

5G and spectrum plans in the Americas, award approaches

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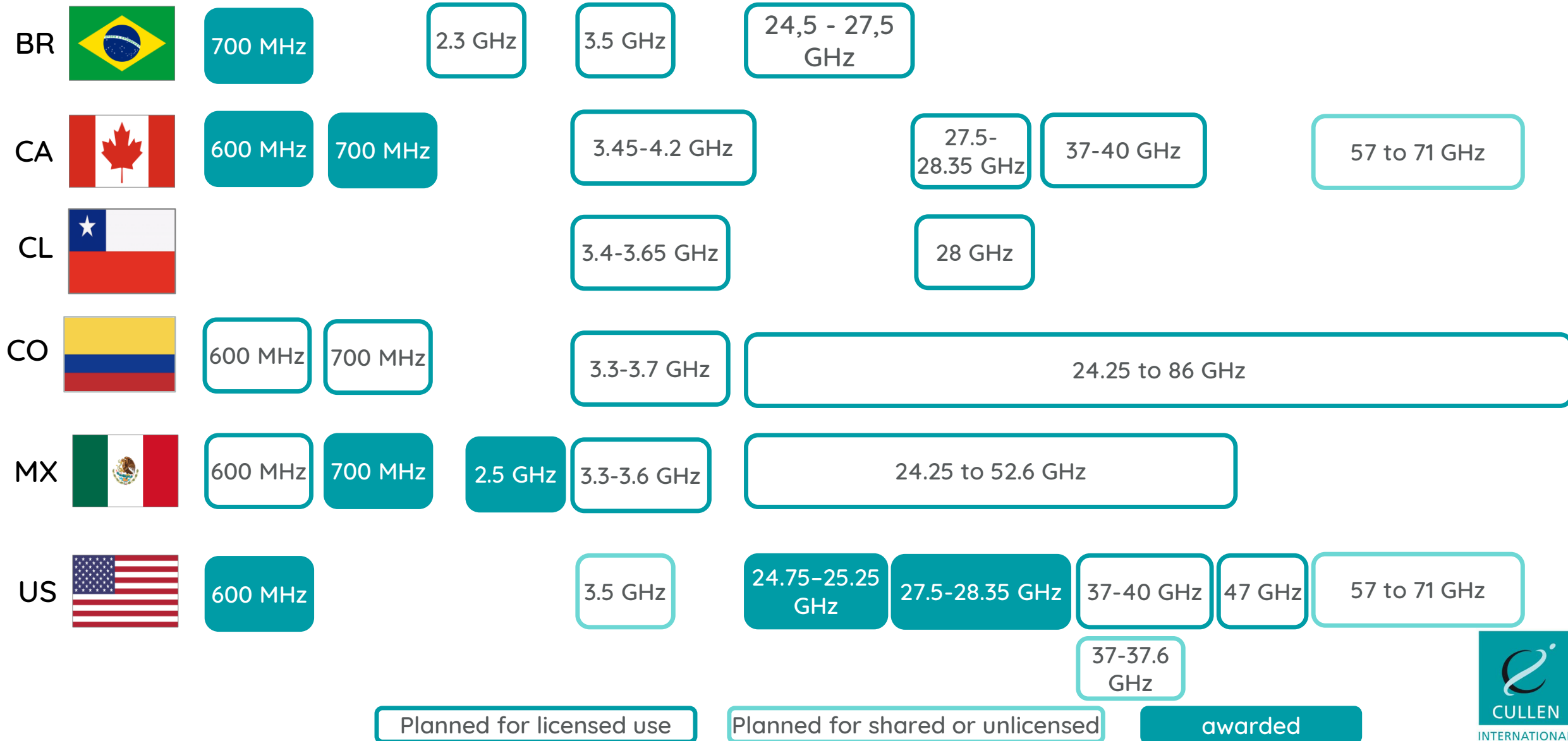
31 October 2019

Buenos Aires, Argentina

5G potential capabilities and applications

5G feature	Expected 5G performance	Applications of 5G
Enhanced Mobile Broadband (eMBB)	Speeds faster than 10 Gbps	Virtual reality, 8K Ultra High Definition televisions, UHDTV streaming
Low latency	1 millisecond (ms)	Instant response time, enabling remote surgery, connected cars, smart factories and robotics, detection of faults in energy grids...
Massive Machine to Machine Communication (mMTC)	Serving 1m devices per km ² simultaneously	Enabling the internet of things (IoT)
Flexible applications	Wide application of network function virtualization (NFV) and software-defined networks (SDN)	Ability to accommodate different business models with different requirements by industrial users
Flexible spectrum use	Combination of licensed and unlicensed bands	Tailor-made connectivity offers

