



# *air*Fiber<sup>®</sup> 5

5 GHz Point to Point  
1.0+ Gbps Radio

Model: AF-5, AF-5U

QUICK START GUIDE



## Introduction

Thank you for purchasing the Ubiquiti Networks® airFiber® 5 GHz Point-to-Point 1.0+ Gbps Radio. This Quick Start Guide is designed to guide you through the installation, show you how to access the airFiber Configuration Interface, and explain how to set up an airFiber link. This Quick Start Guide also includes the warranty terms and is for use with the following models:

Model	Description	Operating Frequency*
AF-5	Supports mid-band frequencies	5470 - 5950 MHz
AF-5U	Supports high-band frequencies	5725 - 6200 MHz

\* Refer to the *Specifications* section for more information.

## Package Contents



airFiber  
AF-5/AF-5U



I-Bracket



Upper Mount Bracket  
with Elevation Rod



Lower Mount  
Bracket



Pole Clamps  
(Qty. 2)



M10x150 Carriage Bolts  
(Qty. 4)



M10x100 Carriage Bolts  
(Qty. 2)



Serrated Flange Bolts  
(M8x14, Qty. 4)



Azimuth Support Brackets  
(Qty. 2)



Serrated Flange Nuts  
(M10, Qty. 6)



Cable Ties  
(Qty. 2)



GigE PoE Adapter  
(50V, 1.2A)



Power Cord

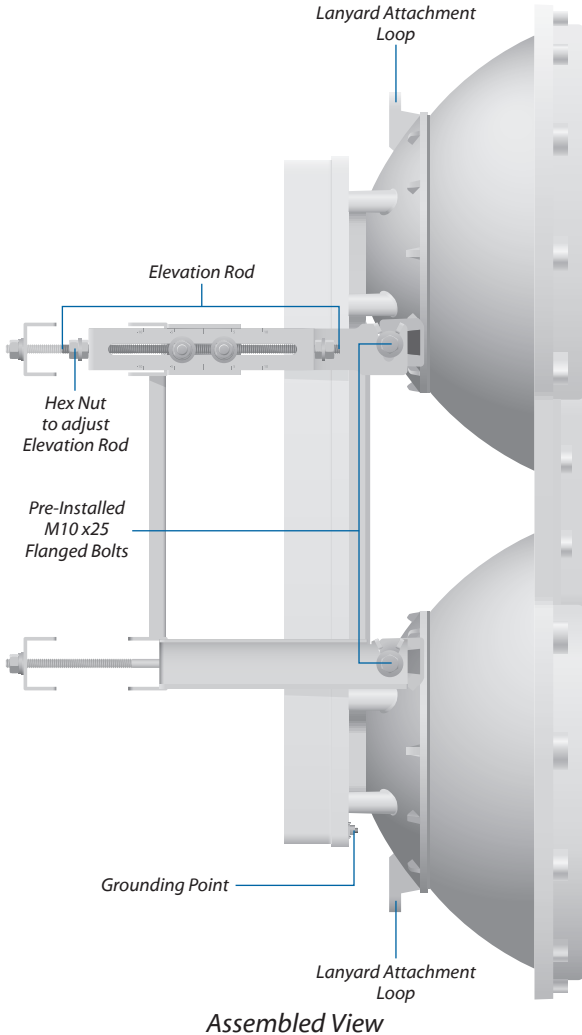


Quick Start Guide

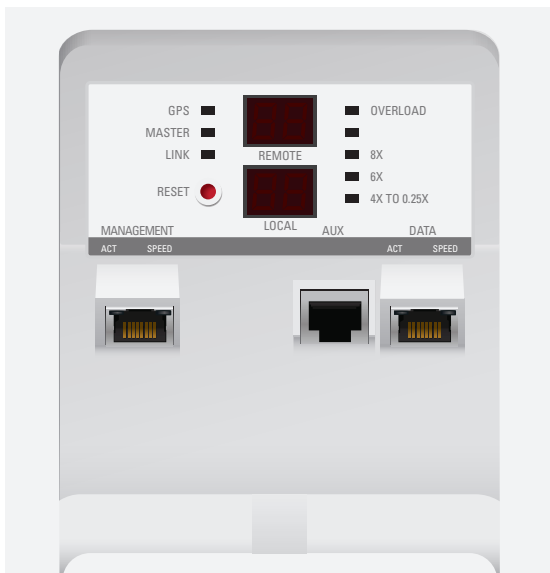
TERMS OF USE: Ubiquiti radio devices must be professionally installed. Shielded Ethernet cable and earth grounding must be used as conditions of product warranty. TOUGHcable™ is designed for outdoor installations. It is the customer's responsibility to follow local country regulations, including operation within legal frequency channels, output power, and Dynamic Frequency Selection (DFS) requirements.

