



Spectrum consideration for 5G

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About the GSMA



THE GSMA
WAS FOUNDED
IN
1987

12 OFFICES WORLDWIDE:



LONDON



DUBAI



ATLANTA



BRUSSELS



BARCELONA



HONG KONG



BRASILIA



BUENOS AIRES



SAO PAULO



NAIROBI



NEW DELHI



SHANGHAI



The GSMA
represents
the interests
of mobile
operators
worldwide



UNITING
NEARLY
800
MOBILE
OPERATORS



WITH
300+
COMPANIES
in the broader mobile ecosystem



The world's leading mobile industry events,
Mobile World Congress and Mobile World
Congress Shanghai, together attract

130,000+

people from across the globe each year

The GSMA works to deliver a regulatory environment
that creates value for consumers by engaging
regularly with:



MINISTRIES
OF TELECOMS



TELECOMS
REGULATORY
AUTHORITIES



INTERNATIONAL &
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27,000+
Industry Experts

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InfoCentre® is your place to
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GSMA Working Groups
provide frameworks and
standards in commercial,
operational and
technical matters that help
maintain and advance
mobile industry ecosystems



**7.5
BILLION+**

MOBILE CONNECTIONS
WORLDWIDE

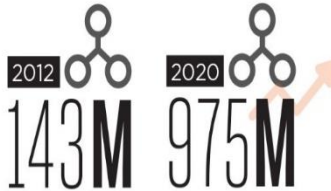


The future requires 5G

Mobile Phone connections



Cellular IoT connections



Mobile Data Traffic



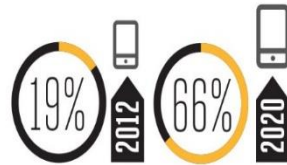
Mobile App users



Smartphone connections



Smartphone adoption rate



Mobile App downloads per year





5G will revolutionise key industries



MULTI-MEDIA EVERYWHERE



SMART TRANSPORT



CRITICAL SERVICES



REMOTE CONTROL



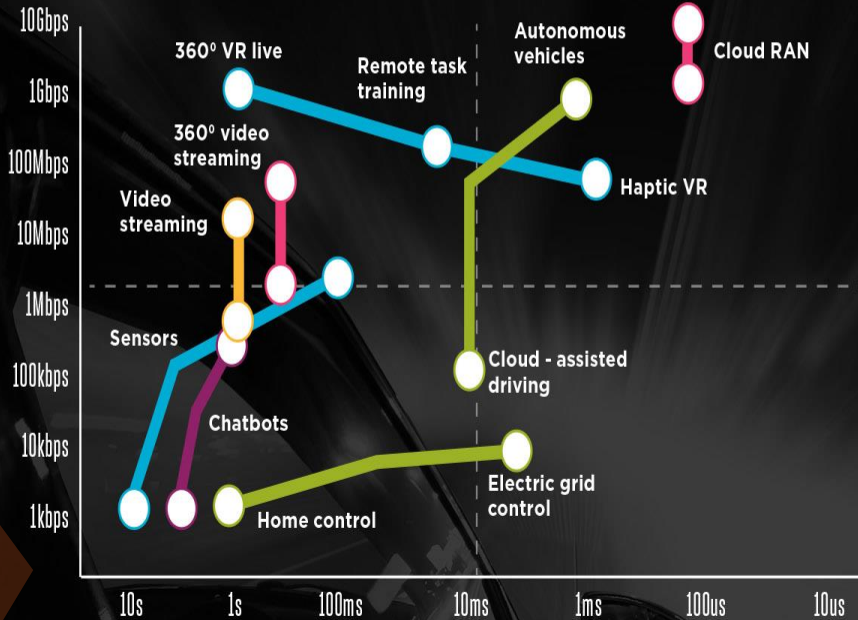
AUGMENTED REALITY



SENSORS NETWORKS

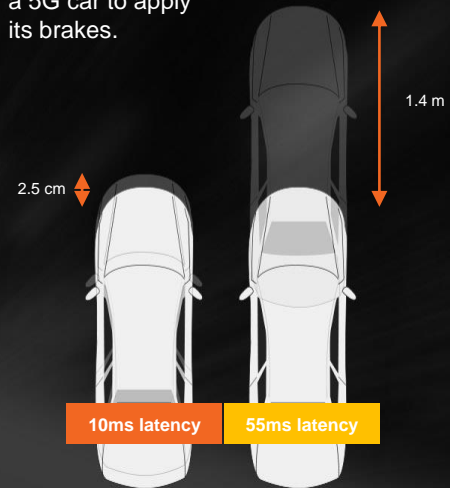


Where latency and throughput matters



