



USE OF RADIO SPECTRUM FREQUENCY GUIDE

SANTIAGO 2023

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1. INTRODUCTION

1.1 Santiago 2023

The Organizing Committee of the Santiago 2023 Pan American and Parapan American Games (Santiago 2023 hereinafter) is responsible for the planning, organization, and execution of the Santiago 2023 Pan American and Parapan American Games. The Organizing Committee works with Subsecretaría de Telecomunicaciones de Chile (Subtel) regarding all matters related to spectrum use, testing, labeling, and monitoring radio equipment. Subtel is a Chilean government entity responsible for radio spectrum management and, particularly, the planning and management of frequencies..

1.2 Objective

This document defines the spectrum management plan and clarifies the spectrum allocation conditions. To achieve this, it is necessary to anticipate the spectrum needs for developing the Santiago 2023 Pan American and Parapan American Games. This will prevent interferences between the wireless systems used by the Games clients and those already being used in the country.

In case of non-compliance with the rules outlined in this Guide, which correspond to national standards, the corresponding sanctions may be applied.

1.3 National Context

Santiago and its suburbs concentrate 40% of Chile's population and the vast majority of the major companies established in Chile. Therefore, the region has a high level of radio spectrum use.

Santiago 2023 allows stakeholders involved in the Games to use a wired communication system wherever and whenever possible, particularly for microphones and cameras. The radioelectric spectrum will only be used when the wired communication system cannot be used operatively. This does not apply to those sports that require a radio communication system for their development.

Notwithstanding the above, it should be noted that the equipment which uses spectrum under general authorization (also known as unlicensed spectrum) works without interference protection and may not interfere with individually authorized spectrum users.

1.4 Wireless devices subject to spectrum coordination

No one shall operate any wireless equipment or make use of radio frequencies in the venues without obtaining a temporary individual authorization or a temporary general use authorization as defined below:

Every permit, authorization and/or assign of use of frequency to be processed by Santiago 2023 with Subtel will remain under the name of the Santiago 2023 Corporation to be assigned to the applicant, allowing the applicant to use the assigned frequency exclusively.

1.4.1 Wireless devices that require temporary individual authorization

Santiago 2023 will obtain the temporary individual authorizations from Subtel for the benefit of stakeholders involved in the Games. To this effect, clients must register their requests through the process described below.

To avoid harmful interferences, the coordination of the spectrum among the radio devices used by stakeholders and the existing radio devices will be guaranteed.

1.4.2 Wireless devices subject to temporary organization for general use

Radio devices that use the specified spectrum under the general authorization regime, including wireless LAN, must also be declared and duly authorized by Santiago 2023 to avoid risk of possible interference.

It is important to note that devices working under the general authorization regime may experiment with interference from other stations unrelated to the Games' operations. All devices, except for the ones mentioned in section 1.5, will be approved before any use in the venues.

According to the following frequency charts, all radio devices must comply with Chilean regulation. Use is permitted without interference and protection.

1.5 Wireless services

The following wireless services that will be deployed during the Santiago 2023 Games are subject to temporary authorization:

- Private Mobile Radio (Land Mobile Radio, Handheld Radio, WalkieTalkie).
- Telemetry/Telecommand
- Intercom System
- Wireless Microphones and In-Ear Monitors
- Wireless Camera and Mobile Aerial Video Links.

- Microwave Transportable Point to Point Link.
- Microwave Fixed Point to Point Link.
- Permanent and Transportable Satellite Ground Station
- Wireless Release Trigger.

1.6 Wireless devices that do not require authorization

Regardless of the licenses obtained in Chile, all radio devices used inside the venues need a temporary authorization notified by Santiago 2023 with the following exceptions:

- Mobile phones, tablets, smartwatches, Bluetooth headphones and/or other smart wearable device.
- Wireless File Transmitter (WiFi LAN)
- Digital Still Camera
- Wireless Release Trigger. Check section 2.9 for authorized frequency bands.