# Hardware Overview

## Side

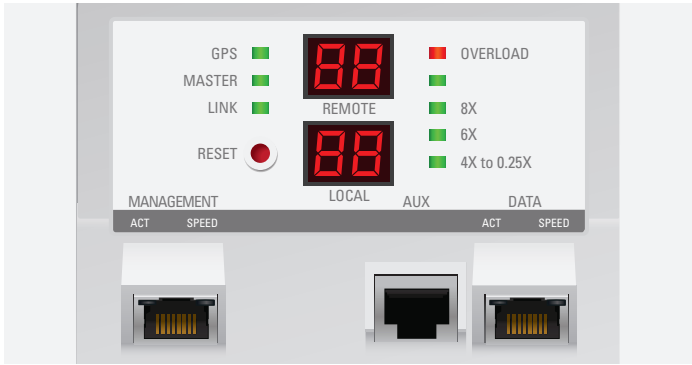


## Interfaces



Interface	Description
Reset Button	To reset to factory defaults, press and hold the Reset button for more than five seconds while the unit is already powered on.
Remote Display	Displays the received signal strength in dBm of the remote airFiber radio.
Local Display	Displays the received signal strength in dBm of the local airFiber radio.
Management Port	10/100 Mbps, secured port for configuration. By default, this is the only port that can monitor, configure, and/or update firmware.
Aux Port	Port for audio tone aiming.
Data Port	10/100/1000 Mbps port handles all user traffic.

## LEDs



LED	State	Status
GPS	Off	No GPS Synchronization
	On	Operational (Strong Signal)
	Normal Flash*	Non-Operational (Weak Signal)
Master	Off	Slave mode
	On	Master mode
Link	Off	RF Off
	Short Flash*	Syncing
	Normal Flash*	Beaconing
	Long Flash*	Registering
	On	Operational
Remote	On	Displays the received signal strength in dBm of the remote airFiber radio.

LED	State	Status
Local	On	Displays the received signal strength in dBm of the local airFiber radio.
Overload	Fast Flash	Overload Condition
(Unlabeled)	On	10x (1024QAM MIMO)
8x	On	256QAM MIMO
6x	On	64QAM MIMO
4x to 0.25x	On	16QAM MIMO
	Long Flash*	QPSK MIMO
	Normal Flash*	1x QPSK xRT™**
	Short Flash*	¼x QPSK xRT**

\* Short Flash (1:3 on/off cycle)

Normal Flash (1:1 on/off cycle)

Long Flash (3:1 on/off cycle)

\*\* xtreme Range Technology

## Port LEDs

LED		State	Status
Management	Act	Off	No Ethernet Link
		On	Ethernet Link Established
		Random Flashing	Ethernet Activity
	Speed	Off	10 Mbps
		On	100 Mbps
	Data	Act	Off
On			Ethernet Link Established
Random Flashing			Ethernet Activity
Speed		Off	10/100 Mbps
		On	1000 Mbps

## Installation Requirements

### Pre-Assembly Tool

- 13 mm wrench

### Pole-Mounting Tool

- 17 mm wrench

### Other Requirements

- Clear line of sight between airFiber radios
- Clear view of the sky for proper GPS operation
- Vertical mounting orientation
- Mounting location with  $< 0.5^\circ$  displacement due to twist and sway under wind loading
- Mounting point:
  - At least 1 m below the highest point on the structure
  - For tower installations, at least 3 m below the top of the tower
- Ground wires – min. 10 AWG (5 mm<sup>2</sup>) and max. length: 1 m. As a safety precaution, ground the airFiber radios to grounded masts, poles, towers, or grounding bars.



**WARNING: Failure to properly ground your airFiber units will void your warranty.**

- (Recommended) 2 Outdoor GigE PoE surge protectors



**Note:** For guidelines about grounding and lightning protection, follow your local electrical regulatory codes.

- Outdoor, shielded Category 6 (or above) cabling and shielded RJ45 connectors are required for all wired Ethernet connections.



