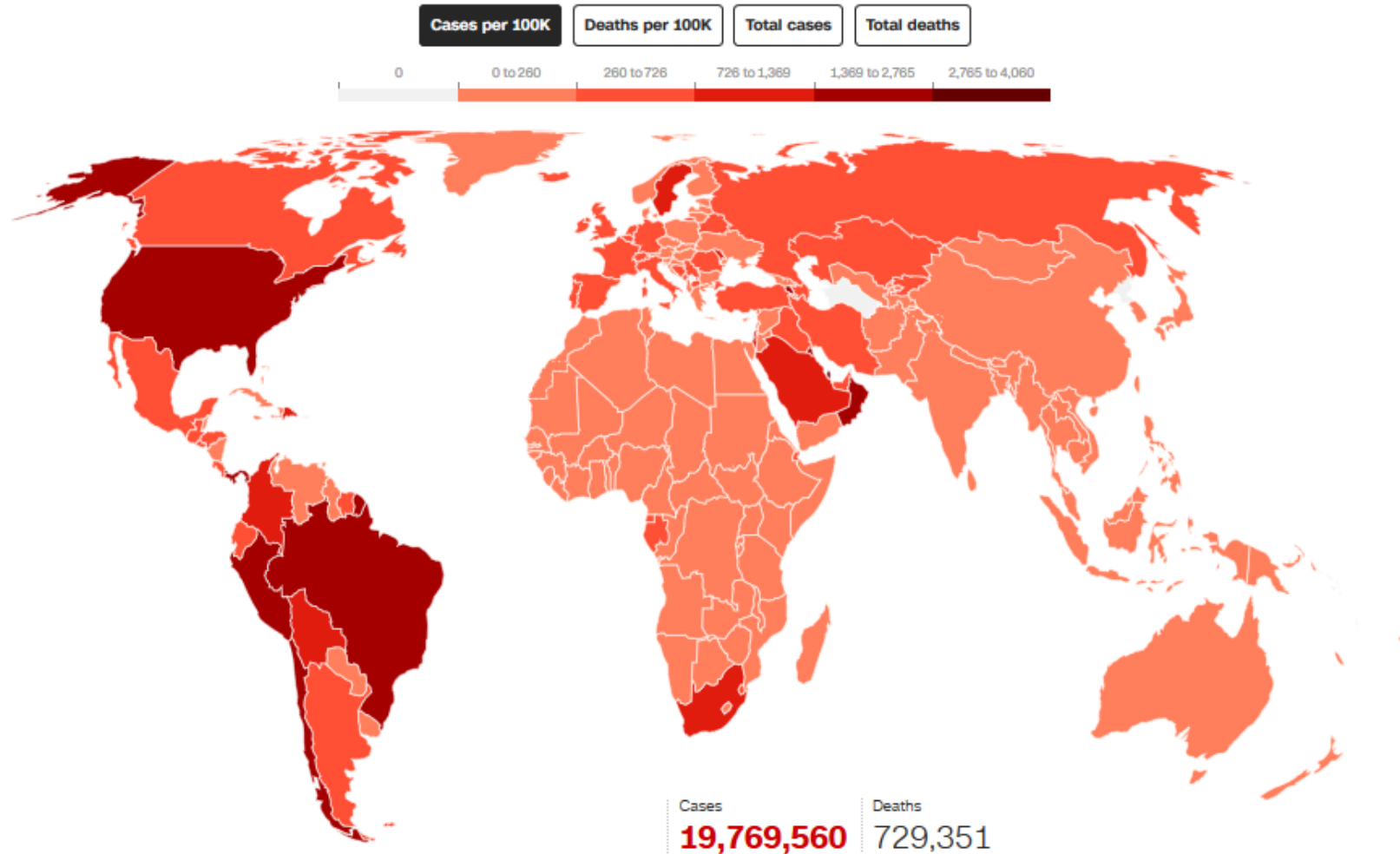
Can low- and mid-band spectra propagate Coronavirus?

- Frequency bands in this part of the spectrum are already assigned and allocated by ITU and spectrum regulators worldwide.
- The order of magnitude of wavelengths in these bands is comparable to those used by existing wireless technologies in adjacent frequency bands, e.g. Wi-Fi, Bluetooth, cordless phones, etc.

Can the high-band spectrum propagate Coronavirus?

- Use of mm-wave technology to connect mobile users with base station is new.
- Although plans developed for its use, very limited implementation worldwide.

Where is Coronavirus Spreading?



Last updated: August 9, 2020 at 8:00 p.m. ET
Source: Johns Hopkins University Center for Systems Science and Engineering

Viruses cannot travel on radio waves/mobile networks.

COVID-19 is spreading in many countries that do not have 5G mobile networks.

COVID-19 is spread through respiratory droplets when an infected person coughs, sneezes or speaks.

