Mobile Trends and WRC-27 Updates

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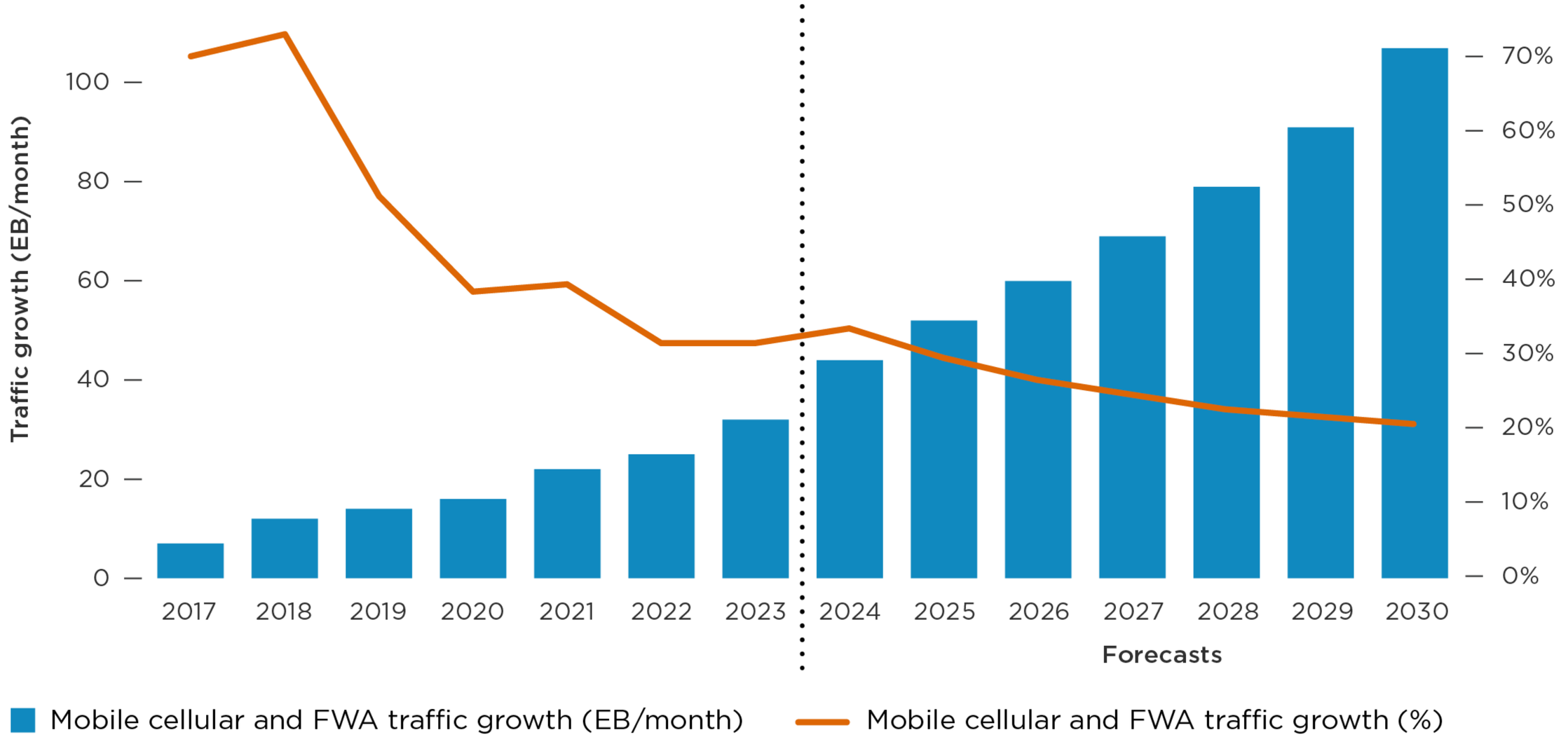
CTU - Spectrum Management Taskforce - May 2025

SPECTRUM for the benefit of billions

Global mobile cellular and FWA traffic year-on-year growth

EB per month



Source GSMA Intelligence and Ericsson

Next mobile generations must embrace:

- Universal meaningful connectivity
- Quality and consistency
- Sustainability and energy efficiency
- Massive capacity for more devices

"By delivering ever-present intelligent communication, 6G will contribute to the creation of a more human-friendly, sustainable and efficient society."

