5G: standards and spectrum

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Potential new 5G use cases

Where

Busy urban areas, stadiums, shopping malls and railway stations

Homes and businesses using fixed wireless access

Regular and autonomous trains, buses and cars

What

Data transmission at tens of gigabits

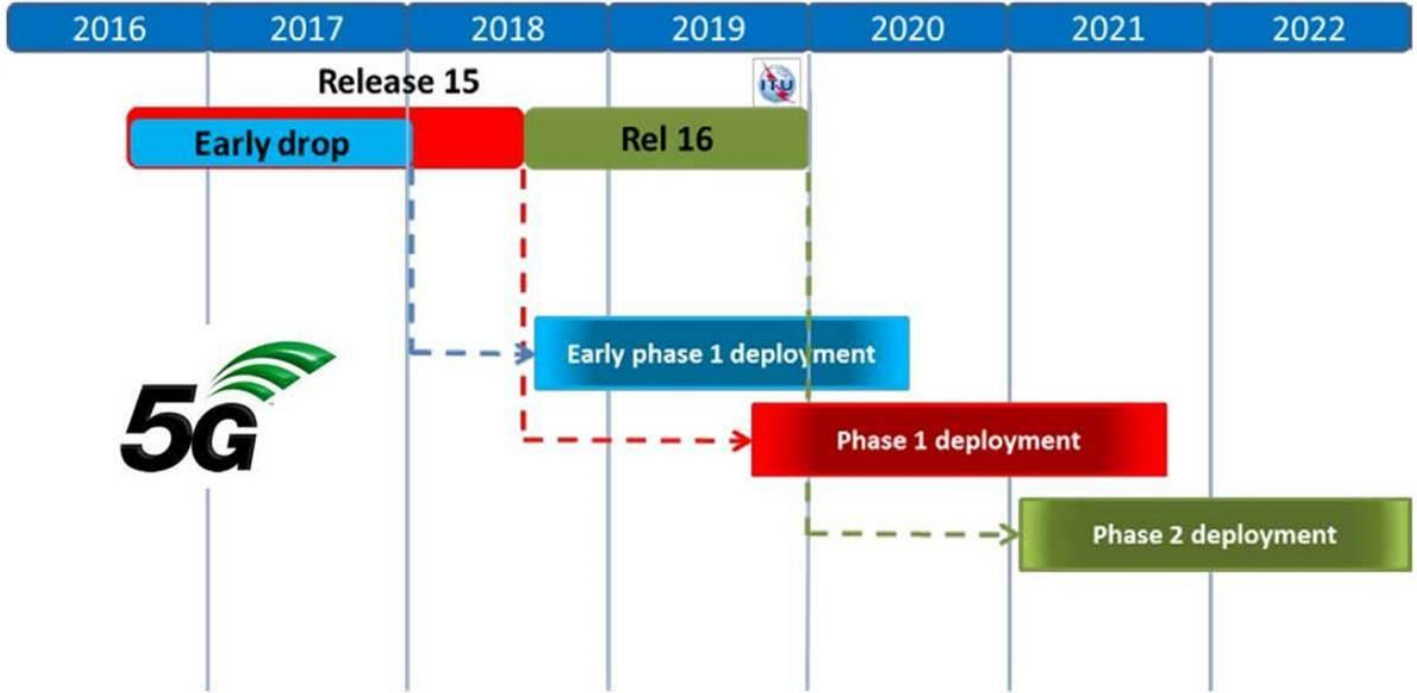
IoT

Augmented and Virtual Reality

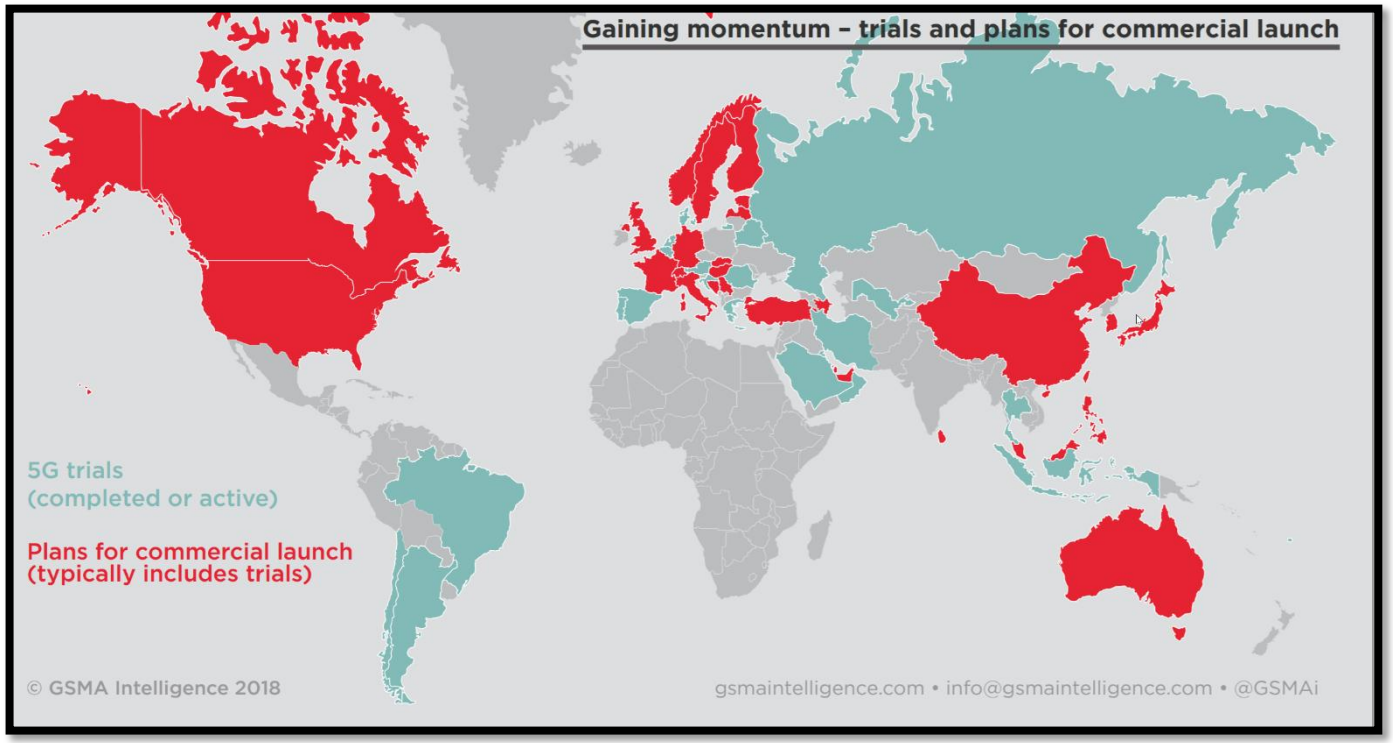
Video Streaming with low latencies: 4K without compression and 8K

Industrial Automation with low latencies and high reliability

5G standards timeline



5G trials and launch plans



77 operators are trialling 5G technology across 49 countries

45 operators have announced plans to launch 5G services across 32 countries

What spectrum is needed for 5G?

5G needs spectrum across three ranges

Sub-1 GHz