5G bands: plans and consultations in the Americas



Main spectrum bands: release dates

600 MHz

Country	Expected award	Proposed release
Argentina	Undecided	2021
Canada	April 2019	Mid 2019
Colombia	Undecided	Undecided
Mexico	Undecided	Available
United States	March 2019	2021-2022










3.4-3.7 GHz

Country	Expected award	Proposed release
Argentina	Undecided	2022
Brazil	2H 2019	Undecided
Canada	Undecided	2020-2022
Colombia	Undecided	In process to free the band
Mexico	Undecided	Under analysis

Upper bands

Country	Expected award	Proposed release
Argentina	Undecided	2023
Canada	Undecided	Undecided
United States	28 GHz: Jan. 2019 24 GHz: April. 2019 Upper 37 GHz, 39 GHz, and 42 GHz: Dec. 2019	28 GHz: Nov. 2019 24 GHz: Undecided

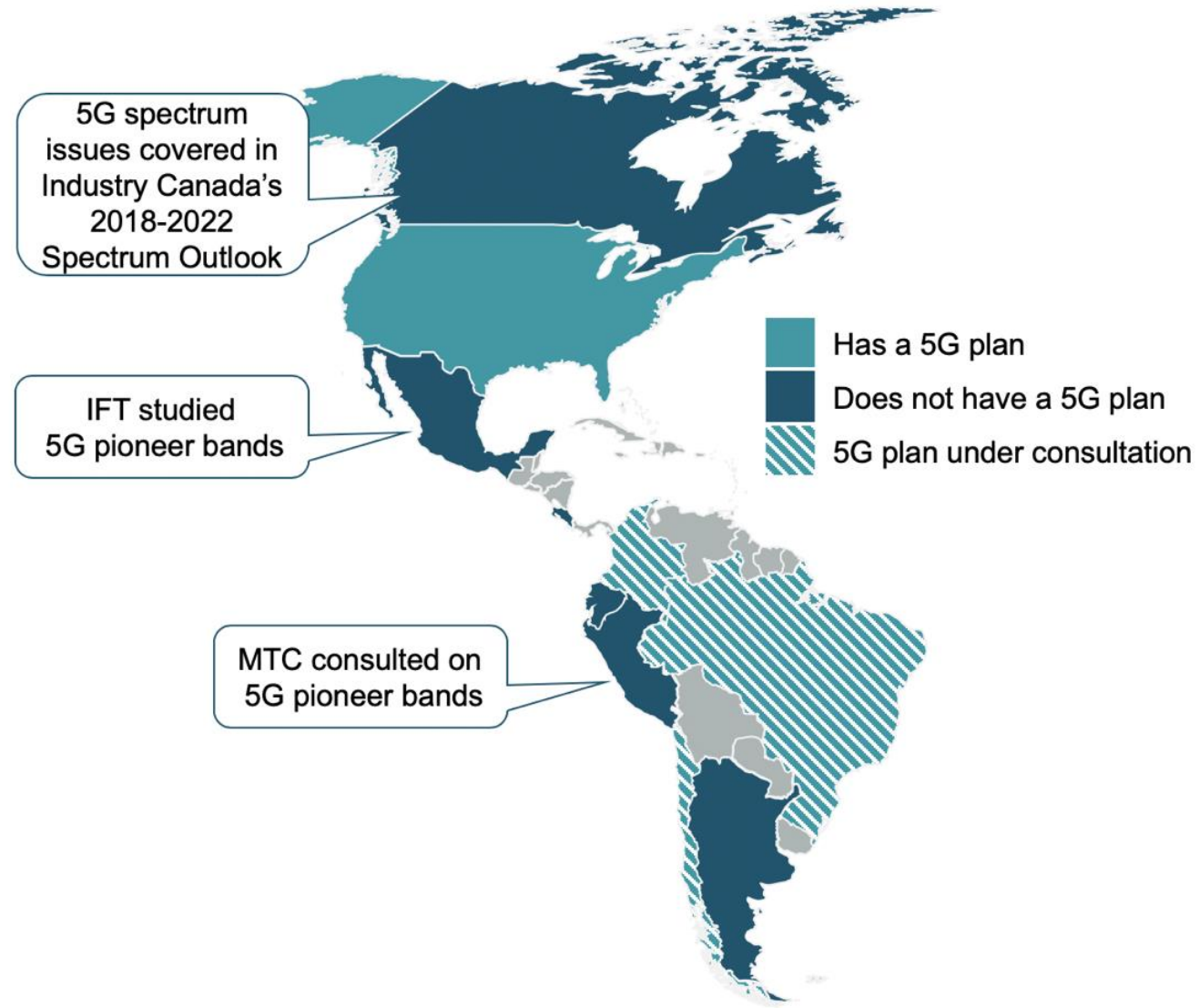
Spectrum awards announced

AR		BR		CL		CO		EC		MX		PE		CA		US	
450 MHz																	
700 MHz		700 MHz		700 MHz		700 MHz		700 MHz								800 MHz	
AWS				AWS						AWS		AWS					
1900 MHz						1900 MHz											
		2.3 GHz				2.5 GHz		2.5 GHz		2.5 GHz		2.3 GHz					
		3.5 GHz		3.5 GHz				3.5 GHz							3.5 GHz	mmWave	
		mmWave		mmWave											mmWave		

Challenges on new 5G awards

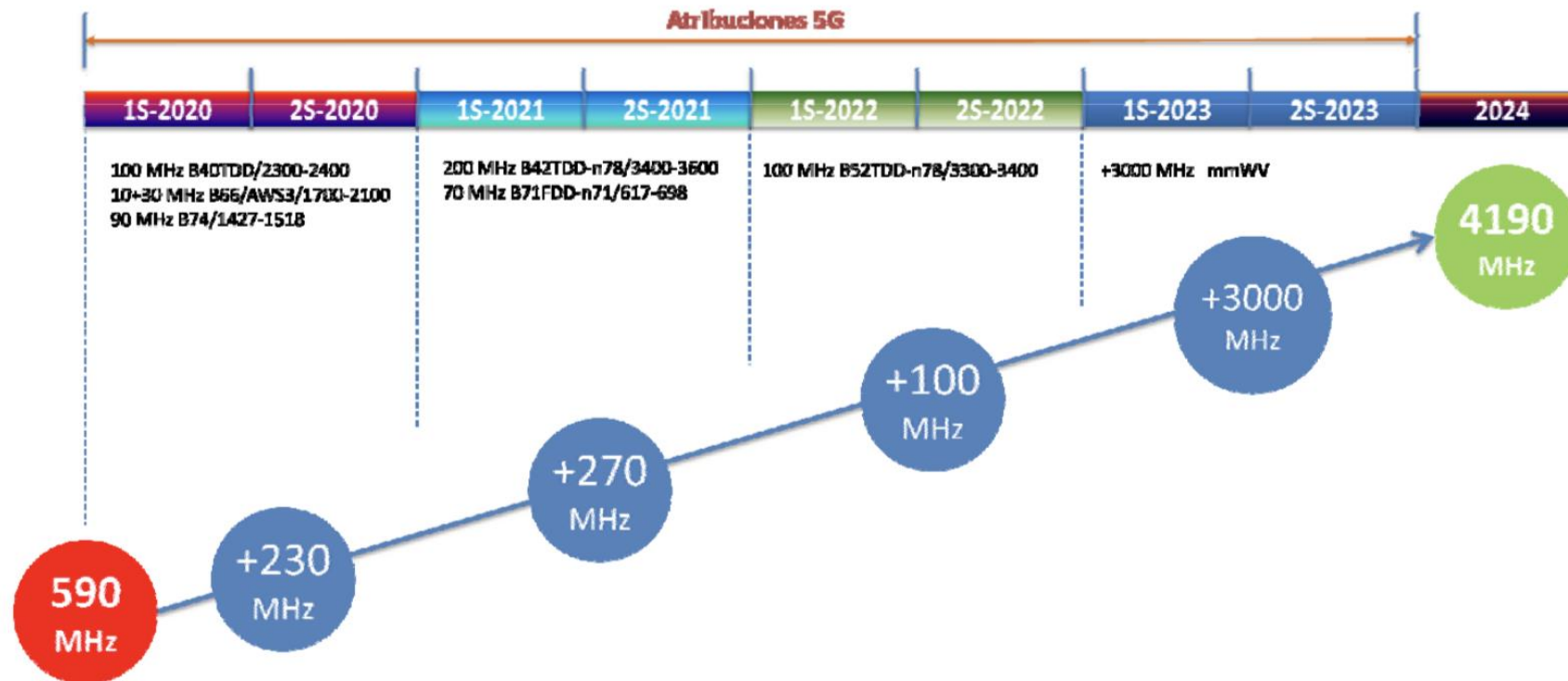
- Design of the award
- Local or national licences
- Different approaches for urban and rural areas
- Detail spectrum roadmap to provide certainty