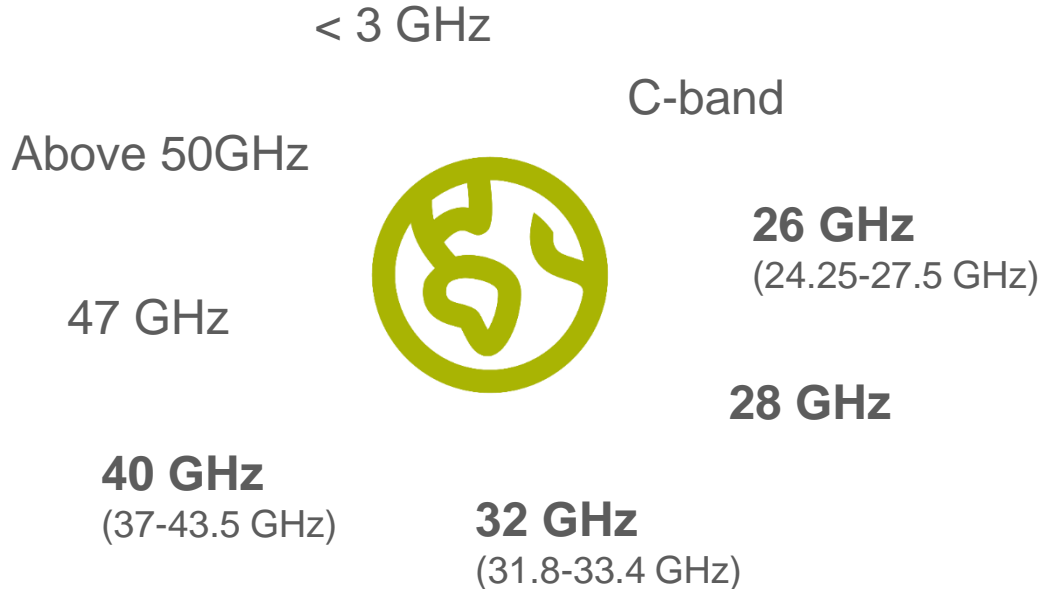
REDUCED LATENCY HAS SIGNIFICANT REAL-WORLD IMPLICATIONS.

- 1.4 m for a 4G car to apply its brakes.
- Just 2.5 cm for a 5G car to apply its brakes.





What spectrum bands should we use for 5G?





5G spectrum

A combination of **low**, **mid**, and **high** frequency bands will be needed to fulfil 5G promises

Below 6GHz

- Existing bands for mobile broadband through refarming;
- We also encourage more countries to join 600MHz and C-band at WRC-19.

Bands above 24GHz (under WRC-19 A1.13.)

- GSMA members prioritize the study of the 26GHz and 32GHz bands because of proximity to 28GHz;
- 37-43.5 GHz is also a priority for study;
- Higher bands above 45GHz are still under consideration.

28GHz

- Strong commitment from individual countries such as US, Korea and Japan will make this a key band for 5G.



Tuning ranges

- **Tuning ranges** will support 28GHz in combination with 26GHz or 32GHz, and also across 37-43.5 GHz.
- This allows different regions to use different portions of these bands while keeping economies of scale.
- Supporting portion of bands wanted by others countries/regions will improve economies of scale.



WRC-19

- There is significant potential for the coexistence of 5G and other wireless services (e.g. satellite and fixed links) in higher frequency bands (e.g. above 24 GHz)
- It is important that governments and regulators successfully support the needs of 5G at international spectrum discussions including WRC-19 and its preparatory meetings. This is essential due to the lengthy timeframes involved in making new mobile spectrum available
- Governments need to adopt national policy measures to encourage long-term heavy investments in 5G networks



Thank you!

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