



"2019, Año del Caudillo del Sur, Emiliano Zapata"

**INSTITUTO FEDERAL DE TELECOMUNICACIONES
OFICINA DEL COMISIONADO MARIO GERMÁN FROMOW RANGEL
IFT/100/Pleno/OC-MGFR/012/2019**

Ciudad de México a 13 de junio de 2019

**PLENO DEL INSTITUTO FEDERAL DE TELECOMUNICACIONES
PRESENTE**

Me permito presentar el informe de mi participación en representación del Instituto y en calidad de ponente en "The 3rd Global Future Network Development Summit", patrocinado por "Chinese Academy of Engineering and the Nanjing Municipal Peoples's Government", del 21 al 23 de mayo de 2019, en Nanjing, China.

La Cumbre de Desarrollo de la Red Global del Futuro se realiza en Nanjing Jiangning Future Network Town. Esta cumbre reúne a cerca de 3000 representantes gubernamentales de alto nivel, operadores globales, proveedores de equipos, ejecutivos de negocios de Internet, expertos, académicos y personas reconocidas en el campo de las redes de telecomunicaciones.

En este evento se llevan a cabo discusiones técnicas sobre temas relevantes como los desafíos y las oportunidades actuales de las redes de telecomunicaciones, tecnologías de punta para la Red Global del Futuro, la reestructuración de los operadores y la transformación de sus redes, la construcción de instalaciones de prueba de la Red Global del Futuro y las redes industriales futuras y sus aplicaciones innovadoras. La mencionada cumbre se ha convertido en un evento de alto perfil en el campo de la Red Global del Futuro.

La Cumbre de Desarrollo de la Red Global del Futuro también sirve como una plataforma para mostrar logros científicos y tecnológicos de vanguardia y se presenta como un catalizador para la innovación colaborativa en el campo de la Red Global del Futuro.

La participación del suscrito fue conforme a lo siguiente:

I. Reunión con especialistas de la GSMA.

Insurgentes Sur 1143,
Col. Nochebuena, C.P. 03720
Demarcación Territorial Benito Juárez,
Ciudad de México.
Tels. (55) 5015 4000

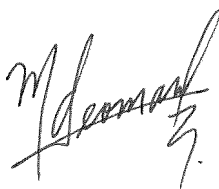
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- II. Realización de la Conferencia Magistral "5G Spectrum Availability for Mobile Services".
- III. Participación en el Foro "5G Intelligent Connectivity: Network Transformation".
- IV. Visita técnica al "China Mobile JiangSu 5G Experience Centre" y a su Centro de Control de Red.

Con la participación en este evento se cumplió con el propósito de generar vías de cooperación o áreas de influencia conjunta con autoridades de organismos reguladores, representantes de la industria, entidades de gobierno y académicos de otros países sobre temas en el ámbito de competencia del Instituto.

Se anexan el programa donde aparece la Conferencia Magistral y el Foro mencionados, así como la presentación utilizada.

