

# **FRAMEWORK FOR WIRELESS LOCAL AREA NETWORK - 2024**

**PAKISTAN TELECOMMUNICATION AUTHORITY**

September 2024

## **Contents**

<b>1. Introduction</b>	<b>2</b>
<b>2. Definitions</b>	<b>3</b>
<b>3. Unlicensed Frequency Bands for use of WLAN</b>	<b>3</b>
<b>4. Eligible Applicant(s)</b>	<b>3</b>
<b>5. WLAN Frequency Bands and Applicable Technical Conditions</b>	<b>4</b>
<b>6. Type Approval of Terminal Equipment</b>	<b>4</b>
<b>7. Spectrum Fees / Charges</b>	<b>4</b>
<b>8. Miscellaneous</b>	<b>4</b>
<b>9. Acronyms</b>	<b>5</b>

## 1. Introduction

- 1.1. The Pakistan Telecommunication Authority (the “**Authority**”) under the Pakistan Telecommunication (Re-organization) Act, 1996 (the “**Act**”) is mandated to regulate the establishment, operations and maintenance of telecommunications systems and the provision of telecommunication services in Pakistan.
- 1.2. Furthermore, clause 3.2 of Rolling Spectrum Strategy 2020-2023 (**RSS**) duly approved by Federal Government provides that the Authority / Frequency Allocation Board (**FAB**) will devise framework for unlicensed spectrum including Ultra-Wide Band (UWB), **Wi-Fi**, Short Range Devices (SRD) and Internet of Things (IoTs). For ready reference, recommended action in clause 3.2 of the RSS is reproduced below:

**3.2. Recommended Action:** “*PTA/FAB to devise Framework for unlicensed spectrum including Ultra Wide Band (UWB), Wi-Fi, Short Range Devices (SRD) and IoTs.*”
- 1.3. Having mandate assigned under the RSS, the Authority in consultation with FAB has devised a framework for Wireless Local Area Network (**WLAN**)/ Wireless Area Services (**WAS**), with the following objectives:
  - a. Support the introduction of new services and spectrum utilization for the benefit of the country, including promotion of emerging radio technologies;
  - b. Provide regulatory guidelines for the general use of frequency bands for WLAN including Wi-Fi technologies etc.;
  - c. Ensure that WLAN equipment will operate in the bands mentioned in the Table 1 below on secondary basis and shall not cause harmful interference to primary services and applications running in these bands;
  - d. Enhance spectrum utilization, including the support of shared spectrum bands under appropriate technical conditions of use to ensure coexistence of services.
- 1.4. For the applicability of this framework, the terms WLAN and WAS can be used interchangeably.
- 1.5. Where, Wireless Local Area Networks (WLAN) are communication networks that are used to provide wireless communications in a limited area. Such networks are built based on international standards, including but not limited to IEEE 802.11x, HiperLAN etc., and provide users the ability to remain connected whilst moving within a limited area. WLAN technologies are capable of operating in WLAN bands on a license-exempt basis and are also designed to enable sharing and coexistence with other services.

## 2. Definitions

2.1 The words and expressions shall have the meaning as assigned to them hereunder. However, in the framework, unless the context or subject otherwise requires the words and expressions used but not defined herein, shall have the same meaning as given in the Act, Pakistan Telecommunication Rules, 2000 here forth called as “Rules” and Regulations issued by Authority from time to time.

- a. **Indoor:** Indoor means a single set of premises in single occupation within a single unbroken boundary or a vehicle, vessel, aircraft or hovercraft.
- b. **Indoor Access Point:** An access point that can only be deployed indoors, is supplied power from a wired connection, has an integrated antenna, is not battery powered, and does not have a weatherized enclosure.
- c. **Non-Interference Basis (NIB)** means a condition of use relative to other specified uses that affords no protection from harmful interference from the other specified users, and prohibits causing harmful interference to the other specified users.
- d. **Wi-Fi:** Wireless Fidelity. Technology corresponding to the IEEE802.11x standards for low power, indoor wireless data communication

## 3. Unlicensed Frequency Bands for use of WLAN

- 3.1. WLAN Frequency Bands include 2.4 GHz, 5 GHz, 6 GHz frequency bands with ranges as specified in the Table 1 below.
- 3.2. Equipment operating on a license-exempt basis shall operate on non-interference and non-protection basis. The use should be compatible with the co-existence requirements with other spectrum users.
- 3.3. Backhaul links, Point to Point (P2P) and Point to Multipoint (P2M), in the frequency range 5.925- 6.425 GHz are not allowed under this framework.

## 4. Eligible Applicant(s)

- 4.1. The use of the WLAN equipment/terminal in the WLAN Frequency Bands is permitted, **as long as the equipment/terminal adheres to the conditions set out in Table 1 of this document.**
- 4.2. The use of WLAN equipment for commercial services (where applicable), is allowed only for telecommunications service providers who holds an appropriate service provisioning license from the Authority, subject to the conditions set out in Table 1 of this document or as may be determined by the Authority from time to time.

## 5. WLAN Frequency Bands and Applicable Technical Conditions

5.1. The technical conditions/parameters for the use of WLAN frequency bands are given in the Table 1, below:

Table 1: Applied Technical Conditions for WLAN Frequency Bands

S. No	Frequency Band	Technical Specifications
1	2.40-2.50 GHz	$\leq 30$ dBm EIRP
2	5.725-5.875 GHz	$\leq 30$ dBm EIRP
3	5.925- 6.425 GHz	<ul style="list-style-type: none"><li>• 23 dBm Maximum mean EIRP</li><li>• Indoor use Only</li><li>• Power Spectral Density of WLAN operating under this provision shall not exceed 10 dBm/ MHz.</li></ul>
		<ul style="list-style-type: none"><li>• 14 dBm Maximum mean EIRP</li><li>• Outdoor use</li><li>• Power Spectral Density of WLAN operating under this provision shall:<ul style="list-style-type: none"><li>i. not exceed 1 dBm/ MHz.</li><li>ii. not exceed 10 dBm/ MHz for narrowband operations on BWs below 20 MHz</li></ul></li></ul>

## 6. Type Approval of Terminal Equipment

6.1. Terminal equipment(s) having technical capability / feature for using unlicensed radio frequency data services through WLAN shall require approval in accordance with the Type Approval Technical Standard Regulations, 2021 and any amendments made from time to time.

## 7. Spectrum Fees / Charges

7.1. There will be no fee / charges for the use of unlicensed spectrum used for the purpose of WLAN on commercial or non-commercial basis, within the scope of this framework.

## 8. Miscellaneous

8.1. In order to address the emerging trends, technologies, uses and future needs etc., PTA may review and update this framework,

- 8.2. The use of the WLAN Frequency Bands in Pakistan shall be on sharing basis, with other non-WLAN services and applications.
- 8.3. In case any interference is detected, affecting the existing primary user(s), the secondary user shall be obligated to immediately comply with the interference mitigation measures.

## 9. Acronyms

- dBm: Decibel milliwatt
  - EIRP: Effective Isotropic Radiated Power
  - IAP: Indoor Access Point
  - NIB: Non-Interference Basis
  - WLAN: Wireless Local Area Network
  - Wi-Fi: Wireless Fidelity (technology for WLAN)
  - WAS: Wireless Access Services
  - P2P: Point to Point
  - P2MP: Point to Multi-point
-