



COSTA RICA



SUPERINTENDENCIA DE
TELECOMUNICACIONES

Speaker:

Glenn Fallas Fallas
GENERAL MANAGER OF QUALITY

March 2023

Unlicensed frequency bands for WiFi

Addendum VII - NFAP



Frequency band	Frequency range	Max Transmitter Power (dBm)	EIRP (dBm)
2.4 GHz	2400-2500 MHz	30	36
5 GHz	5150-5350 MHz UNII-1, 2	24	30
5 GHz	5470-5925 MHz UNII-2 ext, 3, 4	30	36
6 GHz (LPI)	5925-7125 MHz UNII-5,6,7,8	24	30
6 GHz (VLP)		---	14

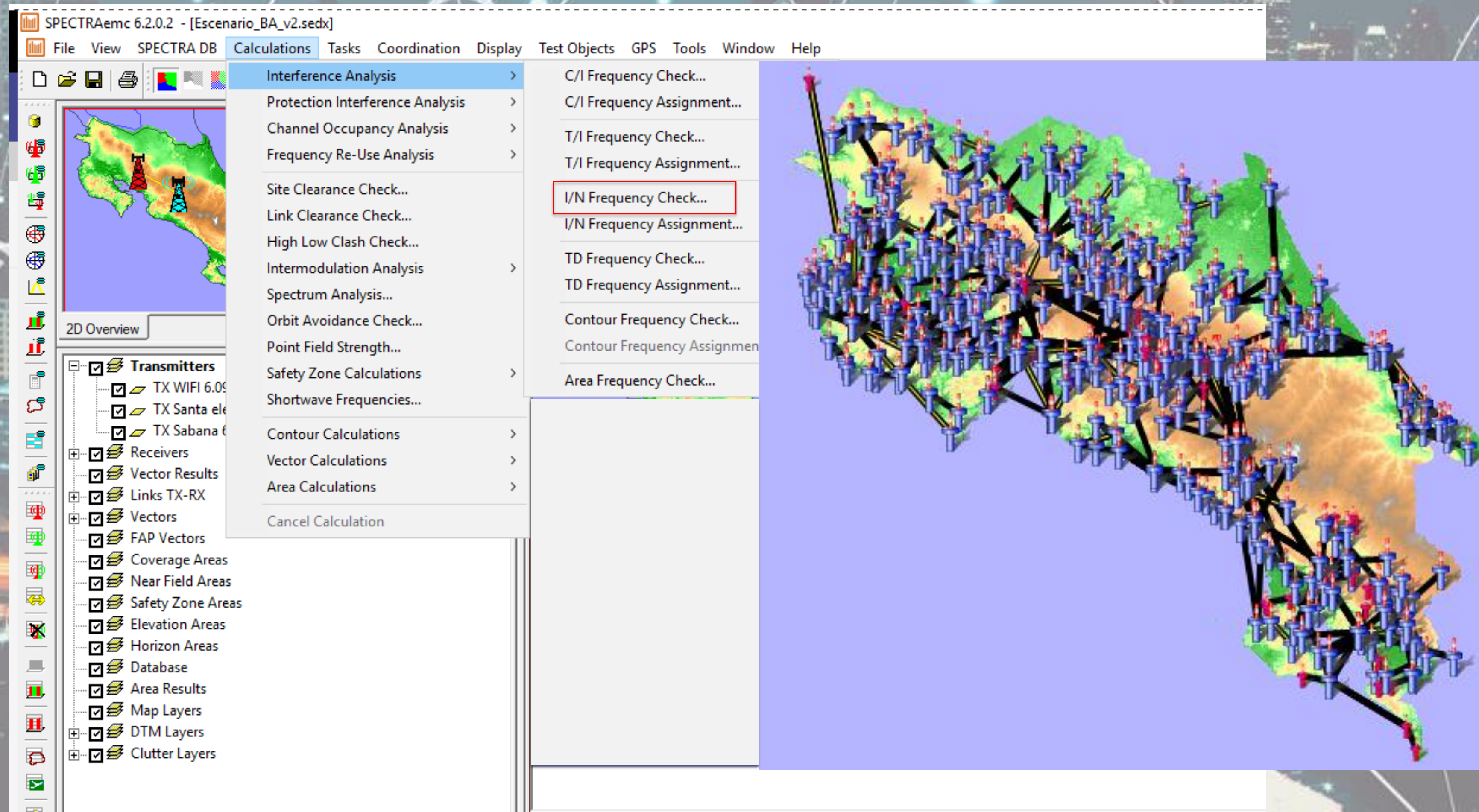
Technical operation conditions for 6GHz band