ATENTAMENTE



M. en C. MARIO GERMÁN FROMOW RANGEL
COMISIONADO

Main Forum Agenda

10:20-17:00, May 22

Ballroom A, 3rd Floor, Holiday Inn Nanjing Qinhuai South

The 3rd Future Network Development Conference Agenda		
Host: Sun Ninghui, Director of the Institute of Computing Technology, Chinese Academy of Sciences		
Time	Keynote Report	Speaker
10:20-10:35	Build Future Network Test Facilities, Innovate China Network 2030	Liu Yunjie, Academician of Chinese Academy of Engineering
10:35-10:50	Reflection on the Network System Reform	Wu Hequan, Academician of Chinese Academy of Engineering
10:50-11:05	Network Reconfiguration, Empowering the Future	Liu Guiqing, Deputy General Manager and Member of CPC Organization, China Telecom Group Co., Ltd.
11:05-11:20	Join Hands to Create a New Era of 5G+ Intelligence	Li Zhengmao, Deputy General Manager and Member of CPC Organization, China Mobile Communications Group Co., Ltd.
11:20-11:35	5G Empowers Intelligent Society	Shao Guanglu, Deputy General Manager and Member of CPC Organization, China United Network Communications Group Co., Ltd.
11:35-11:50	To be determined	Wang Jian, Chairman of Alibaba Technology Steering Committee
11:50-12:00	Global Mobile Impact in the 5G Era	Henry Calvert, Senior Director, Head of Future Networks, GSMA, London
12:00-12:10	5G Spectrum Availability for Mobile Services in Mexico	Mario Germán Fromow Rangel, Commissioner, IFT - Federal Institute of Telecommunications, Mexico
Buffet Lunch		
Host: Wang Wenbo, Vice President of Beijing University of Posts and Telecommunications		
13:30-13:45	Full-dimensional Definable Multimodal Smart Network	Wu Jiangxing, Academician of Chinese Academy of Engineering
13:45-14:00	New Infrastructure Construction Launches a New Era of Intelligent Interconnection	Li Junqi, Chairman of Foxconn Industrial Internet Co., Ltd.
14:00-14:15	The disappearing Internet	Serge Fdida, Vice President, Sorbonne University
14:15-14:30	Reflection on Information Security in the Era of Industrial Internet	Chu Jian, Founder of SUPCON Technology Group, Founder of Ningbo Industrial Internet Research Institute
14:30-14:45	The Orange view of 5G	François Jezequel, Head of ITsation, Procurement and Operators, Orange
14:45-15:00	Lao Tzu and the Internet, Confucius and Cybersecurity	Rod Beckstrom, CEO of the Rod Beckstrom Group Founding Director of the U.S. Government's National Cybersecurity Center, Former President and CEO of ICANN
15:00-15:15	Future Network, Building a Digital World of IoE (Internet of Everything)	Lu Qi, Vice President of Enterprise BG, Huawei
15:15-15:30	Ultimate 5G, Future Network	Zhu Yongtao, Senior Vice President of ZTE Corporation, President of Government and Enterprise BG
Coffee Break		
15:30-17:00	Roundtable Forum	
	Forum Topic: New Network Drives Industrial Transformation and Social Progress	

GSMA Sub-Forum
5G Intelligent Connectivity: Network Transformation
Agenda

14:00 – 17:10 May22nd,2019
 Multifunctional Conference Room 306, Technology Innovation Service Center,
 Nanjing Future Network Town

Host: Kevin Pang, Head of Strategic Engagement, China, GSMA			
1. Opening Speech			14:00-14:05
A 5G Guide	Henry Calvert	Global Head of Future Networks,GSMA	14:00-14:05
2. Keynote Speech: Creating Value in Enterprise Market in the 5G Era with Network Leap			14:05-15:30
5G is Arrived,The Future is Coming	Zhao Lijun	Deputy Head of the Preparatory Group of China Mobile (Chengdu) Industry Research Institute	14:05-14:20
Evolution and Practice of Network Reconfiguration Towards 5G	Chen Yunqing	President,China Telecom Corporation Limited Beijing Research Institute	14:20-14:35
5G+AI, Leading the New Future of Smart City	Zhu Changbo	President,China Unicom Smart City Research Institute	14:35-14:50
Pending	François Jezequel	Head of ITsation, Procurement and Operators,Orange	14:50-15:05
5G Readiness in the GCC Countries	Samer Fares	Director-Regulatory Affairs,Ooredoo Group	15:05-15:20
	Tea/Coffee Break		15:20-15:30
3. Panel Discussion			15:30-16:05
5G Business Opportunities and Readiness	William Tse	Head of Strategic Engagement, Hong Kong,Taiwan,Macau,GSMA	15:30-16:05
	Alejandro Navarrete Torres	Head of Spectrum Unit,IFT-Federal Institute of Telecommunications, Mexico	
	François Jezequel	Head of ITsation, Procurement and Operators,Orange	
	Samer Fares	Director-Regulatory Affairs,Ooredoo Group	
	Amr Hashem	Technology Director,MENA,GSMA	
4. Keynote Speech: 5G Terminal: Global Perspectives			16:05-16:20
	Jisu Park	Device Ecosystem Manager, Future Networks, GSMA	16:05-16:20
5. Panel Discussion			16:20-17:05
5G Terminal Readiness and Evolution	Henry Ge	Head of Strategic Engagement, Greater China, GSMA	16:20-17:05
	Cui Fang	Deputy Director Department of Technology,China Mobile Group Device Co., Ltd.	
	Guo Daqun	General Manager,Operator Tech Dept,Beijing Samsung Telecom R&D center	
	WU Junli	Director, Engineering,Qualcomm Wireless Communication Technologies (China) Limited	
	He Gang	Marketing Director,Quectel	
6. Closing Remarks			17:05-17:10
	William Tse	Head of Strategic Engagement, Hong Kong,Taiwan,Macau,GSMA	17:05-17:10