History of Channel Bandwidth

Future of Channel Bandwidth?

x2

x4

5G

Up to 100 MHz

6G

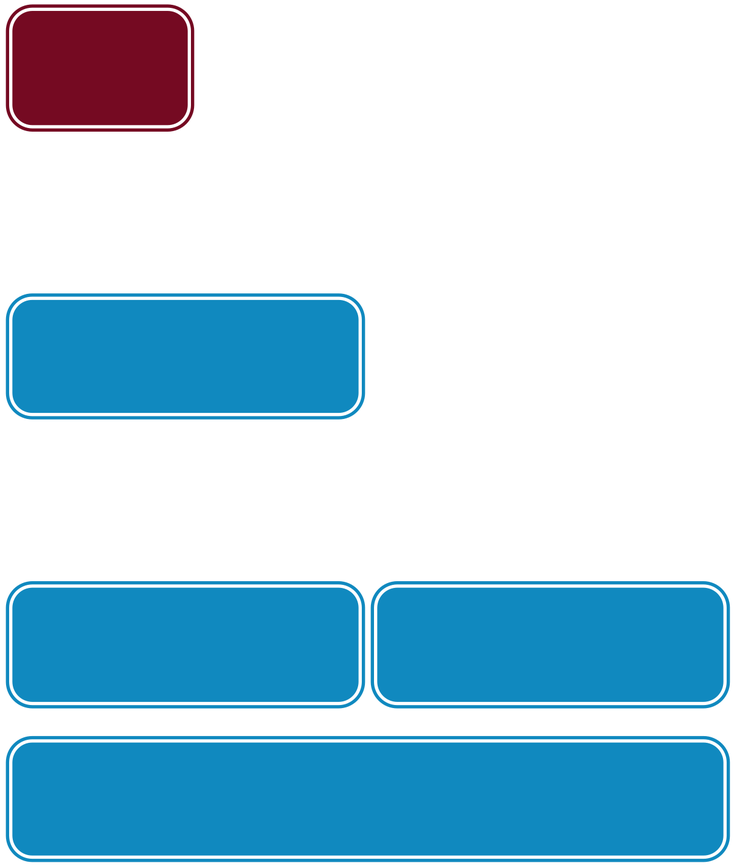
Initial Discussions

- Up to 200 MHz

6G

Potential Development

- Aggregation 2x200 MHz
- One 400 MHz channel



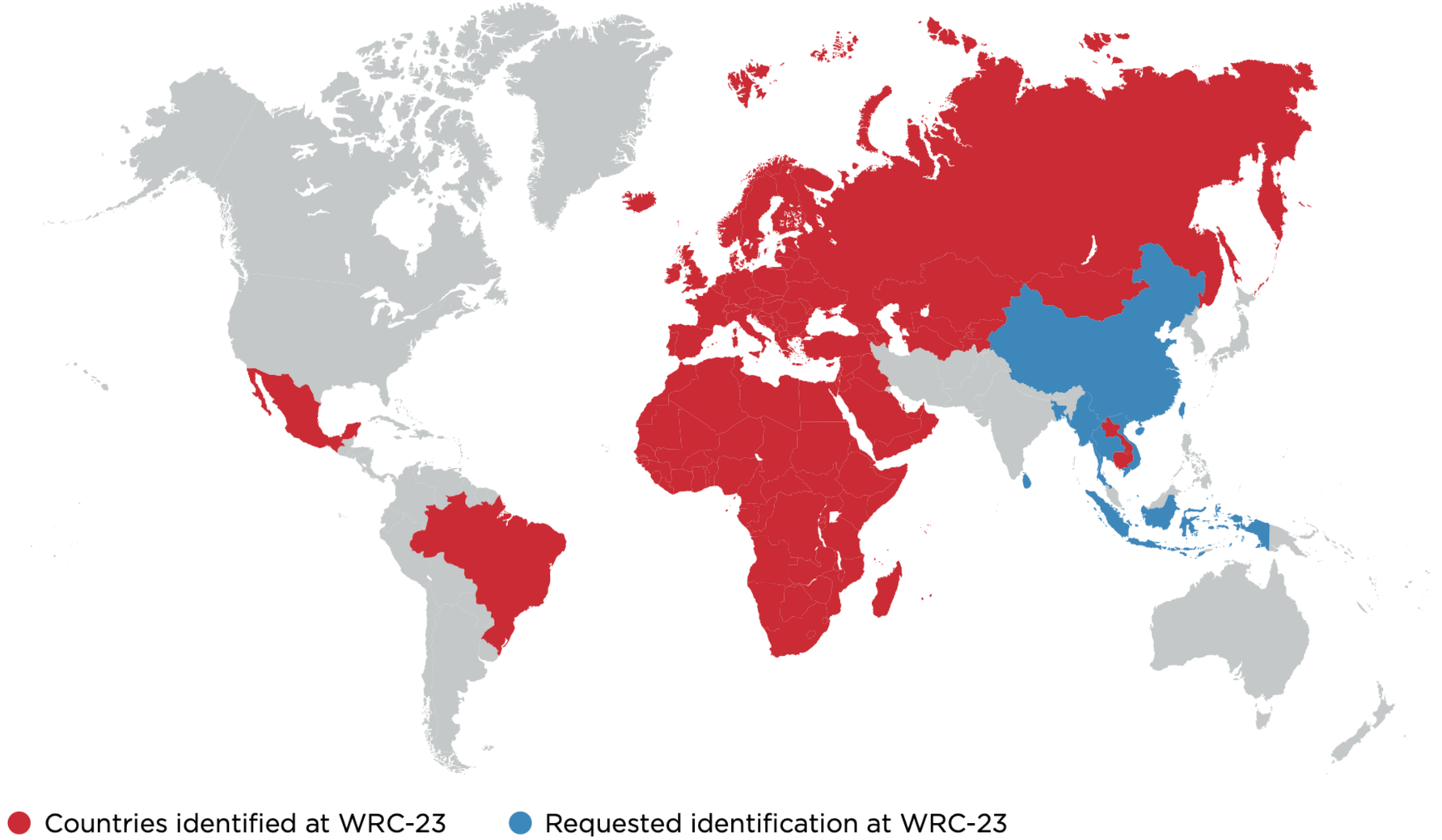
- Re-use of existing spectrum and support for wider bandwidths needed
- Industry discussions ongoing regarding extension of bandwidth
- 3GPP RAN 6G Workshop in March 2025
- 400 MHz channels may form part of initial discussions or may be a later development.
- 6 GHz trials used bandwidths between 80 and 400 MHz - the highest speeds were delivered with widest channels

WRC-27

Agenda Item 1.7

Region 1	Region 2	Region 3
4 400-4 800 MHz		4 400-4 800 MHz
7 125-7 250 MHz 7 750-8 400 MHz	7 125-8 400 MHz	7 125-8 400 MHz
14.8-15.35 GHz	14.8-15.35 GHz	14.8-15.35 GHz

6 GHz Mobile Evolution



WRC-23 was a launch pad for 6 GHz development.