- **Fixed service**
 - Fixed links (**220**)
 - 5925-6425 MHz and 6425-7110 MHz
 - Long distance microwave links (minimum distances regulations)
- **Unlicensed**
 - 5925-7125 MHz
 - LPI: Low Power Indoor
 - **24dBm** - Transmitter max power
 - **30dBm** - EIRP
 - Restricted to indoor use, for RLAN and employ contention-based protocol
 - VLP: Very Low Power
 - **14dBm** - EIRP
 - Portable equipment
 - Indoor and outdoor use

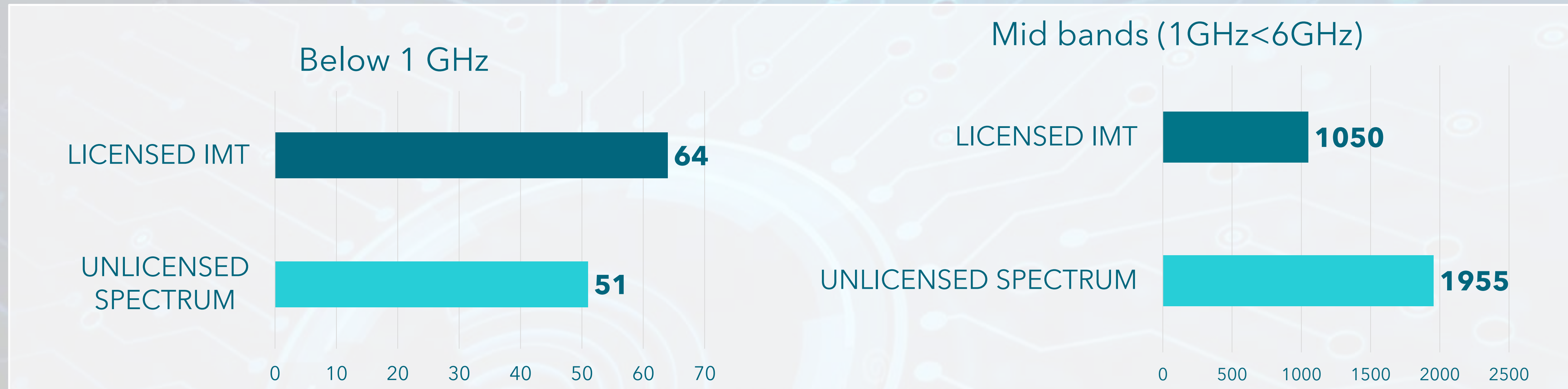


Standard Power Operation

- **Ongoing technical studies** for standard power operation, considering interference protection criterion of $I/N = -6$ dBm, as **FCC and ISED** established.



Balanced spectrum allocation



Allocation	Frequency band	Frequency range (MHz)
Licensed IMT	850 MHz	824-849 / 869-894
	900 MHz	895-902 / 940-947
Unlicensed	900 MHz	902-940 947-960

Allocation	Frequency band	Frequency range (MHz)
Licensed IMT	1400 MHz	1427-1518
	1800 MHz	1710-1785 / 1805-1880
	2100 MHz	1920-1980 / 2110-2170
	2300 MHz	2300-2400
	2.5 GHz	2500-2690
Unlicensed	3.5 GHz	3300-3700
	2.4 GHz	2400-2500
	5 GHz	5150-5350 5470-5925
	6 GHz	5925-7125

5G Auction Preparatory Report

Frequency band	Spectrum available	FDD / TDD
700 MHz	90 MHz	FDD
2300 MHz	100 MHz	TDD
3500 MHz	225 MHz *	TDD
26 GHz	1250 MHz	TDD
28 GHz	2000 MHz	TDD

- If possible, 75 MHz from 3625 MHz to 3700 MHz will be included in the auction.