1.7 Forbidden wireless devices

Specific devices are strictly forbidden inside and around competition and non competition areas.

- Jammer. The installation, possession, and use of any device destined to disable electronic communication devices for transmission and reception are prohibited.
- Wireless Release Trigger on the frequency band of 315 – 317,5 MHz.
- Unlicensed Walkie-talkies on the frequency band 351,16 – 351,38 MHz.

2. TYPES OF WIRELESS DEVICES

2.1 Private Mobile Radio (PMR)

This Guide presents the conditions for using radio devices, considering the existing frequency assignments in Chile. The coordination restrictions are the result of the studies carried out by Subsecretaría de Telecomunicaciones and Santiago 2023.

Spectrum users must carefully plan their spectrum requirements. Santiago 2023 recommends the use of cables as much as possible to optimize the allocation of radio resources.

In any case, spectrum users must adopt systems that comply with Chilean regulations to coordinate and assign temporary authorizations efficiently.

The use of digital PMR systems is recommended over analog due to the spectral efficiency they provide. However, the digital system generates an audio delay of about 0,1 s to 0,5 s.

The key user groups will continue to use analog radios if such delay is unacceptable for user operations.

Santiago 2023 and Subtel encourage spectrum users to request allocations in the VHF band.

Next, we define two services in PMR.

2.1.1 Land Mobile Radio (LMR)

Land Mobile Radio refers to the mobile communication device and its retransmission (repeater/base stations) with multiple users for terrestrial data or voice communication (Direct Mode/Duplex Mode), but it does not include portable walkie-talkies without repeaters/base stations.

2.1.2 Handheld Radio (WALKIE-TALKIE)

Handheld Radio refers to the walkie-talkie that is not used in repeater/base station mode, or other point-to-point voice communication equipment (direct/Simplex Operation mode) with the same mode of operation as the handheld walkie-talkie.

Chart 1 shows detailed information about the available frequency bands assigned to PMR for the needs during Games time. These will be assigned according to the 'first come, first served' method.

It is worth mentioning that if the requested frequency is unavailable, Santiago 2023 will not reconfigure any devices.

If the preferred frequency is unavailable, an alternative frequency will be assigned from the radio's frequency range that can be tuned.

Band Name	Frequency Band	Estimated available spectrum (MHz)	Technical specifications		Limitations or restrictions
	From – To (MHz)		Maximum transmitted power	Additional parameters	
VHF	34,2 - 36	1,8	5W Portable 50W Base	Simplex -Semiduplex - Duplex Channel bandwidth: 12,5 kHz or 6,25	
	138 – 144 148 – 149,9 162,1 - 174	19,8	5W Portable 50W Base	Simplex - Semiduplex - Duplex Channel bandwidth: 12,5 kHz or 6,25	Indicate service area.
UHF	470 - 501	31	4W Portable 25W Base	Duplex Channel bandwidth: 5 MHz or 10 MHz	

2.1.3 Unlicensed Frequency for PMR

Radio devices that meet the technical standards in Chile and operate in the spectrum shown in Chart 2 require a temporary general use authorization from Santiago 2023 to be usable in or around the venues to avoid the risk of possible interference.

This device works without protection against interference and may not interfere with individually authorized spectrum users.

From – To (MHz)	Maximum transmitted power	Portables to use (MHz)
462,540 to 462,740	500 mW	462,5500 462,5625 464,5750 462,5875 462,6000 462,6125 462,6250 462,6375 462,6500 462,6625 462,6750
467,550 to 467,725	500 mW	462,6875 462,7000 462,7250 467,5625 467,5875 467,6125 467,6375 467,6625 467,6875 467,7125

2.2 Telemetry/Telecommand

Telemetry/Telecommands refer to the wireless radio device designed or adapted for remote control of cameras (video parameters and mechanical head), shutters, audio/sound control and lightning control, tracking system, pyrotechnic remote control and other programmable equipment, GPS, and timing and scoring devices. They generally transmit data using a narrow bandwidth of no more than 25 kHz and often transmit with FSK modulation.