Channel size and speed

12 Gbps
400 MHz channel

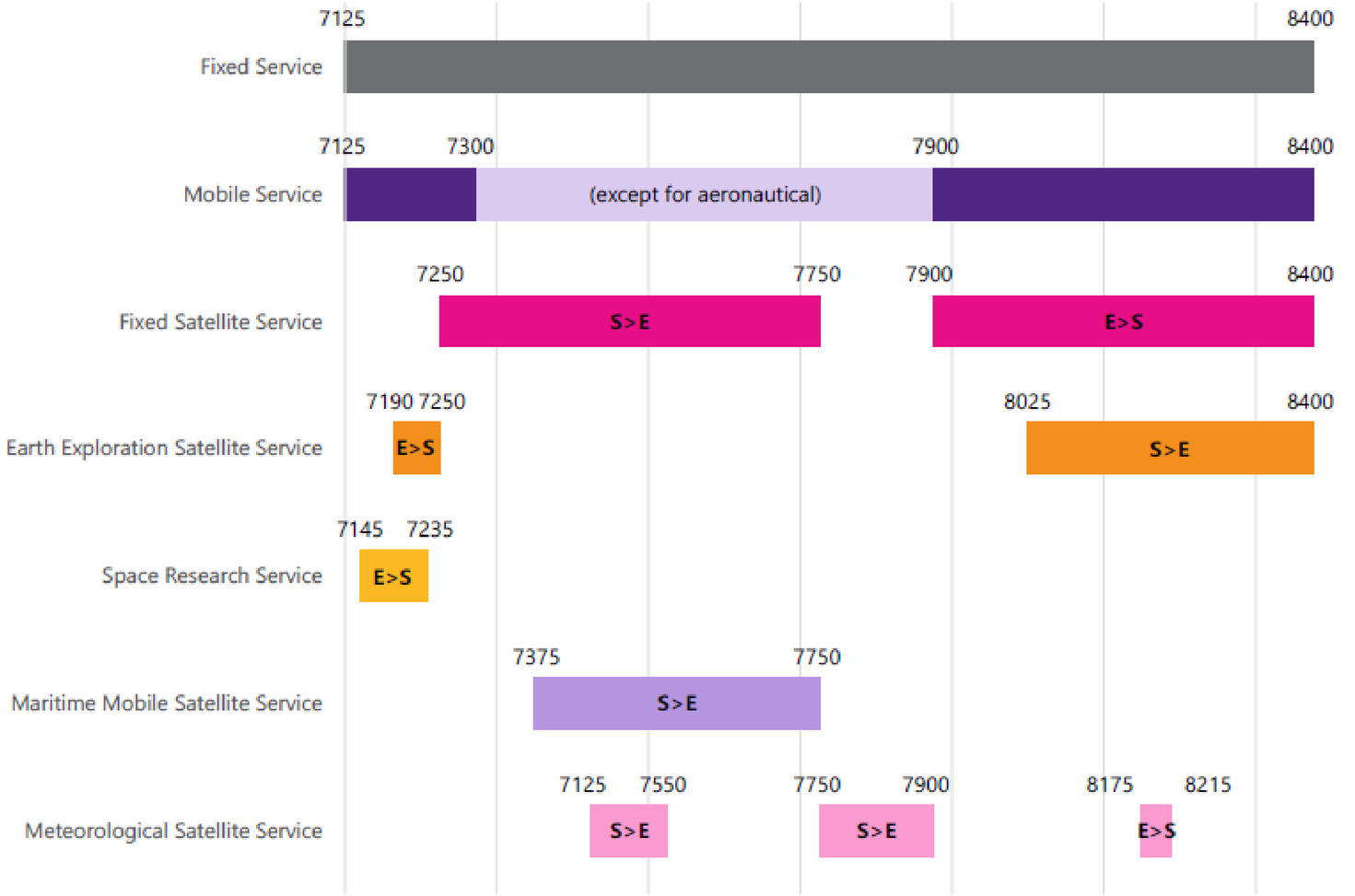
5 Gbps
200 MHz channel

1.28 Gbps
80 MHz channel

WRC-27

Agenda Item 1.7 – 7.125-8.4 GHz

- Sharing Studies IMT-2030 / 6G
- Lowest 125 MHz already being considered in Europe
- Adjacent to 6GHz
- Government Users
- Need to understand the usage of incumbent services



WRC-27 AI 1.12, 1.13 and 1.14

SPECTRUM for the benefit of billions

GSMA™

57%

Of the global population is connected to mobile broadband on their own device.

66% have some access to a device

39%

Of the world's population live within the footprint of a mobile broadband network but are not using it…

… THE USAGE GAP

2/3 of these do not own a phone

4%

Of the global population is not covered by mobile broadband…

… THE COVERAGE GAP

D2D

May be one part of the solution to the COVERAGE GAP. It will not impact the USAGE GAP.