5G Spectrum Availability for Mobile Services in Mexico

May 22, 2019

Objective

IFT carried out an study to identify the frequency bands that are considered feasible for the deployment of fifth generation (5G) systems in Mexico, in accordance with:

- The current use of the radio spectrum in the country
- The planning of the radio spectrum
- Recommendations from international organizations
- International trends and best practices
- The relevance of spectrum in the introduction of new technologies

The Radio Spectrum Unit of IFT has identified, in the first instance, **nine susceptible frequency bands** for the deployment of 5G technology in Mexico

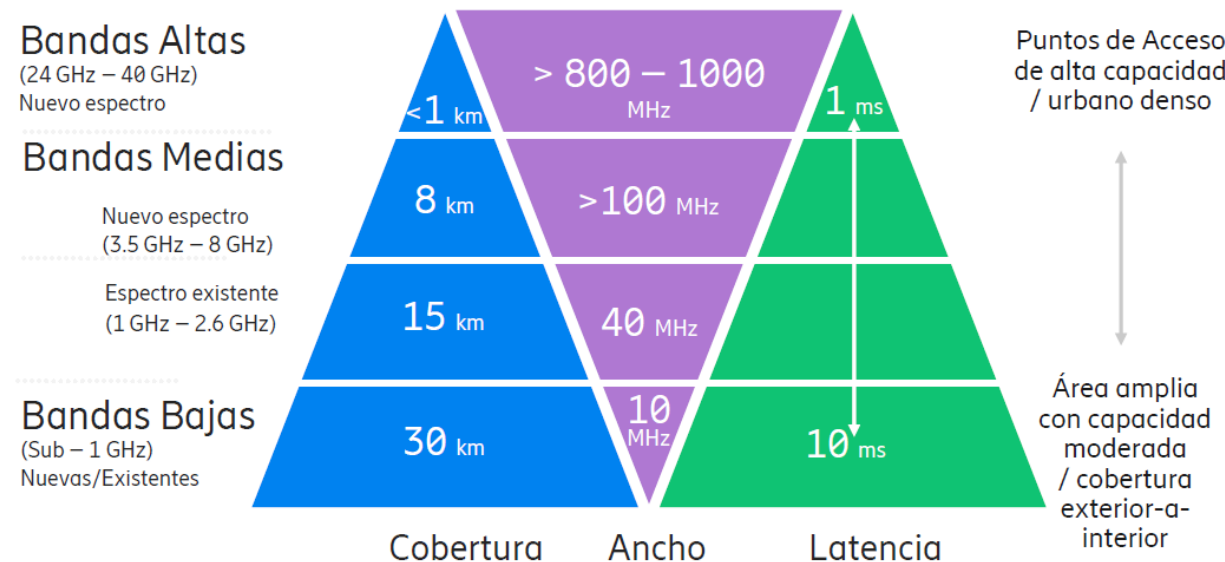


5G Spectrum bases for 5G systems

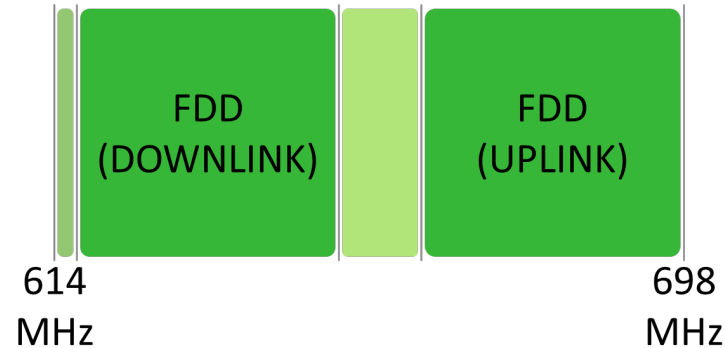
5G systems will require access to radio spectrum with particular and diverse characteristics, since they need to be flexible and heterogeneous in order to provide simultaneous connectivity to a wide range of applications that include autonomous or unmanned vehicles, massive IoT, virtual and augmented reality, and agro-industrial automated processes, among many others.