Chart 3 shows detailed information about possible frequency bands assigned for telemetry/telecommand and small data transmission indicated in the basic spectrum plan. Specific frequencies may also be assigned to PMR and other audio transmission.

Band Name	Frequency band	Estimated available spectrum (MHz)	Technical specifications		Limitations or restrictions
	From – To (MHz)		Maximum transmitted power	Additional parameters	

VHF	34,2 - 36	1,8	5W Portable 50W Base	Simplex - Semiduplex - Duplex Channel bandwidth: 12,5 kHz or 6,25	Indicate service area.
	138 – 144 148 – 149,9 162,1 - 174	19,8	5W Portable 50W Base	Simplex - Semiduplex - Duplex Channel bandwidth: 12,5 kHz or 6,25	
UHF	470 - 501	31	4W Portable 25W Base	Duplex Channel bandwidth: 5 MHz or 10 MHz	

2.2.1 Unlicensed Frequency for Telemetry/Telecommand

The following frequency bands are proposed for unlicensed operation of Telemetry/Telecommand applications.

These devices work without any protection against interference and may not interfere with individually authorized spectrum users:

Frequencies band	Technical specifications	
	Maximum transmitted power/Maximum field strength	Additional parameters
9 to 490 kHz	$2.400/f$ (kHz) $\mu\text{V}/\text{m}$ to 300 meters	
525 to 1.705 kHz	15 $\mu\text{V}/\text{m}$ to meters	
1.705 to 4.500 kHz	100 $\mu\text{V}/\text{m}$ to 30 meters	
4.500 kHz to 30 MHz	30 $\mu\text{V}/\text{m}$ to 30 meters	
49,82 to 49,89 MHz	10 mV/m to 3 meters	
169,4 to 169,47 MHz	500 mW	
218 a 222 MHz	45 mW	
315 MHz	10 mW	
430 to 440 MHz	10 mW	
464,5875 to 464,7375 MHz	12 mW	
868,175 to 868,375 MHz	25 mW	
1.920 to 1.930 MHz	70 mW	
2.400 to 2.483,5 MHz	5 mW	
10,5 to 10,55 GHz	50 mW	
17,1 to 17,3 GHz	400 mW	
24,00 to 24,25 GHz	100 mW	

2.3 Intercom System (Talk-Back)

The Intercom System is used mainly by the Broadcaster for the communication between the activities director and the production team members, such as presenters, interviewers, reporters, camera operators, sound operators, lightning operators, and engineers.

The Talk-back system in the PMSE-UHF band is allowed with restricted output power. Pre-established frequencies are not allowed.

The identified frequency bands for Private Mobile Radio (PMR) (check section. 2.1) will be considered for the frequency assignment to implement intercommunication systems (check Chart 5).

Band Name	Frequency Band	Estimated available spectrum (MHz)	Technical specifications		Limitations or restrictions
	From – To (MHz)		Maximum transmitted power	Additional parameters	
VHF	34,2 - 36	1,8	5W Portable 50W Base	Simplex - Semiduplex - Duplex Channel bandwidth: 12,5 kHz or 6,25	
	138 – 144 148 – 149,9 162,1 - 174	19,8	5W Portable 50W Base	Simplex - Semiduplex - Duplex Channel bandwidth: 12,5 kHz or 6,25	Indicate service area.
UHF	470 - 501	31	4W Portable 25W Base	Duplex Channel bandwidth: 5 MHz or 10 MHz	

2.3.1 Unlicensed Frequency for Intercom (Talk-Back)

As a modern solution, Digital Enhanced Cordless Telecommunications (DECT) systems are increasingly being used in event management to provide wireless global radio access to different intercommunication services. Since Santiago 2023 uses DECT services in all its competition venues, these services can be authorized only if the compatibility with the use of Santiago 2023 is guaranteed.