## Installation Overview

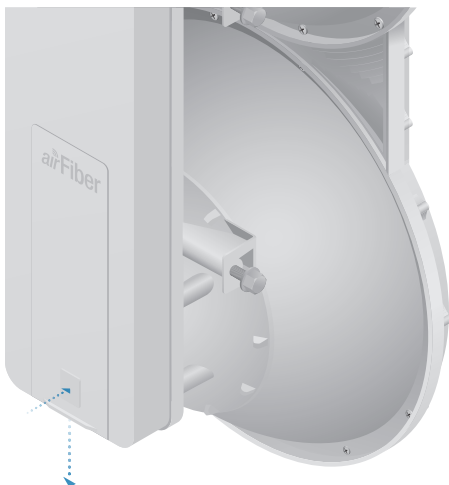
We recommend that you configure your paired airFiber radios before mounting. Below is an overview of the installation with specific details in the following instructions:

- Connect Power over Ethernet to the Data port, and connect an Ethernet cable between your computer and the Management port.
- Configure the device settings in the airFiber Configuration Interface.
- Once configuration is complete, disconnect the cables to move the airFiber radios.
- Pre-assemble the mounting hardware.
- Install the airFiber radios at the site.
- Establish and optimize the RF link.

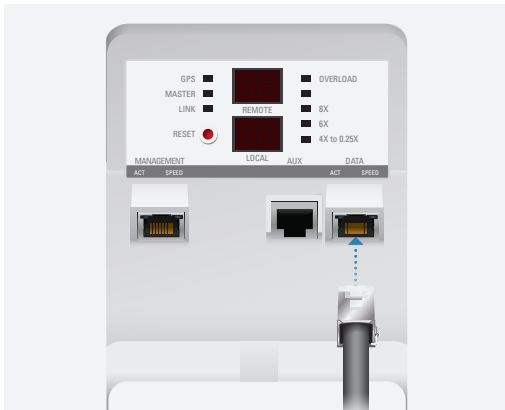
 **Note:** The AF-5 and AF-5U models share the same installation and configuration instructions.

### Connecting Power over Ethernet

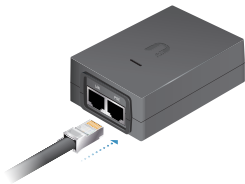
1. Push the button and slide the port cover down to access the cable ports. (The port cover cannot be completely removed.)



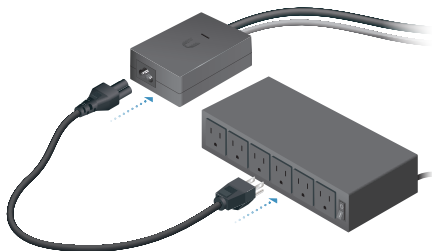
2. Connect an Ethernet cable to the *Data* port.



3. Connect the other end of the Ethernet cable from the *Data* port to the Ethernet port labeled **POE** on the *GigE PoE Adapter*.



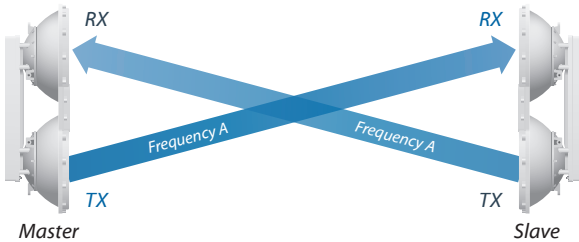
4. Connect the *Power Cord* to the power port on the *GigE PoE Adapter*. Connect the other end of the *Power Cord* to a power source.



## airFiber Configuration

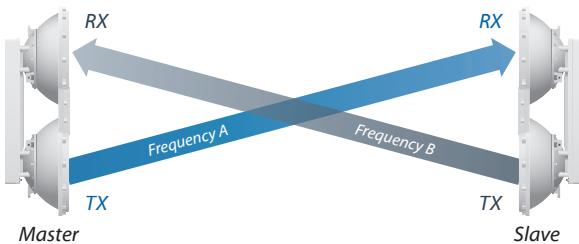
The instructions in this section explain how to access the airFiber Configuration Interface and configure the following settings:

- **Wireless Mode** Configure one airFiber radio as the *Master* and the other as the *Slave*.
- **Duplex** The airFiber radio supports both half-duplex and full-duplex operation. Half-duplex operation provides more frequency planning options at the cost of higher latency and throughput. Full-duplex operation provides the highest throughput and lowest latency; however, you have fewer frequency management options.
  - **Half Duplex (default)** The *TX* and *RX* *Frequencies* can be the same or different to suit local interference.