In this sense, the spectrum needed for 5G systems can be divided into three frequencies ranges that are commonly identified as:

- **Low bands (less than 1 GHz)**
- **Medium bands (between 1 and 6 GHz)**
- **High bands (above 6 GHz)**

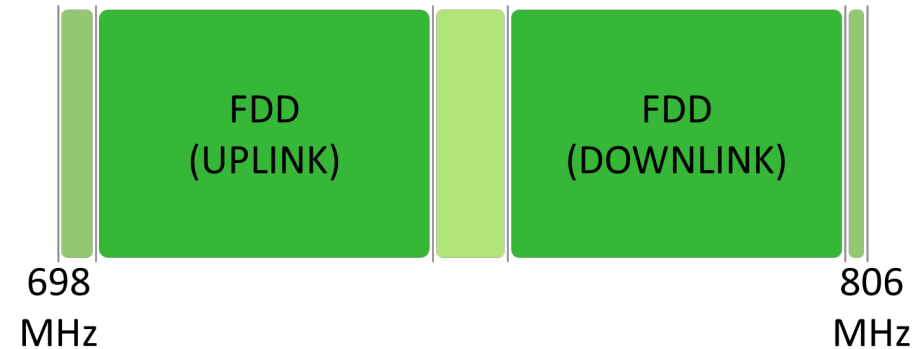


600 MHz band



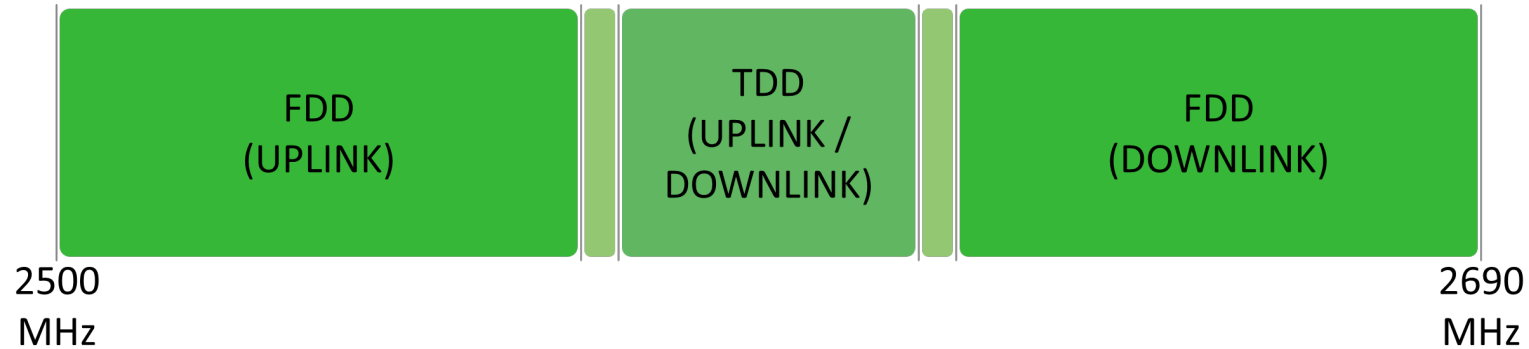
- Mexico is the first country in the world to have totally released this band
- It represents the Second Digital Dividend for Mexico
- 3GPP includes the standard in Band 71
- ITU proposes a FDD segmentation with the A12 arrangement
- 600 MHz band will allow to use 70 MHz (35 + 35 MHz)
- It will provide extensive coverage
- Currently, there are 4G systems that will migrate transparently to 5G systems