According to the Chilean technical regulations and which operate in the spectrum in chart 6, radio equipment requires a temporary general use authorization from Santiago 2023 to be used in the venues to avoid the risk of possible interference.

Band Name	Frequency band		Available Spectrum (MHz)	Technical specifications	
	From (MHz)	To (MHz)		Maximum transmitted power	Additional parameters
DECT	1.920	1.930	10	158 mW	Digital (TDD: Time Division Duplex) 5 channels of 2 MHz or 10 channels of 1 MHz

2.4. In-Ear Wireless microphones and In-Ear Monitors

2.4.1 Wireless microphones

Wireless microphones are mainly used by speakers or event organizers to capture interviews, conferences, music, or the environment. These may be portable or body microphones with integrated or body transmitters.

Considering the above, Santiago 2023 and Subtel require the following to avoid, if possible, the difficulty to assign frequencies with Wireless Microphones:

- Use of wired microphones when and wherever possible.
- Use of wireless microphones only when it is not possible to use wired microphones.
- Avoid using wireless microphones when possible, specially in outdoor areas.
- Use digital wireless microphone systems, which are generally more tolerant to interference.
- Use a strong filter and a dedicated frequency range antenna to reject any high level of background noise.

2.4.2 In-Ear monitors

An In-Ear Monitor (IEM) includes devices used for unidirectional reception by live broadcast or command and dispatch personnel, or for artists to listen to sounds on the spot.

IEMs are used mainly by Broadcasters, Santiago 2023 or external staff to listen to their own voice or mixed sound comments on the site. It generally uses broadcast transmission mode, and the wireless headphones perceive the signals.

Considering the above, Santiago 2023 requires the following to avoid, the difficulty of assigning frequencies for wireless IEMs.

- Avoid wireless IEM use when possible, especially in outdoor areas.
- Use digital wireless IEM systems which are generally more tolerant to interference.
- Whenever possible, do not exceed more than 4 IEM transmitters in the same transmission location to avoid product intermodulation problems.

Other services, such as audio description and mass broadcasting, are considered PMSE audio systems and use the frequencies identified in the following section.

2.4.3 Frequency bands for wireless microphones and IEMS Systems

Wireless microphones/IEM usually require a channel with a 100 to 200 kHz bandwidth. Therefore, the spectrum bands assigned for those purposes are limited.

The spectrum bands usually assigned for wireless microphones/IEMs in Chile are White Space (WS) and guard bands of mobile phones. In WS, many of the bands are used for Digital Television broadcasting (DTV). Therefore, it will be extremely difficult to assign a frequency that does not overlap the used frequencies for DTV to wireless microphones and IEM systems.

Chart 7 shows detailed information about the possible frequency bands assigned to the wireless microphones and IEM systems according to the area of use.

Band Name	Frequency band		Available spectrum (MHz)	Technical specifications
	From (MHz)	To (MHz)		
VHF	29,8	43,5	13,7	Max Tx Power 100 mW Channel Bandwidth ≤ 200 kHz
	216	217	1	Max Tx Power 10 mW Channel Bandwidth ≤ 200 kHz

2.5 Wireless Camera Links and Mobile Aerial Video

It is estimated that a high number of digital cameras will be used during the Games. However, wireless cameras are more sensitive to interference than other devices. Current wireless cameras have a rather large sidelobe that affects adjacent channels, so the actual frequency assignment is expected to be extremely difficult.

Therefore, Santiago 2023 requires the following:

- Use wired cameras when possible and strictly limit the use of wireless cameras to cases in which it is not possible to use a wired camera.
- Use a strong filter and a dedicated frequency range antenna to avoid loud noise.
- In order to maximize the reduction of interference, operate with the minimum transmission output power.
- To adequate the bandwidth for the video quality required by the operation, Santiago will apply the standard/video signal up to 10 MHz for high definition (HD) and up to 20 MHz for 4K image format.