1-6 GHz

AND ABOVE

6 GHz

Agenda Item 1.13 @ WRC-19

*"to consider identification of frequency bands for the future development of International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution **238**"*

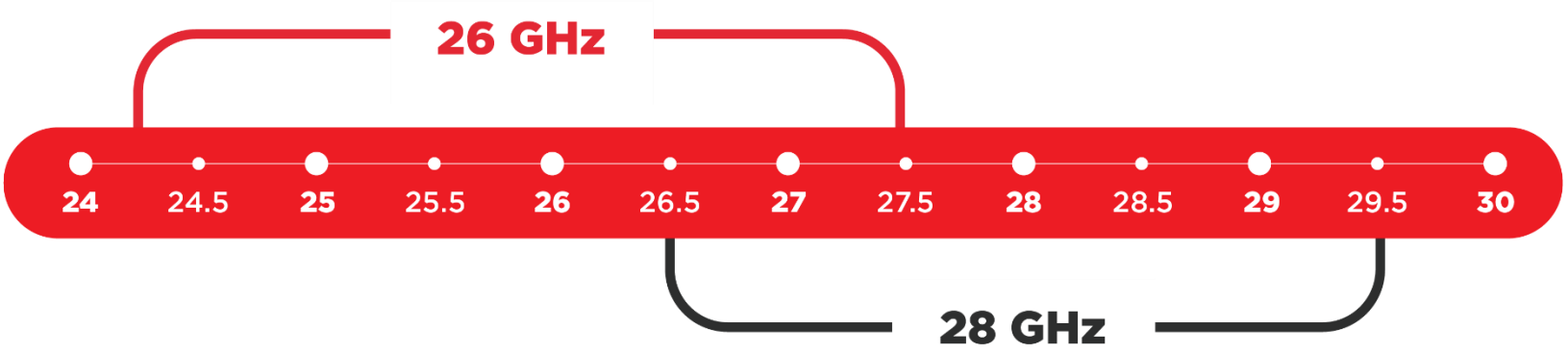
Eight spectrum ranges

- 24.25-27.5 GHz
- 31.8-33.4 GHz
- 37-43.5 GHz
- 45.5-50.2 GHz
- 50.4-52.6 GHz
- 66-71 GHz
- 71-76 GHz
- 81-86 GHz

26 GHz & 28 GHz will both play a vital role in 5G

24.25 GHz to 29.5 GHz

The whole range is important



5G in five steps

1. Significant new widely harmonised mobile spectrum is needed
2. 5G needs spectrum below 1 GHz, 1-6 GHz and above 6 GHz
3. Tech-neutral spectrum licences are essential to enable refarming
4. Governments need to actively participate in WRC-19 – starting now
5. Governments should encourage investment-friendly 5G policies