700 MHz band



- Used by the Wireless Wholesale Shared Network (Red Compartida Mayorista) in Mexico
- 3GPP includes the standard in Band 28
- ITU includes a FDD segmentation in the A5 arrangement
- 700 MHz band allows to use 90 MHz (45 + 45 MHz)
- It will offer services of extensive coverage and with sufficient bandwidths
- Currently, 4G systems are operating and it is expected that they will migrate transparently to 5G systems

2.5 GHz band



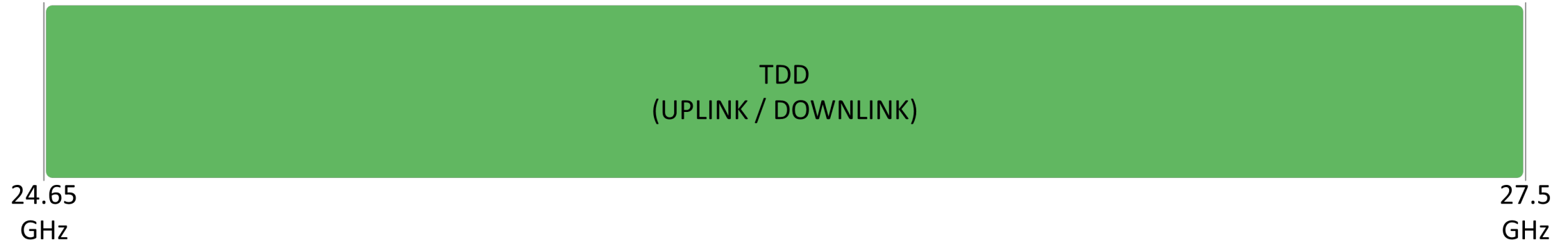
- 3GPP includes the standard in Bands 7 and 38
- ITU proposes a FDD and TDD segmentation in the C1 arrangement
- 2.5 GHz band allows the use 180 MHz
- It will provide a balance between capacity and coverage
- Currently, 4G systems are operating and it is expected that they will migrate transparently to 5G systems

3.5 GHz band



- First global frequency band with 5G ecosystem
- 3GPP includes the standards in Bands 42 and 52
- ITU proposes TDD segmentations in arrangements F1 and F3
- 3.5 GHz band will allow to use 300 MHz
- It will provide a balance between capacity and coverage
- Currently, there are wireless access systems (50 MHz at 3.3-3.35 GHz and 150 MHz at 3.4-3.6 GHz) and Fixed-Satellite Service systems at 3.4 - 3.6 GHz in Mexico
- It is considered that it will migrate transparently to 5G systems

26 GHz band



- Candidate band for global harmonization, it is expected that it will be identified as an IMT Band at WRC-19
- ITU proposes coexistence conditions with existing services
- 26 GHz band will allow to use 2,850 MHz
- It will provide high capacity
- It is considered as one of the main bands for 5G
- No users registration in this frequency band in Mexico at Present

38 GHz band



A horizontal bar representing the 38 GHz band. The bar is divided into three segments: a light green segment on the left, a dark green segment in the middle, and a medium green segment on the right. The text 'TDD (UPLINK / DOWNLINK)' is centered within the bar.

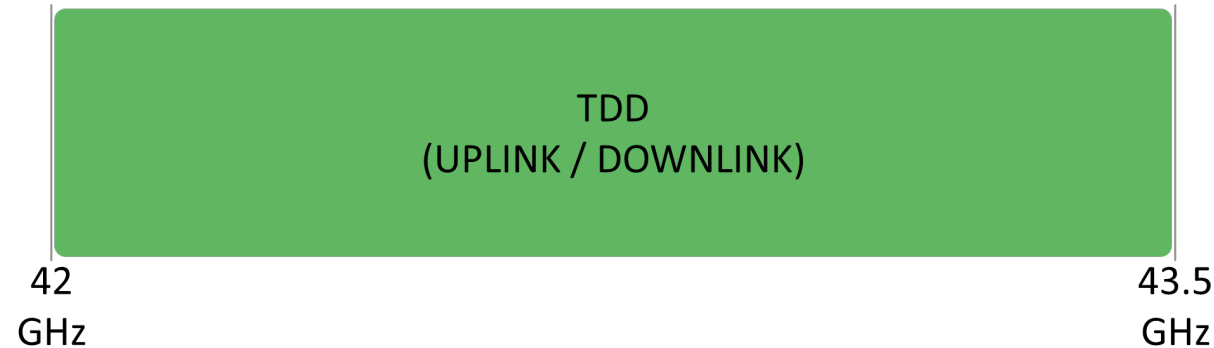
TDD
(UPLINK / DOWNLINK)