WRC-27

Agenda Items 1.12, 1.13, 1.14

Direct to Device AI 1.13	New Mobile Satellite AI 1.12, 1.14
 Mobile satellite in IMT bands between **694/698-806 MHz** and **2.7 GHz**	 **1 427-1 432 MHz** 1 645.5-1 646.5 MHz **1 880-1 920 MHz** **2 010-2 025 MHz** **2 120-2 170 MHz**

WRC-27

Agenda Item 1.13

- Complement terrestrial IMT network coverage
- Study groups roles:
  WP 4C - Description, operational characteristics, frequency bands, sharing studies of MSS connectivity to IMT UE
  WP 5D - IMT operational characteristics for sharing studies, regulatory limits and protection measures

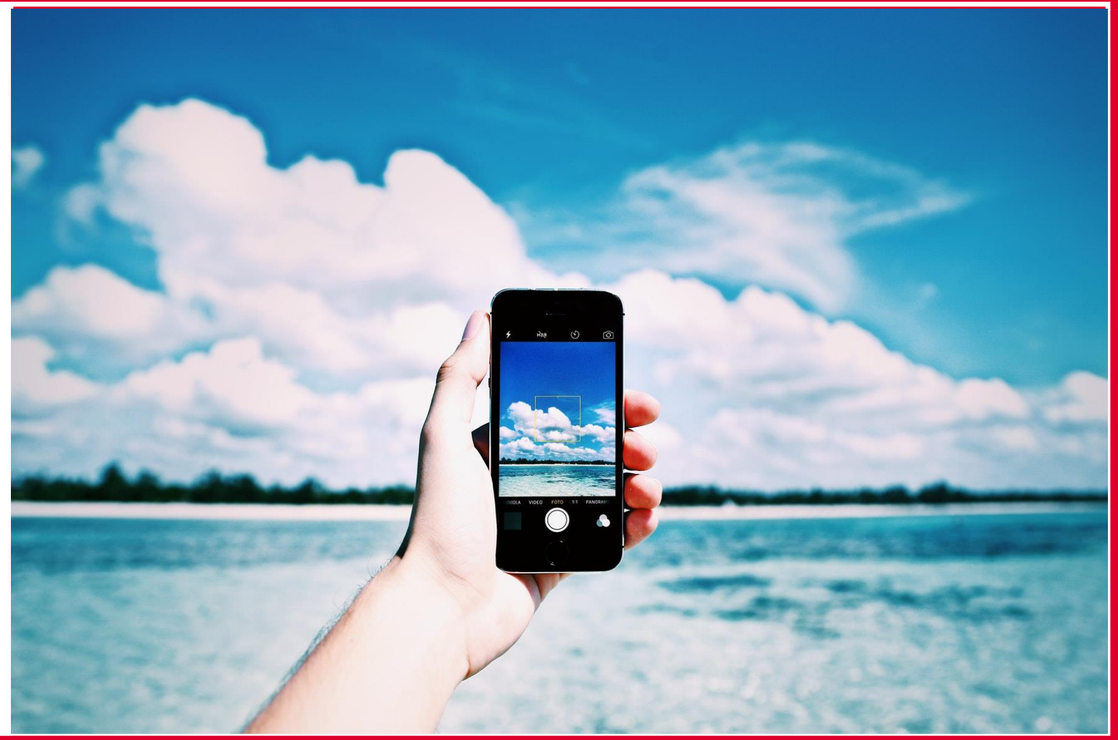
Early Regulation on D2D

- United States, Canada, Australia

Uplink (MHz)	Downlink (MHz)
807-849	852-894
880-915	925-960
832-862	791-821
698-716	716-746
776-798	746-768
698-748	753-803
1 427-1 470	1 475-1 518
1 920-1 980	2 110-2 170
1 710-1 785	1 805-1 880
1 850-1 920	1 930-2 000
1 710-1 780	2 110-2 180
2 000-2 020	2 180-2 200
2 010-2 025	1 880-1 920
2 305-2 320	2 345-2 360
2 500-2 570	2 620-2 690

D2D Regulation Requirements

1. Defining the roles of SNO and MNO
2. Defining the rules to resolve interference
3. Cross-border agreements
4. WRC-27 coexistence studies



Thank you!