Half-Duplex Diagram

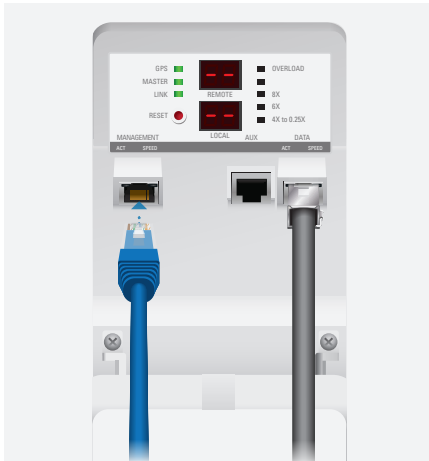
- **Full Duplex** The *TX* and *RX* *Frequencies* should be different.



Full-Duplex Diagram

- **TX and RX Frequencies** The *TX* *Frequency* on the Master must match the *RX* *Frequency* on the Slave, and vice versa.

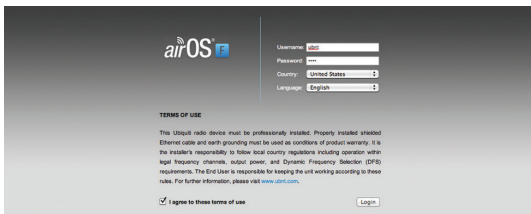
1. Connect an Ethernet cable from your computer to the *Management* port on the airFiber radio.



2. Configure the Ethernet adapter on your computer with a static IP address on the 192.168.1.x subnet.
3. Launch your web browser. Type **http://192.168.1.20** in the address field and press enter (PC) or return (Mac).



4. The login screen will appear. Enter **ubnt** in the *Username* and *Password* fields. Select your *Country* and *Language*. You must agree to the *Terms of Use* to use the product. Click **Login**.



**Note:** U.S. product versions are locked to the U.S. Country Code to ensure compliance with FCC regulations.

- The *Main* tab will appear. Click the **Tools** drop-down and select **Link Calculator**. This tool will guide you on how to best minimize bandwidth and power/interference issues.



**Note:** If you do not see the *Link Calculator*, then upgrade the firmware on your airFiber radios. Download the firmware at: [downloads.ubnt.com/airfiber](http://downloads.ubnt.com/airfiber)

- Enter the requirements of your link, and then click **Calculate**. Adjust the values as needed to get the optimal result, and then write down the settings needed for your configuration.
- Click the **Wireless** tab.

The screenshot shows the 'Basic Wireless Settings' configuration page in the airFiber web interface. The 'Wireless Mode' is set to 'Master'. The 'Link Name' is 'UBNT'. The 'Country Code' is 'United States'. The 'Duplex' is set to 'Full Duplex'. The 'Channel Bandwidth' is '50 MHz'. The 'Output Power' is set to '10 dBm'. The 'Maximum Modulation Rate' is '64-QAM MIMO' with 'Automatic Rate Adaptation' checked. The 'Frequency Settings' section shows 'Valid Frequencies: 5752 - 5823 MHz', 'TX Frequency: 5823 MHz', and 'RX Frequency: 5752 MHz'. The 'Wireless Security' section shows 'Key Type: HEX' and 'Key: 0000:0000:0000:0000:C'. There are 'Change' buttons for the Country Code and Frequency Settings sections.

- Enter the *Basic Wireless Settings*:
  - For one airFiber radio, select **Master** as the *Wireless Mode*. For the other airFiber radio, keep the default, *Slave*.
  - Enter a name in the *Link Name* field. This should be the same on both the Master and the Slave.
  - For the *Duplex* drop-down:
    - Half Duplex** The default mode. The *TX* and *RX Frequencies* can be the same or different to suit local interference.
    - Full Duplex** The *TX* and *RX Frequencies* should be different.
  - Select a *TX Frequency*. This must match the *RX Frequency* on your other airFiber radio.
  - Select a *RX Frequency*. This must match the *TX Frequency* of your other airFiber radio.
  - If needed, change the *Output Power* and/or *Maximum Modulation Rate* settings.

9. Configure the *Wireless Security*:

- a. Select the AES *Key Type*, **HEX** or **ASCII**.
- b. For the *Key* field:

**HEX** Enter 16 bytes (eight, 16-bit HEX values: 0-9, A-F, or a-f). You can omit zeroes and use colons, similar to the IPv6 format.