- **Public Consultation on interest for IMT services development**
February 1 to 15 2023

“PUBLIC CONSULTATION ON INTEREST, DEMAND AND NEW APPLICATIONS FOR SPECTRUM BANDS DESTINED FOR IMT SERVICES DEVELOPMENT IN COSTA RICA”

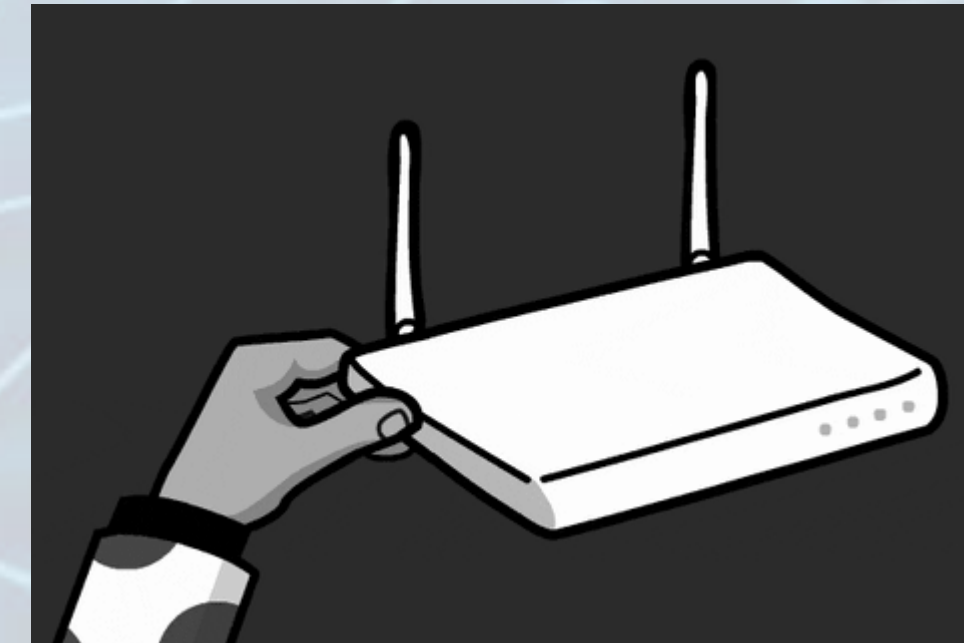
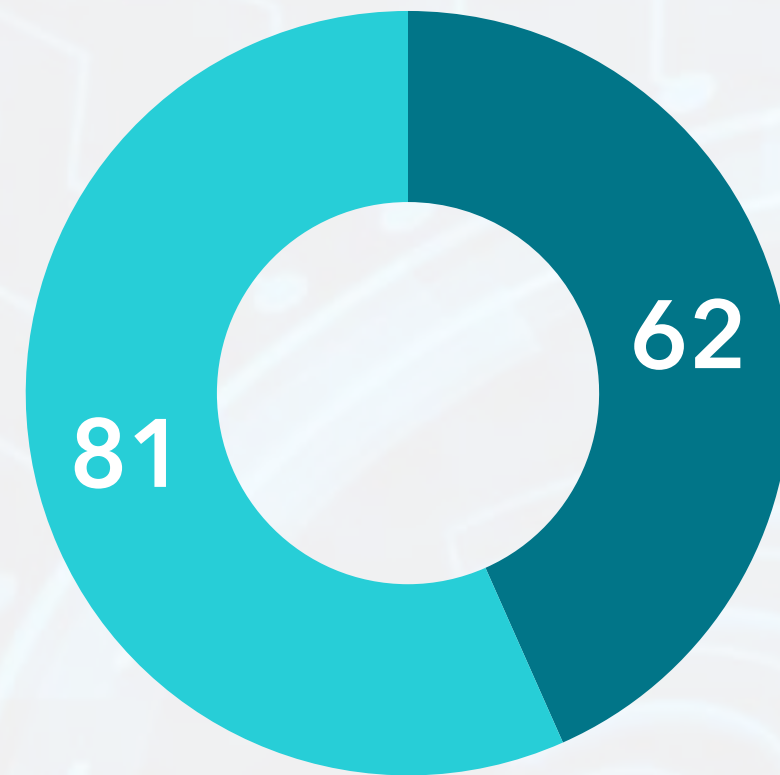
In accordance to subsection g) of article 2 of the General Telecommunications Act, Law 8642, which establishes the following objective: “g) To guarantee the efficient and effective allocation, use, exploitation, administration and control of the radioelectric spectrum and other scarce resources.”; subsection i) of article 3 of the same Act which establishes as a guiding principle the optimization of scarce resources defined as: “the allocation and use of scarce resources and telecommunications infrastructures in objective, timely, transparent, non-discriminatory and efficient manner, with the dual objective of ensuring effective competition in the market, as well as the expansion and improvement of the networks and services”; and in subsection f) of article 60 of the Regulatory Authority for Public Services Act, Law 7593, states that: “To ensure, in an objective, proportional, timely, transparent, efficient and non-discriminatory manner, access to the scarce resources associated with the operation of networks and the provision of telecommunications services”; this public consultation has the objective of collecting information and data regarding the market’s interest in spectrum assignment for IMT networks, spectrum demand and possible new applications in Costa Rica, for the following frequency bands¹:

- **Sutel auction preparatory report**
February 22

- There is competitive pressure for an IMT auction
- There are spectrum allocation asymmetries that have to be addressed
- The economies of scale of 2600 MHz spectrum are higher than the 2300 MHz
- The auction process should prioritize network development over money collection
- The auction process should be designed to reduce the asymmetries on IMT spectrum allocation

Wireless Internet Providers

Wireless Internet Providers (WISPs)

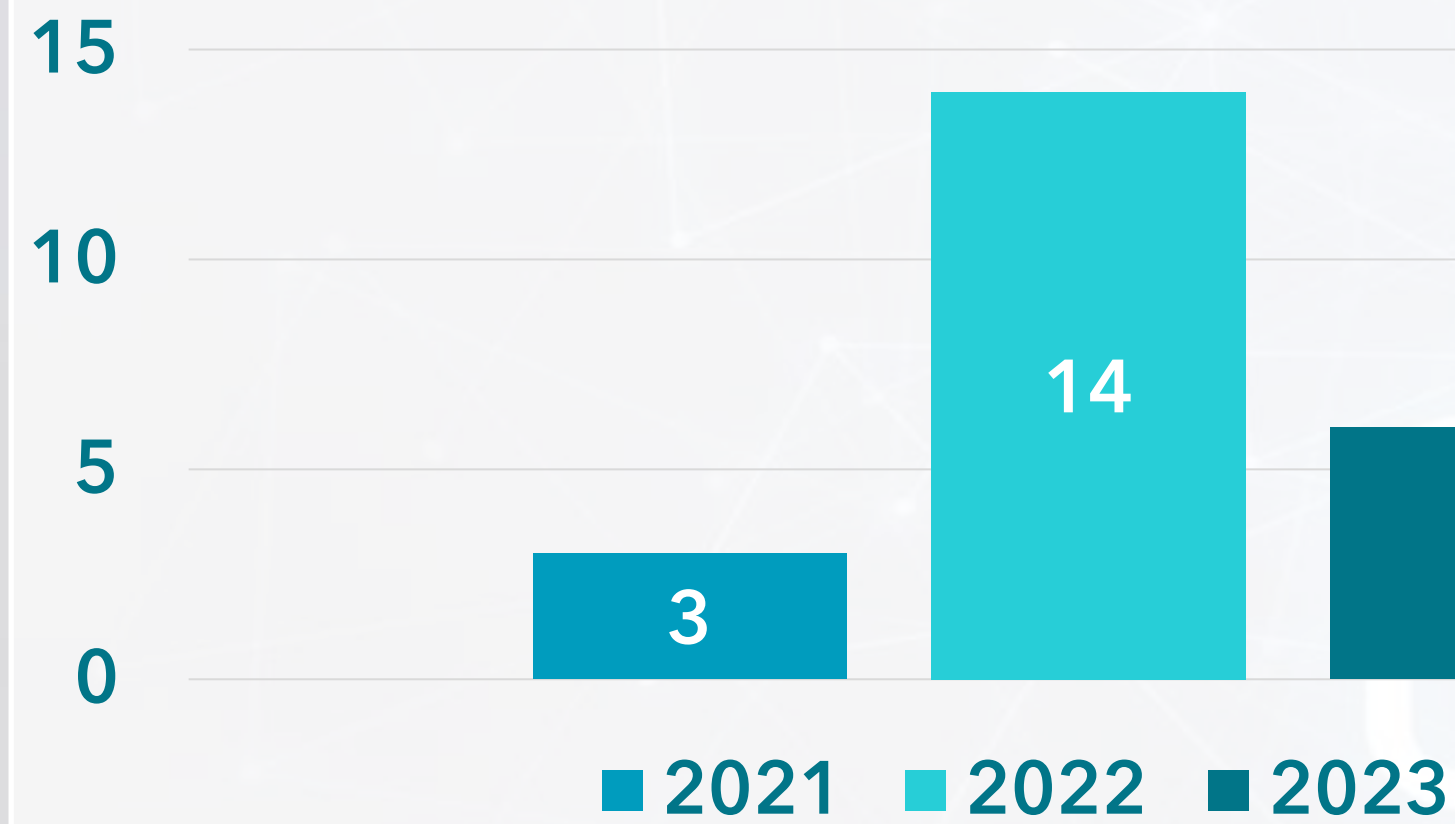


SUTEL reports **62 WISPs that only use unlicensed spectrum** (43% of total Internet service providers)