37
GHz

40
GHz

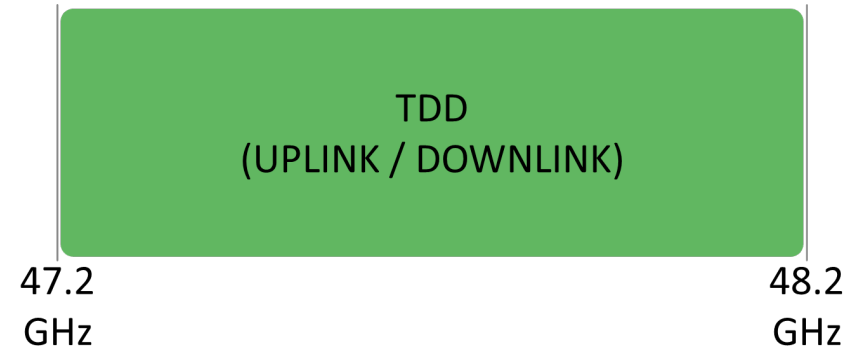
- Sufficient bandwidth, for example for 1 GHz bandwidth for 3 carriers
- ITU proposes coexistence conditions with existing services
- The 38 GHz band will allow the use of 3,000 MHz
- It will provide high capacity
- It is expected that it will be identified as an IMT Band at WRC-19
- The 37 - 38.6 GHz frequency range is licensed for capacity provision for point-to-point microwave links in Mexico

42 GHz band



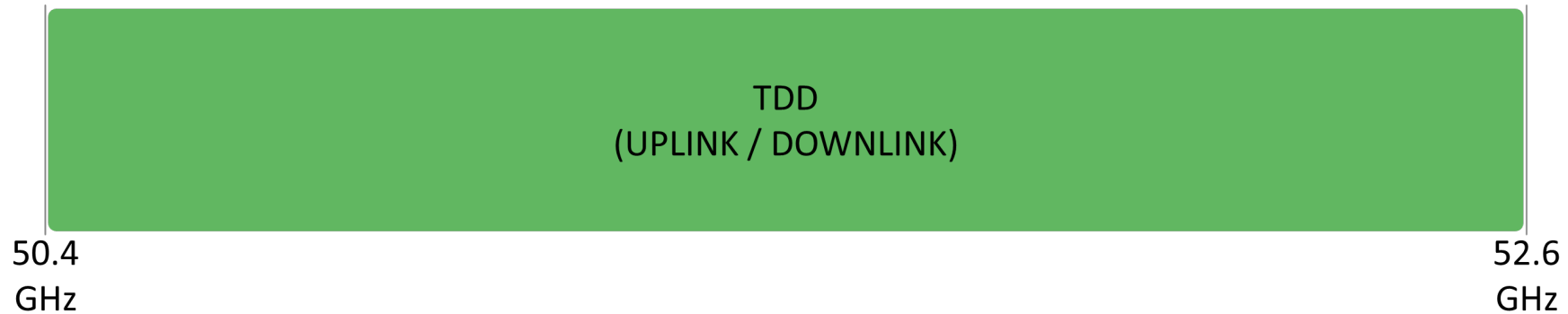
- Band with flexibility in the amount of spectrum provided
- ITU proposes coexistence conditions with existing services
- The band of 42 GHz will allow the use of 1,500 MHz
- It will provide high capacity
- It is expected that it will be identified as an IMT Band at WRC-19
- No users registration in this frequency band in Mexico at present