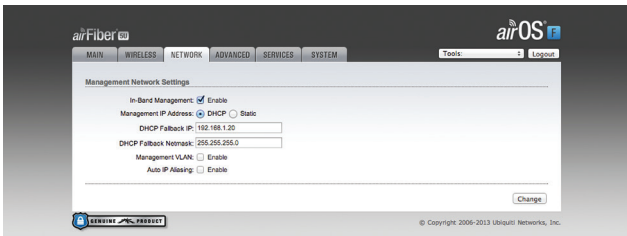


**Note:** The airFiber Configuration Interface supports IPv6 formats excluding dotted quad and "::" (double-colon) notation.

**ASCII** Enter a combination of alphanumeric characters (0-9, A-Z, or a-z).

10. Click **Change** and then click **Apply**.

11. *In-Band Management* is enabled by default, so each airFiber radio must have a unique *IP Address*. (If the airFiber radios use the same *IP Address*, you may lose access to the airFiber radios via the *Data* ports.) Click the **Network** tab.



- a. For the *Management IP Address* option:

**DHCP** Keep the default, *DHCP*, to use DHCP reservation on your router to assign a unique *IP Address*.

**Static** Change the *IP Address*, *Netmask*, and other settings to make them compatible with your network.

- b. Click **Change** and then click **Apply**.

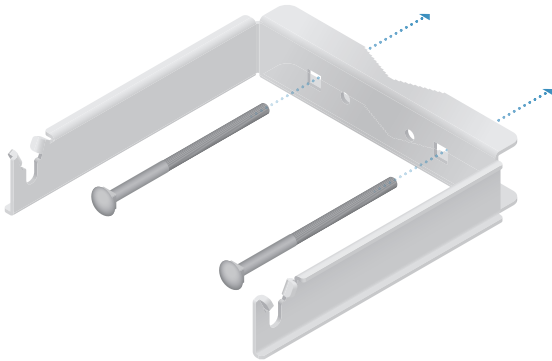
Repeat the instructions in the *airFiber Configuration* section on your other airFiber radio. After you have configured the airFiber radios, disconnect them and move them to your installation site.

## Hardware Installation

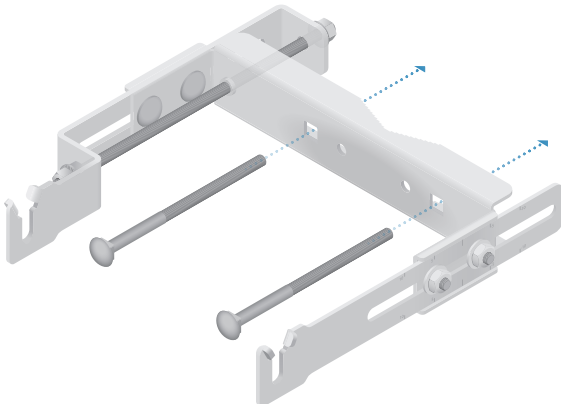
The mounting hardware of the airFiber radio can be pre-assembled before pole-mounting.

### Mounting Hardware Pre-Assembly

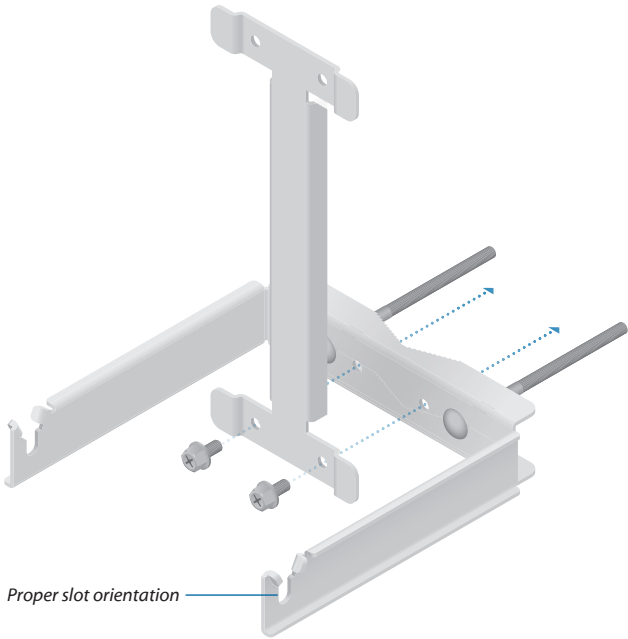
1. Insert two *M10x150 Carriage Bolts* into the *Lower Mount Bracket*.



2. Insert two *M10x150 Carriage Bolts* into the *Upper Mount Bracket with Elevation Rod*.



3. Attach the *Lower Mount Bracket* to the *I-Bracket* using two *Serrated Flange Bolts*. Ensure that the slots face up and securely tighten the bolts.