Regarding frequency management for Santiago 2023, the frequency bands identified for wireless cameras are limited to terrestrial links and include mobile video vehicular links located on land. Maritime stations must be considered terrestrial stations.

In the case of a ground-to-ground case, the transmission power of the wireless camera should not exceed 250 mW. Santiago 2023 recommends an antenna reception height of less than 20m. For the mobile airborne video link, the transmission power (including the antenna gain) must be less than 10W. Wired cameras are considered a ground link with a transmission antenna height of less than 20m.

The following frequency bands are proposed for wireless cameras and mobile airborne video links: See chart 8.

Band Name	Frequency band		Available spectrum (MHz)	Limitations or restrictions
	Direction	Maximum transmitted power		
1427 - 1518 MHz	Ground to Ground Air to Ground Ground to Air	T - T: 250 mW A - T o T - A: 10W	20 MHz	
1613,8 - 1660,5 MHz	Ground to Ground Air to Ground		46,7 MHz	
1785 - 1805 MHz	Ground to Ground Air to Ground Ground to Air		20 MHz	
2025 - 2105 MHz	Ground to Ground Air to Ground		40 MHz	
2290 - 2310 MHz	Ground to Ground Air to Ground		20 MHz	
2310 - 2400 MHz	Ground to Ground Air to Ground Ground to Air		30 MHz	
2400 - 2483,5 MHz	Ground to Air		83,5 MHz	Max. 36 dBm.
2483,5 - 2500 MHz	Ground to Ground	250 mW	16,5 MHz	
4400 - 4990 MHz	Ground to Ground		From 10 to 50 MHz	
5850 - 5875 MHz	Ground to Ground		25 MHz	
6425 - 7115 MHz	Ground to Ground		From 440 to 690 MHz	
7115 - 7250 MHz	Ground to Ground Air to Ground	T - T: 250 mW A - T o T - A: 10W	135 MHz	
7750 - 7900 MHz	Ground to Ground Air to Ground		From 70 to 150 MHz	

2.6 Point to Point Link Transportable by Microwaves

Frequency bands identified for transportable point-to-point links allow the implementation of temporary links between two fixed points (for example, part of a link between an outdoor

transmission and a studio) used to carry broadcast-quality video/audio signals. These bands are not available for wireless cameras and mobile aerial links. Link terminals are on tripods, temporary platforms, special vehicles, or hydraulic hoists. Bidirectional links are usually required. The equipment supporting these links is transportable, and Tx/Rx coordinates are unknown in advance.

A frequency assignment for point to point transportable links defines the geographical area where transmitters and receivers can be installed. The authorization process of frequencies does not involve coordination among different temporary links.

The following frequency bands are proposed for temporary point to point video links:

Frequency Band (GHz)	Inferior band (MHz)		Superior band (MHz)		Maximum Channel Width	Maximum power isotropic radiated power (p.i.r.e)
	From	To	From	To		
6 "A"	6.440	6.560	6.780	6.900	Above 40 MHz: 60 MHz	55 dBW
6 "B"	6.560	6.760	6.900	7.100	40 MHz	
7 "A"	7.114	7.275	7.275	7.436	28 MHz	
7 "B"	7.414	7.575	7.575	7.736	28 MHz	

8 "A"	7.733,70	7.969,25	8.045,02	8.280,57	28 MHz	55 dBW
8 "B"	8.272	8.377	8.398	8.503	28 MHz	
11 "A"	10.700	10.880	11.220	11.400	60 MHz	
11 "B"	10.895	11.175	11.125	11.705	40 MHz	
13	12.751	12.975	13.017	13.241	28 MHz	55 dBW
15 "A"	14.494	14.760	14.914	15.180	28 MHz	
15 "B"	14.753	14.921	15.173	15.341	56 MHz	
18	17.701	17.799	18.711	18.809	28 MHz	
19	18.291,0	18.676,2	19.301	19.686,5	28 MHz	
21 "A"	21.217,0	21.409,5	22.417	22.609,5	28 MHz	
21 "B"	21.399	21.567	22.599	22.767	56 MHz	
22 "A"	21.805	22.085	23.005	23.285	28 MHz	
22 "B"	22.073,5	22.389,0	23.273.5	23.589,0	56 MHz	
38 "A"	37.045,75	37.7342,25	38.305,75	39.002,25	28 MHz	
38 "B"	37.730	38.178	38.990	38.438	56 MHz	