5G plans in the Americas



VII. Hoja de ruta para la disponibilización de espectro

- More spectrum: roadmap to assign spectrum by 2021





- More spectrum: Anatel consulted until 15 Sep. 2018 on allocating the 2.3 and 3.5 GHz bands for mobile services (auction by the end of 2019).
- Licensing and taxation frameworks to accelerate the adoption of 5G services
- Developing local applications and network equipment for 5G services
- promote trust and security in 5G networks and services

Canada

Mainly spectrum:



Canadian auction of the 600 MHz band raises US\$ 2.6bn

16 April 2019 - Carolina Limbatto

- 600 MHz awarded
- Release of mmWaves:
 - 28 GHz (27.5-28.35 GHz) for flexible and mobile use
 - 64-71 GHz for licence-exempt use



- More spectrum
- Identify the technical and regulatory challenges related to the deployment of 5G
- Promote the demand of 5G-related services; and
- Simplify and update regulatory and policy frameworks.



Colombia

ANE consulted on:

- low and mid bands identified for International Mobile Telecommunications (IMT – ITU's name for the 3G/4G/5G technologies) during the World Radiocommunication Conference 2015;
- high bands to be discussed for IMT identification during the next World Radiocommunication Conference (WRC-19), which will be held from 28 October to 22 November 2019; and
- the 28 GHz spectrum band.

- More spectrum: 150 MHz in the 3.5 GHz band and 850 MHz in the 28 GHz band
- Award design and mitigation of interference with satellite in the 3.5 GHz and 28 GHz bands
- ID services, applications and industries that will use of 5G
- Access to passive infrastructure, infrastructure sharing agreements and national roaming for 5G
- QoS and net neutrality in the context of 5G services
- Network security requirements for 5G service provision



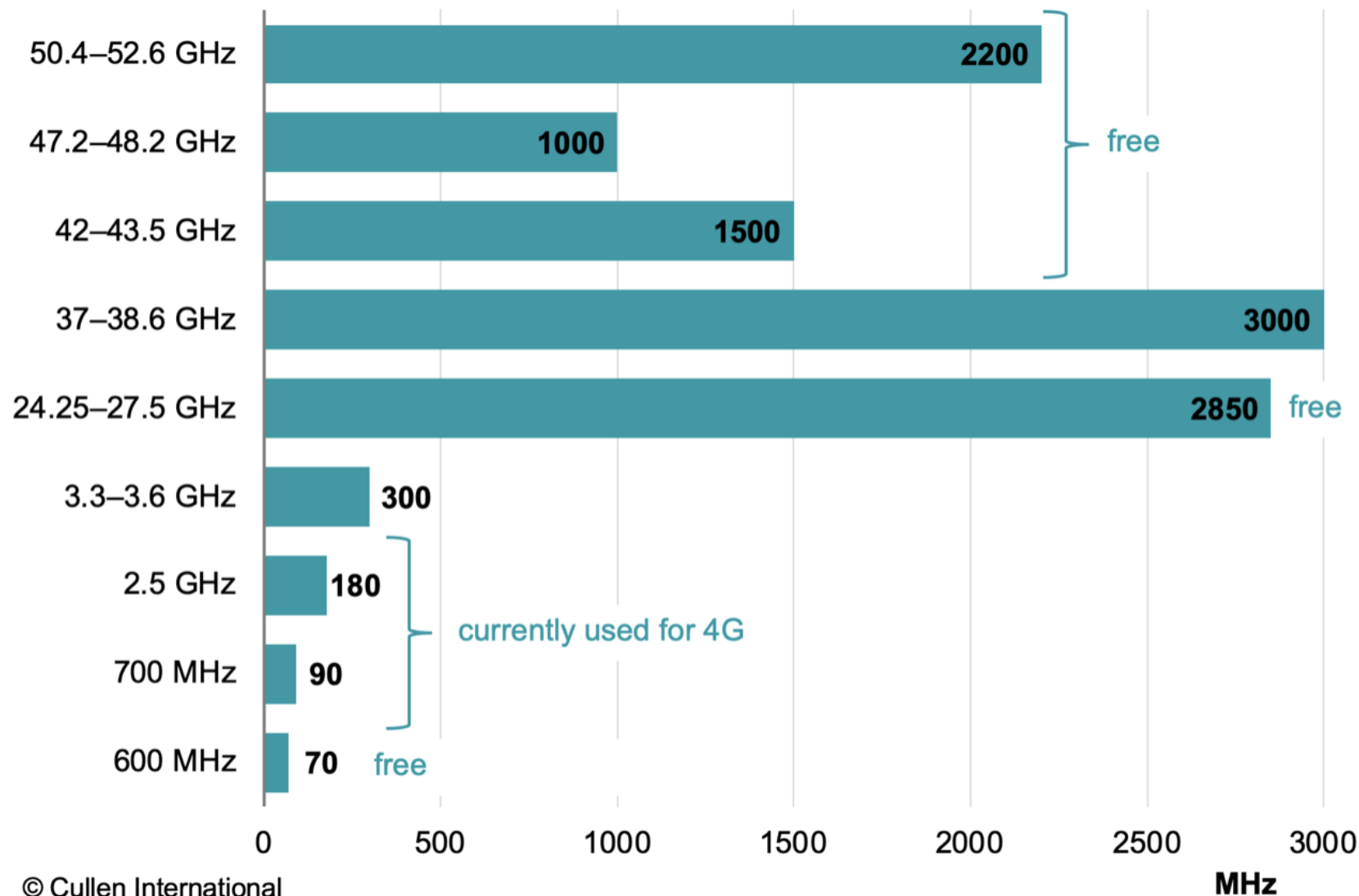
Mintel announced that:

- 3.5 GHz band to be tendered in 2020
- New rules for the award of 700 MHz and 2.5 GHz bands by Nov. 2019



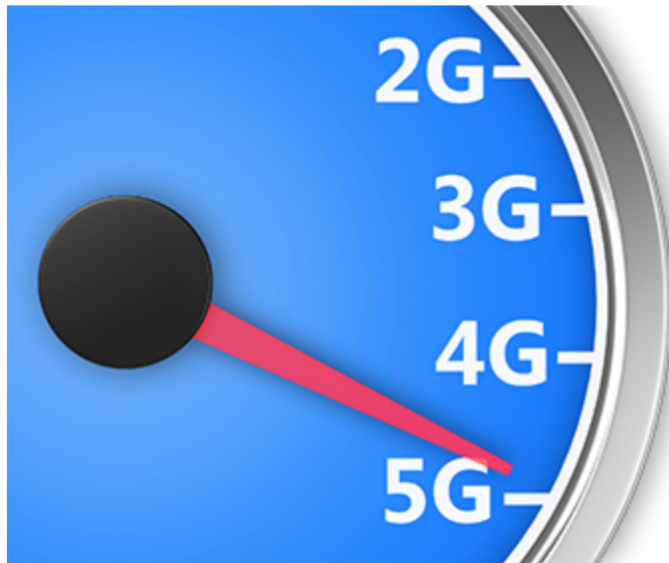
IFT spectrum unit identifies 5G spectrum bands for Mexico

12 April 2019 - Carolina Limbatto



5G in the US: first strategy adopted in the Americas

Leading the World Toward a 5G Future



The United States is moving swiftly to lead the world in the next generation of wireless connectivity—or 5G. These new networks and technologies will enable faster speeds and low-latency wireless broadband services, cultivating the Internet of Things and innovations not yet imagined.

Under Chairman Pai, the FCC is pursuing a comprehensive wireless strategy to ensure that the U.S. will lead the world in the deployment of next-generation wireless technologies.

"Forward-thinking spectrum policy, modern infrastructure policy, and market-based network regulation form the heart of our strategy for realizing the promise of the 5G future." – FCC Chairman Pai



FCC 5G Fast Plan

- Low band: 600 MHz assigned (changes in 800 and 900 MHz)
- Mid band: exploring 2.5 GHz, 3.5 GHz, and 3.7-4.2 GHz
- High band: 24 and 28 GHz in 2018 | 37 GHz, 39 GHz, and 47 GHz in 2019 | 26 and 42 GHz timing undefined

Spectrum

Wireless infrastructure

- Traditional cell towers
- Small cell deployment
- Regulated fees for deployment

- Encourage investment
- One-Touch Make-Ready
- Restoring Internet Freedom order
- Supply Chain Integrity rules

Reducing regulatory barriers

USA: from plan to action

- 28 GHz and 24 GHz bands awarded
- Consultation to assign spectrum for 5G services in the upper 37 GHz, 39 GHz, and 47 GHz bands.

5G plans

Spectrum is a key element

Beyond spectrum:

- Infrastructure deployment
- Use and applications of 5G
- Network and terminal equipment
- Updated policy/regulatory framework: QoS, Neutrality, Cybersecurity, Privacy
- Detail spectrum roadmap to provide certainty



Thank you!

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