IMT Spectrum Expansion

Under Agenda Item 8, administrations can add their name to existing RR 2024 Footnotes

Low Bands – 600 MHz

- 5.308A: 614-698 MHz in R2*

3.5 GHz Harmonisation

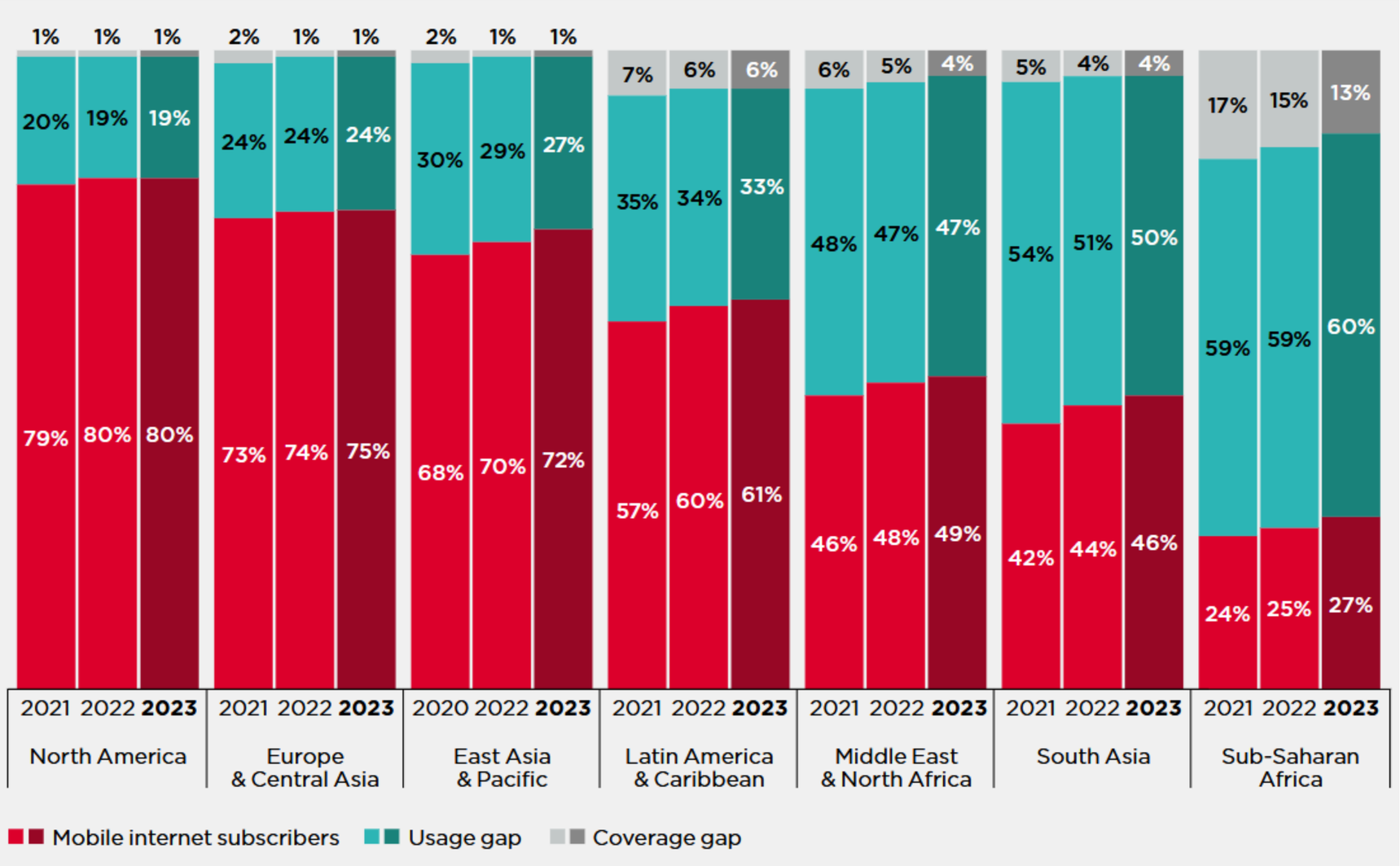
- 5.429D: 3 300-3 400 MHz, R2
- 5.434: 3 600-3 700 MHz, R2
- 5.435B: 3 700-3 800 MHz, R2*