42	40.550	40,718	42.050	42.218	28 MHz	55 dBW
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2.7 Fixed Point to Point Microwaves

A frequency allocation given for the implementation of a fixed point to point microwave link allows using a frequency channel to connect two stations operating at known fixed locations.

The bandwidth of the channel and transmission power varies according to the mode of use of each radio. The channel assigned will be determined from the frequency range that meets the requirements of each application and usually requires link-by-link frequency coordination.

The following frequency bands are proposed for fixed point to point links (see chart 10):

Frequency Band (GHz)	Inferior band (MHz)		Superior band (MHz)		Maximum Channel Width	Maximum power isotropic radiated power (p.i.r.e)
	From	Hasta	From	To		
6 "A"	6.440	6.560	6.780	6.900	Above 40 MHz: 60 MHz	55 dBW
6 "B"	6.560	6.760	6.900	7.100	40 MHz	
7 "A"	7.114	7.275	7.275	7.436	28 MHz	
7 "B"	7.414	7.575	7.575	7.736	28 MHz	

8 "A"	7.733,70	7.969,25	8.045,02	8.280,57	28 MHz	55 dBW
8 "B"	8.272	8.377	8.398	8.503	28 MHz	
11 "A"	10.700	10.880	11.220	11.400	60 MHz	
11 "B"	10.895	11.175	11.125	11.705	40 MHz	
13	12.751	12.975	13.017	13.241	28 MHz	
15 "A"	14.494	14.760	14.914	15.180	28 MHz	
15 "B"	14.753	14.921	15.173	15.341	56 MHz	
18	17.701	17.799	18.711	18.809	28 MHz	
19	18.291,0	18.676,2	19.301	19.686,5	28 MHz	
21 "A"	21.217,0	21.409,5	22.417	22.609,5	28 MHz	
21 "B"	21.399	21.567	22.599	22.767	56 MHz	
22 "A"	21.805	22.085	23.005	23.285	28 MHz	
22 "B"	22.073,5	22.389,0	23.273,5	23.589,0	56 MHz	
38 "A"	37.045,75	37.7342,25	38.305,75	39.002,25	28 MHz	
38 "B"	37.730	38.178	38.990	38.438	56 MHz	

42	40.550	40.718	42.050	42.218	28 MHz	55 dBW
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2.8 Permanent and Transportable Satellite Ground Station

This equipment is used to transmit audio and video signals during external reports presentations to studios or directly to national and international broadcast networks such as satellite news gathering (SNG) services.

Permanent satellite services can be permanent satellite ground stations installed at a known location, such as a satellite farm near IBC or at the TV complex within the sites that communicate with a satellite in a geostationary orbit.

Transportable satellite services are an uplink between a ground station, Hub or VSAT, and a satellite, which transmit data and video/audio signals with transmission quality in the bands established in chart 11.

Optical fiber can replace the aforementioned satellite communications. It is expected that several Santiago 2023 venues will be equipped with optical fiber.

The 10,7 – 11,7 GHz frequency band is used by fixed links in Chile. Therefore, requests in this frequency range will induce a coordination procedure with detailed technical parameters.