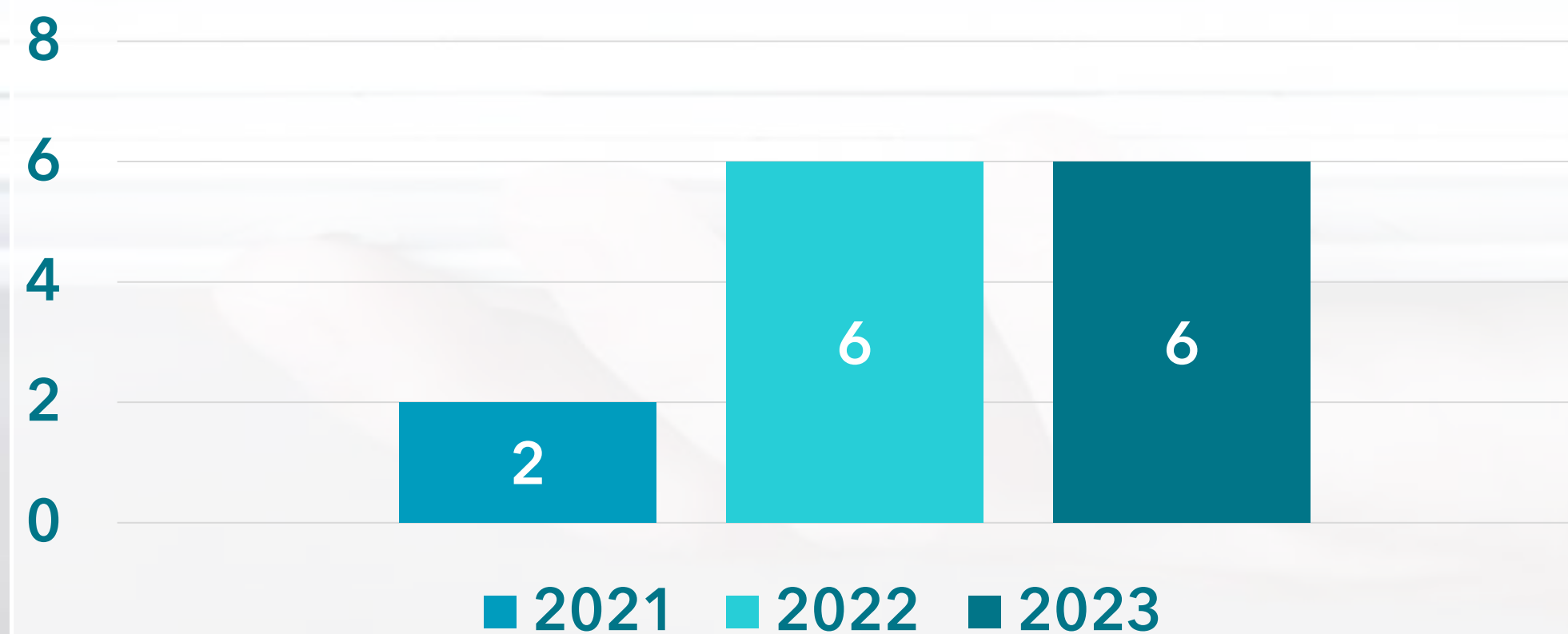
Sutel technical recommendations promote a balance between spectrum enabled for 5G and spectrum allocated for unlicensed bands, because we believe that both applications impact on the user experience, market development and country economy.

Type approval process

6 GHz unlicensed band equipment (Wireless routers and others)



Mobile user equipment supporting 6GHz band



Brands:

- Samsung
- Lenovo
- Intel
- MediaTek
- Aruba
- Ruckus
- Qualcomm
- Apple
- Cisco



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Glenn Fallas Fallas

GENERAL DIRECTOR OF QUALITY

Contact me:

glenn.fallas@sutel.go.cr



Thank You!

WiFi en Costa Rica

Marzo, 2023