People can also be infected by touching a contaminated surface and then their eyes, mouth or nose.

FACT:
5G mobile networks
DO NOT spread COVID-19



#Coronavirus #COVID19

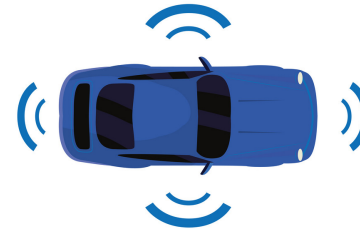
8 April 2020

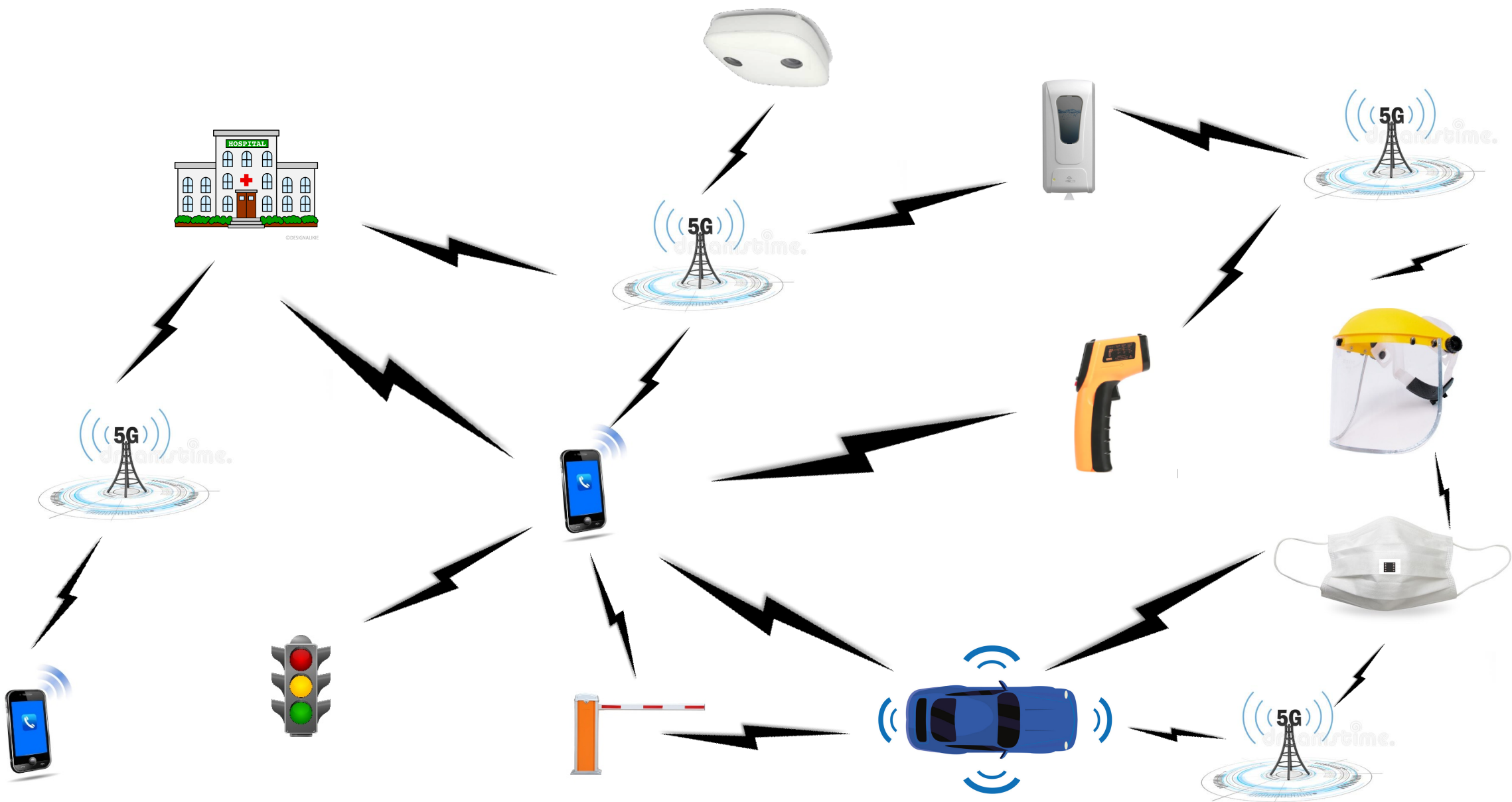
Do the Specific Frequencies Used by 5G Make it
Different from Other Mobile Technologies with
Respect to Coronavirus Propagation?

Interestingly...



Could Covid-19 actually help to increase the global spread of 5G technology, which from a strictly technical perspective, was developed to enhance communication between multiple sensor devices???





THANK YOU