Chart 11 shows detailed information about possible frequency bands to assign fixed or transportable ground stations:

Frequency Band	Transmission Direction	
a) 3.700 - 3.750 MHz	Espace	Ground
a) 5.925 - 5.975 MHz	Ground	Espace
a) 3.800 - 4.200 MHz	Espace	Ground
a) 6.025 - 6.425 MHz	Ground	Espace
b) 13,75 - 14,0 GHz	Ground	Espace
c) 11,7 - 12,7 GHz	Espace	Ground
c) 14,0 - 14,5 GHz	Ground	Espace
c) 17,3 - 17,8 GHz	Ground	Espace
d) 27,5 – 31,0 GHz	Ground	Espace

2.9 Wireless Release Trigger

The Wireless Release Trigger is a device which transmits a control signal to turn on/off the shutter button of a digital camera. The configuration data for the shutter button (exposure control setting, aperture value, among others) and the synchronization of the strobe light are included in the control signal to turn on/off the shutter button.

Chart 12 summarizes the identified frequency bands for the operation of the Wireless Release Trigger without license. This device works without protection against interference and may not interfere with individually licensed spectrum users.

Authorized Wireless Release Trigger will not require a request through the Spectrum order Portal. However, it should be noted that channel assignment will be coordinated by Santiago 2023 in each venue.

Band (MHz)	Estimated Spectrum Available (MHz)	Technical specifications		Limitations or restrictions
		Maximum transmitted power	Additional parameters	
433,05 – 434,79	1,74	10 mW		
2.400 – 2.483,5	83,5	1 W		

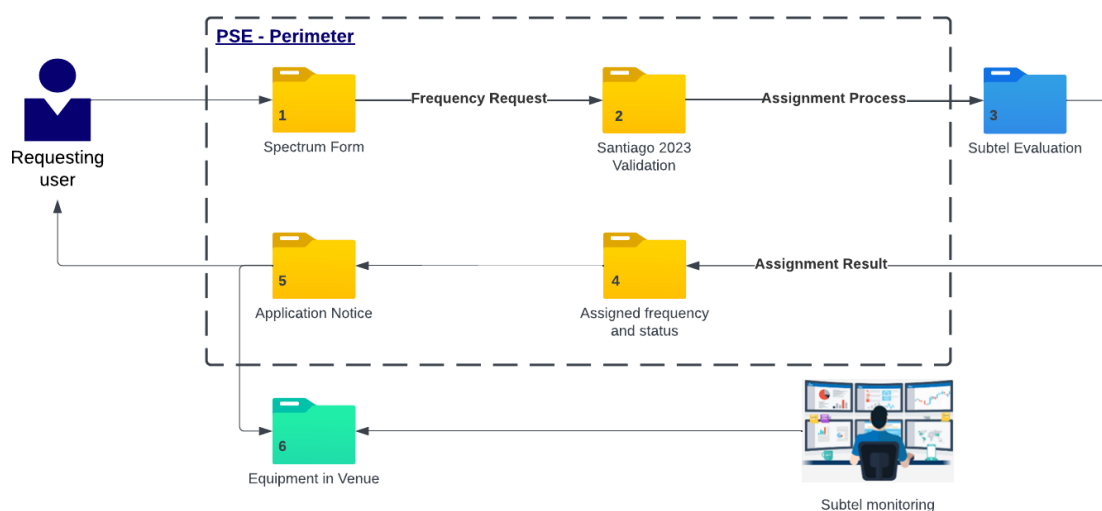
3. SPECTRUM POLICIES

3.1 Spectrum Request Portal (SRP)

3.1.1 Spectrum Request Procedure

All frequency requests must be sent through the Spectrum Request Portal. It will be available on Santiago 2023's official website.

The general flow from frequency application to equipment input to the site is shown in Fig. 1.



Requests will be received until July 31st, 2023. Finally, a second period will be opened approximately in September, 2023, to receive late applications, but timely assignment cannot be guaranteed.

