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Ubiquiti Networks AF60-XR-US

Ubiquiti Networks airFiber 60GHz Xtreme-Range Wireless Bridge User Manual

Model: AF60-XR-US

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of the Ubiquiti Networks airFiber 60GHz Xtreme-Range Wireless Bridge (AF60-XR-US). This device is designed to establish reliable, high-throughput point-to-point (PtP) connections over long distances.

The AF60-XR-US operates in the 60 GHz frequency band, offering low interference and low latency connectivity. It includes an integrated 5 GHz backup radio for enhanced reliability and a 10G SFP+ port for high-speed fiber connections. Its robust design ensures durability in various outdoor environments.

2. SAFETY INFORMATION

Please read and follow all safety instructions carefully before installing or operating the device. Failure to do so may result in injury, damage to the device, or voiding the warranty.

- **Installation:** Installation must be performed by qualified personnel in accordance with local regulations and building codes.
- **Power:** Use only the power adapter specified for this device.
- **Environment:** Do not expose the device to extreme temperatures, humidity, or direct sunlight beyond its specified operating range (-40°F to 131°F).
- **Mounting:** Ensure the mounting surface and hardware can support the device's weight (approximately 42.6 pounds) and withstand wind loading up to 125 mph.
- **Antenna Alignment:** Avoid direct exposure to the antenna during operation.

3. PACKAGE CONTENTS

Verify that all components are present in the package:

- airFiber 60GHz Xtreme-Range Wireless Bridge (AF60-XR-US) Unit
- Mounting Bracket and Hardware
- Power Adapter (PoE Injector)

- Quick Start Guide (refer to this manual for detailed instructions)

4. DEVICE OVERVIEW



Figure 4.1: Front view of the AF60-XR-US unit, showing the central Ubiquiti logo and antenna cover.



Figure 4.2: Rear view of the AF60-XR-US, highlighting the integrated mounting bracket and adjustment points.



Figure 4.3: Bottom view of the AF60-XR-US, displaying the Ethernet and SFP+ ports for connectivity.

The AF60-XR-US features a compact, weather-resistant design. Key components include the integrated antenna, mounting points for pole attachment, and connectivity ports located at the bottom of the unit.

5. SETUP AND INSTALLATION

Proper installation is crucial for optimal performance. This section outlines the general steps for setting up your airFiber 60GHz Xtreme-Range Wireless Bridge.

5.1 Site Planning

- **Line of Sight:** Ensure a clear, unobstructed line of sight between the two bridge units. Any obstacles (trees, buildings) will severely degrade performance.
- **Mounting Location:** Select a sturdy pole or mast capable of supporting the device's weight and wind load. The location should allow for precise aiming.
- **Power Access:** Plan for power delivery to the unit via the PoE injector.

5.2 Mounting the Device

The AF60-XR-US is designed for pole mounting. Use the provided mounting bracket and hardware.

1. Attach the mounting bracket to the pole using the U-bolts and nuts. Ensure it is securely fastened.
2. Align the rear of the AF60-XR-US unit with the mounting bracket.
3. Slide the unit onto the bracket until it clicks into place. Secure it with the locking mechanism or screws as per the bracket design.
4. Adjust the tilt and azimuth as needed for initial alignment.



Figure 5.1: AF60-XR-US unit securely mounted on a pole, ready for alignment.

5.3 Connecting Power and Data

1. Connect an Ethernet cable from the AF60-XR-US's Ethernet port to the "PoE" port on the provided PoE injector.
2. Connect another Ethernet cable from the "LAN" port on the PoE injector to your network switch or router.
3. Plug the PoE injector's power cord into a suitable power outlet.
4. *Optional:* For fiber connectivity, insert a compatible 10G SFP+ module into the SFP+ port and connect a fiber optic cable.

5.4 Initial Configuration and Alignment

The AF60-XR-US can be configured via Bluetooth using the UISP app or through a web browser.

- **UISP App (Recommended for Alignment):** Download the Ubiquiti Internet Service Provider (UISP) app on your mobile device. Enable Bluetooth and follow the in-app instructions to discover and connect to the AF60-XR-US. The app provides intuitive antenna alignment tools.
- **Web UI:** Connect your computer directly to the LAN port of the PoE injector. Configure your computer's network settings to obtain an IP address automatically (DHCP) or set a static IP in the same subnet as the device's default IP (refer to Ubiquiti documentation for default IP). Access the device's web interface via a browser.
- **Configuration:** Set up network parameters, wireless mode (Access Point or Station), frequency, channel width, and WPA2-PSK encryption.
- **Fine Alignment:** Use the signal strength indicators in the UISP app or web UI to precisely align both units for maximum signal strength and throughput.