48 GHz band



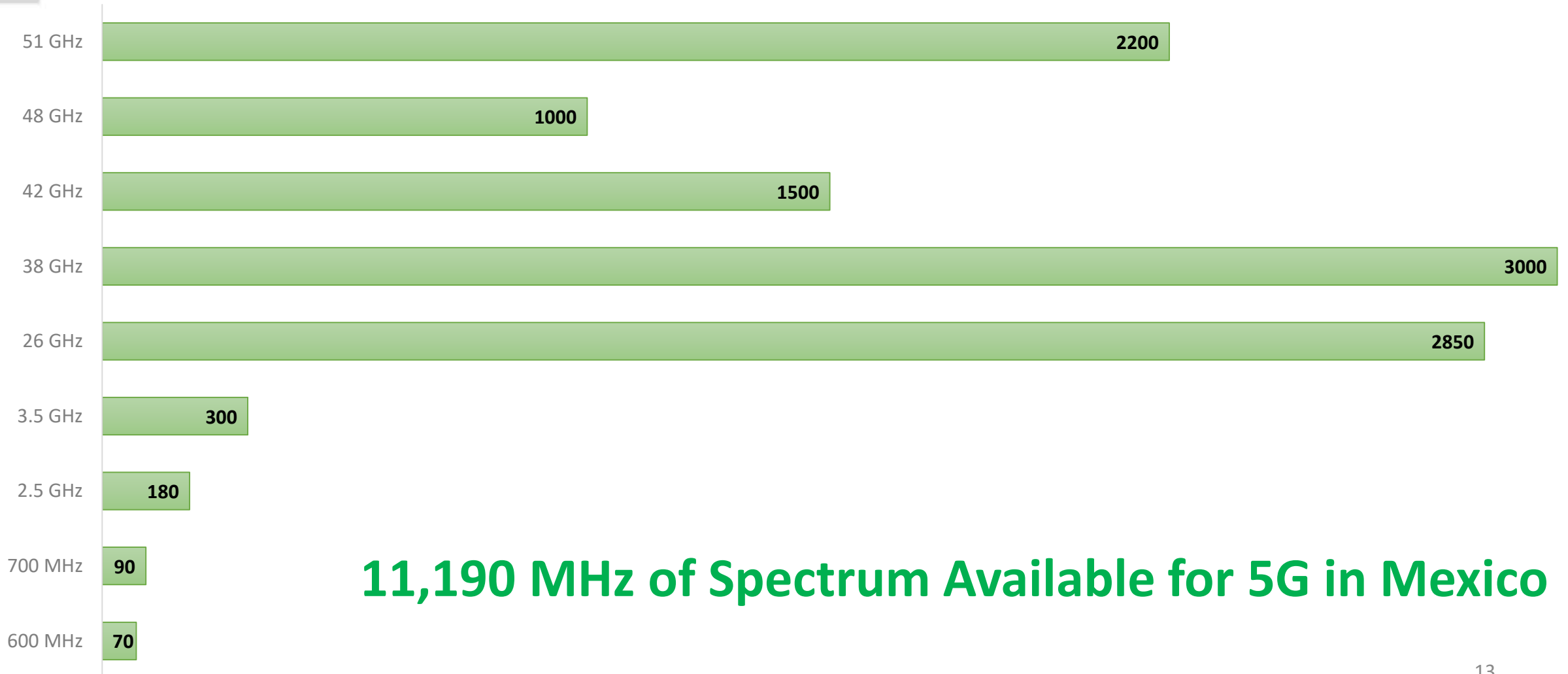
- Band with enough amount of spectrum
- ITU proposes coexistence conditions with existing services
- The 48 GHz band will allow the use of 1,000 MHz
- It will provide high capacity and low latency
- It is expected that it will be identified as an IMT Band at WRC-19
- No user registration in this frequency band in Mexico at present

51 GHz band



- Band with adequate amount of spectrum.
- ITU proposes coexistence conditions with existing services
- The 51 GHz band will allow the use of 2,200 MHz
- It will provide high capacity
- It is expected that it will be identified as an IMT Band at WRC-19
- Currently no users identified in this frequency band in Mexico

Summary



11,190 MHz of Spectrum Available for 5G in Mexico

Thanks for your attention