3.1.2 Spectrum request

Users can make only one request at the portal or make multiple requests through SRP <https://app.gms-santiago2023.org/rfr/spectrumapplicationform#/>

Santiago 2023
Juegos PanAm | ParapanAm

[en] English ▾ **New Request**

Spectrum Application Form

Name of technical manager * ⓘ

Email * ⓘ
example@email.com

Organization * ⓘ

Country * ⓘ
Choose a country... ▾

The fields detailed below must be filled in the portal:

- Name of technical manager.
- Email.
- Organization.
- Country.
- Type of equipment (according to the image).

Type Equipment Key * ⓘ

Choose...

select all unselect all

- A (LMR, HRS, TC, MIC, IFB, INT, WC)
- B (FL, MML)
- C (PES)
- D (TES)

3.1.3 Type A Equipment

- LMR: Land Mobile Radio (mentioned in section 2.1.1).
- HRS: Handheld radios (mentioned in section 2.1.2).
- TC: Telemetry and telecommand (mentioned in section 2.2).
- MIC: Wireless microphone (mentioned in section 2.4.1).
- IFB: In-ear monitor system (mentioned in section 2.4.2).
- INT: Talkback Intercom (mentioned in section 2.3).
- WC: Wireless camera (mentioned in section 2.5).

3.1.4 Type B Equipment

- FL: Microwave Fixed Link (mentioned in section 2.7).

MML: Microwave Mobile Link (mentioned in section 2.6).

3.1.5 Type C Equipment

PES: Permanent Earth Station (mentioned in section 2.8).

3.1.6 Type D Equipment

TES: Transportable Earth Stations (mentioned in section 2.8).

3.1.7 Type E Equipment

Wi-Fi: Wireless LAN (mentioned in section 1.6).

3.1.8 Type F Equipment

DSC: Digital Still Camera (mentioned in section 1.6).

3.1.9 Important characteristics to complete

The form to complete will request to specify some important parameters to fulfill a spectrum application request, such as:

- Manufacturer
- Model Name
- Spectrum Service
- License Period
- Dates of use
- Location
- Tx frequency (MHz)
- Rx frequency (MHz)
- Transmission tuning range (MHz)
- Reception tuning range (MHz)
- Channel size (KHz)
- Channel Tuning Step (KHz)
- Maximum transmission power (w)
- Number of identical wireless devices
- Attach File
- Type of use
- Antennas Location
- Tx type
- Antenna gain (dBi)
- Half power angle of the antenna (degrees)
- Satellite Name
- Antenna Diameter (m)

- Antenna height above ground (m)
- WiFi standard

Type A Type B Type C Type D Type E Type F

Manufacturer ⓘ

Model Name ⓘ

Spectrum Service ⓘ

License Period ⓘ

Pre Games

Panam 2023

Para Panam 2023

Start Date ⓘ

End Date ⓘ

3.1.10 Request evaluation

Once the request has been reviewed by Santiago 2023, it will be sent to Subtel for coordination and allocation. All technical analysis will be performed at this stage to assign the correct frequency according to the service.

Before the notification period, if necessary, Santiago 2023 will communicate with users through PSE or the email indicated in the register.

3.1.11 Notification and result of the request

Finally, the result will be notified to the applicant through email, where the assigned spectrum will be indicated, together with the authorization of the registered equipment. Thus, this equipment may be used in the declared locations for the period reported.

3.1.12 Monitoring

Subtel and Santiago 2023 staff will carry out constant measurements before, during, and after the Games of the radioelectric space in all competition and non-competition venues. This monitoring will allow them to detect and identify interferences that may hinder the operations and work of all those who are using the authorized frequencies.

In case of detecting interference that may harm the Santiago 2023 Games operations and/or do not comply with the current Chilean regulations, Subtel will take action and/or sanction in accordance with the law.

For questions related to this topic, please write to spectrum@santiago2023.org.

ALL INFORMATION IN THIS DOCUMENT MAY UNDERGO CHANGES IN ITS CONTENT AND/OR ITS VALUES IN TECHNICAL ASPECTS. SHOULD THE ABOVE OCCUR, IT WILL BE INFORMED AND NOTIFIED IN A TIMELY MANNER.