6 GHz Capacity

- 5.457F: 6 425-7 125 MHz, R2*

*Some countries

Connectivity by Region

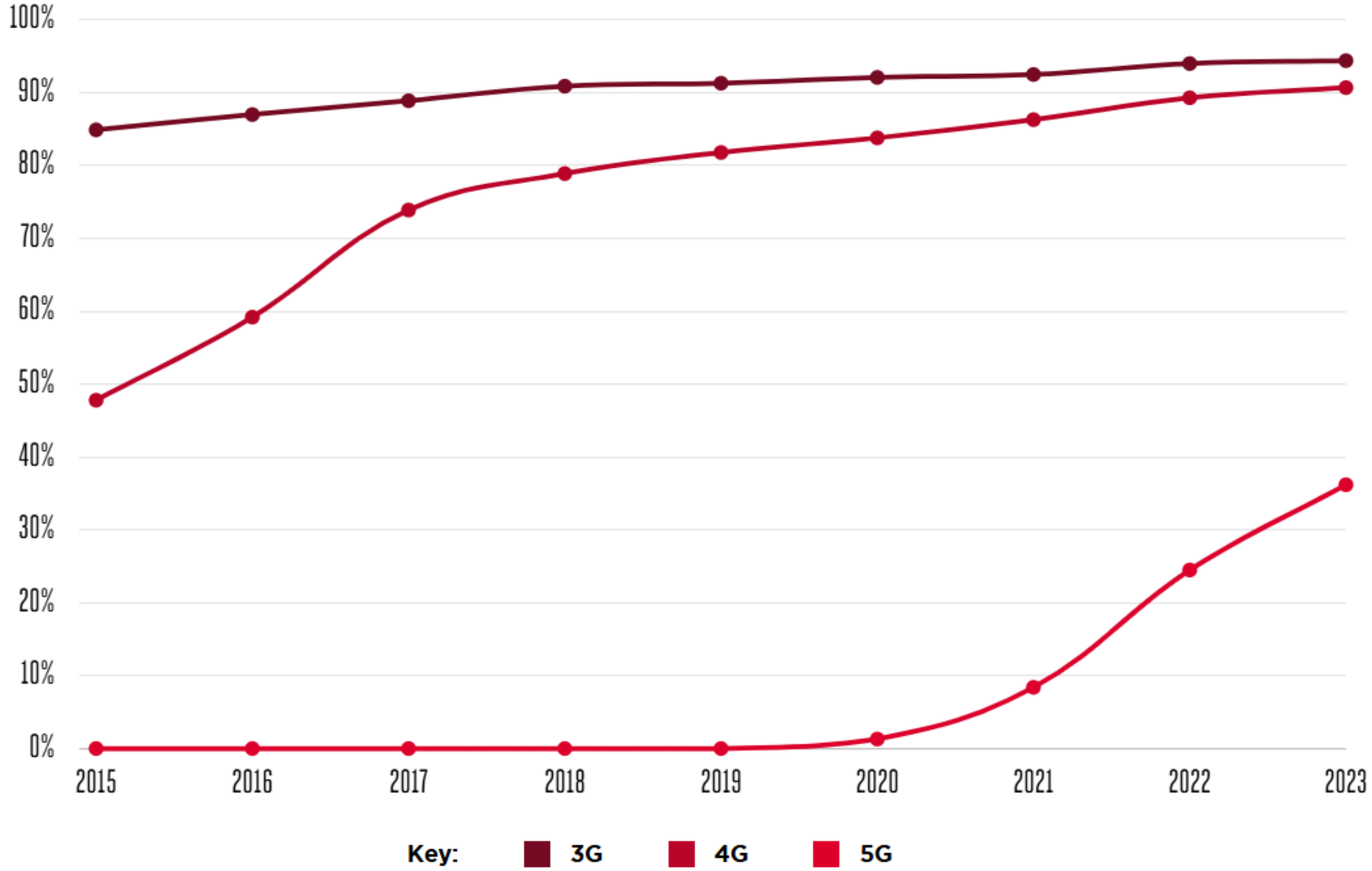


- Connectivity varies substantially between and within regions
- Globally there is a 4% of coverage gap and 39% usage gap while 57% population is connected