6. OPERATING THE DEVICE

Once installed and configured, the airFiber 60GHz Xtreme-Range Wireless Bridge operates autonomously to maintain a high-speed wireless link.

- **Link Status:** Monitor the link status and performance metrics through the UISP app or the device's web interface. Key metrics include signal strength, throughput, and latency.
- **60 GHz Primary Link:** The device primarily uses the 60 GHz band for high-capacity data transfer. This band offers excellent performance over line-of-sight paths.
- **5 GHz Backup Link:** An integrated 5 GHz radio provides a backup link. In case of significant degradation or loss of the 60 GHz link (e.g., due to heavy rain fade over very long distances), the device can automatically switch to the 5 GHz link to maintain connectivity, albeit at a lower throughput.
- **Data Encryption:** The device supports WPA2-PSK encryption to secure your wireless link. Ensure this is enabled and configured with a strong passphrase.

7. MAINTENANCE

The AF60-XR-US is designed for minimal maintenance. However, periodic checks can ensure long-term reliability.

- **Physical Inspection:** Periodically inspect the unit and mounting hardware for any signs of damage, corrosion, or loosening, especially after severe weather events.
- **Firmware Updates:** Regularly check for and apply firmware updates from Ubiquiti Networks. Firmware updates often include performance improvements, bug fixes, and security enhancements. These can typically be performed via the UISP app or web UI.
- **Cleaning:** If necessary, gently clean the exterior of the unit with a soft, damp cloth. Do not use harsh chemicals or abrasive cleaners. Ensure the antenna surface is free from dirt or debris that could obstruct the signal.
- **Environmental Factors:** Be aware of potential environmental changes (e.g., new foliage growth) that could obstruct the line of sight and affect performance.

8. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

8.1 No Power/Device Not Responding

- Verify the PoE injector is properly connected to a power outlet and the device.
- Check the Ethernet cable connecting the device to the PoE injector for damage or improper connection.
- Ensure the power outlet is functional.

8.2 No Wireless Link or Low Throughput

- **Line of Sight:** Confirm there is a clear, unobstructed line of sight between both units. Even minor obstructions can significantly impact 60 GHz performance.
- **Alignment:** Re-check antenna alignment using the UISP app's alignment tools. Precise alignment is critical for 60 GHz links.
- **Configuration:** Verify that both units are configured correctly (one as Access Point, one as Station) and that network settings (IP addresses, subnet masks) are correct.
- **Interference:** While 60 GHz is less prone to interference, check for any new sources of interference if performance degrades suddenly.
- **Firmware:** Ensure both units are running the latest stable firmware version.

8.3 Cannot Access Web Interface/UISP App

- **Network Connection:** Ensure your device (computer/smartphone) is properly connected to the network segment where the AF60-XR-US resides.
- **IP Address:** Verify the IP address of the AF60-XR-US and ensure your computer is in the same subnet or configured for DHCP.
- **Bluetooth:** For UISP app access, ensure Bluetooth is enabled on your mobile device and the AF60-XR-US.
- **Firewall:** Temporarily disable any firewalls on your computer that might be blocking access.

9. SPECIFICATIONS

Feature	Detail
Model Name	AF60-XR-US
Brand	Ubiquiti Networks
Frequency Band	60 GHz (Primary), 5 GHz (Backup)
Wireless Standard	802.11n (for 5GHz backup, 60GHz uses proprietary protocol)
Max Throughput	Up to 5.4 Gbps (2.7 Gbps duplex)
Range	15+ km (9.3+ miles)
Connectivity	Gigabit Ethernet, 10G SFP+
Operating System	UniFi OS
Power Method	24V Passive PoE (PoE Injector included)
Weight	Approximately 42.6 pounds (19.3 kg)

Enclosure Material	UV-stabilized Polycarbonate, Galvanized Steel
Weather Rating	IPX6
Operating Temperature	-40°F to 131°F (-40°C to 55°C)
Wind Loading	Up to 125 mph (200 km/h)

10. WARRANTY AND SUPPORT

Ubiquiti Networks products come with a limited warranty. Please refer to the official Ubiquiti Networks website for the most current warranty terms and conditions applicable to your region.

- **Warranty Information:** For detailed warranty policy, visit ui.com/support/warranty.
- **Technical Support:** For technical assistance, product documentation, and community forums, visit the Ubiquiti support portal at community.ui.com.
- **Product Registration:** Register your product to receive updates and support.