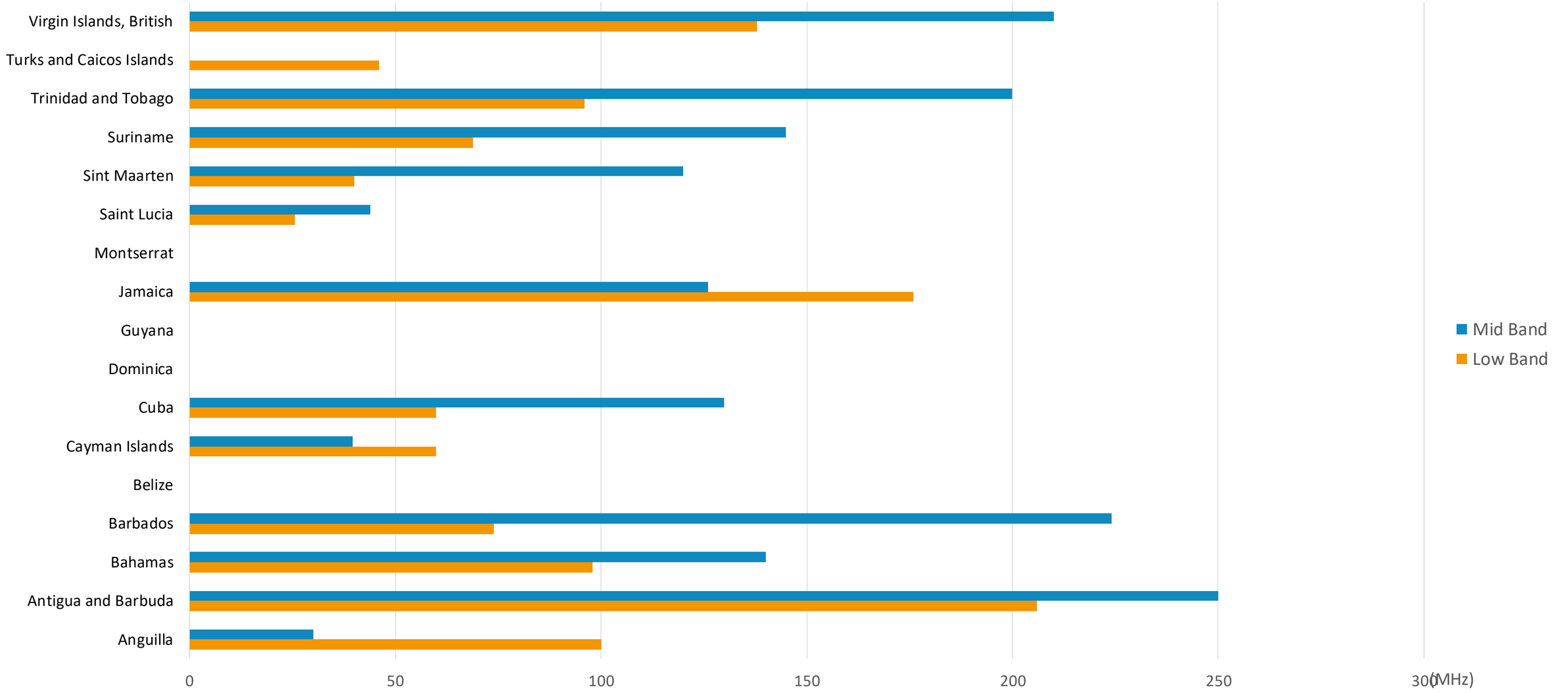
Source: The State of Mobile Internet Connectivity 2024
https://www.gsma.com/r/somic/

Latin America and Caribbean 5G Coverage

- Nearly all the Region is covered by 3G and 4G (94% and 90% respectively)
- 5G coverage has expanded significantly over the last two years increasing from 8.4% to 36.2%
- In the Caribbean, 20% of countries have deployed 5G.
- Average download speeds have significantly increased since the introduction of 5G, reaching 25 Mbps in 2023.



Spectrum Assigned



Source: GSMA Intelligence