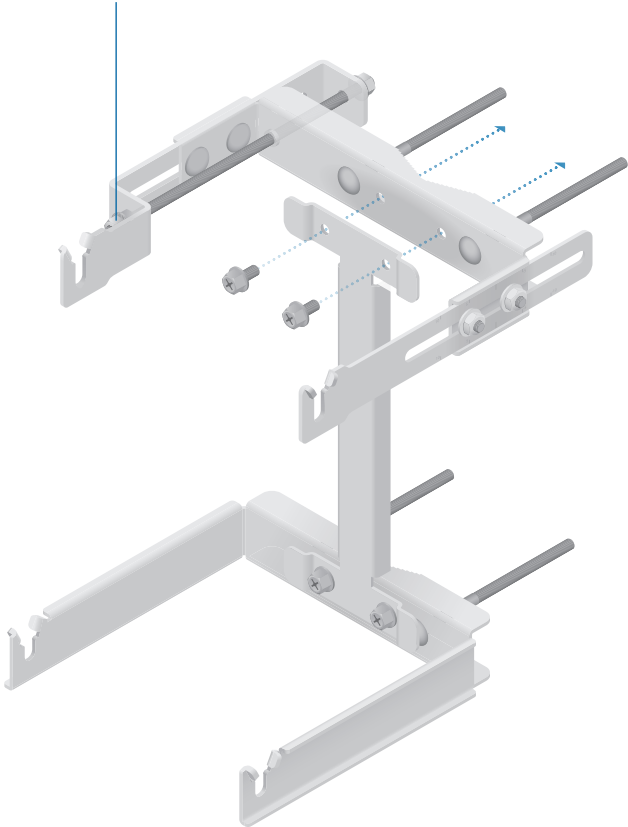




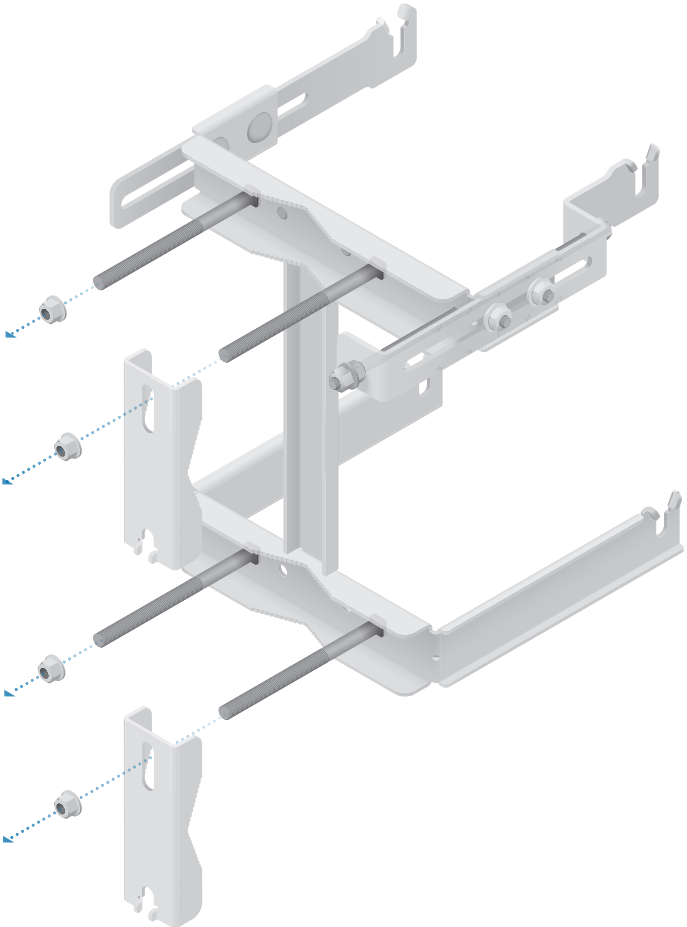
4. Attach the *Upper Mount Bracket with Elevation Rod* to the *I-Bracket* using two *Serrated Flange Bolts*.



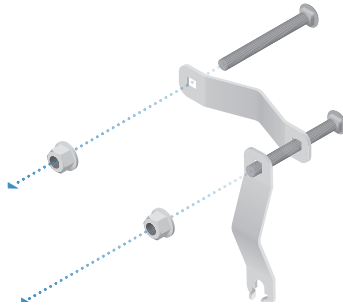
**Note:** Ensure that the orientation of the *Upper Mount Bracket* matches the illustration below, with the *Elevation Rod* on the correct side.



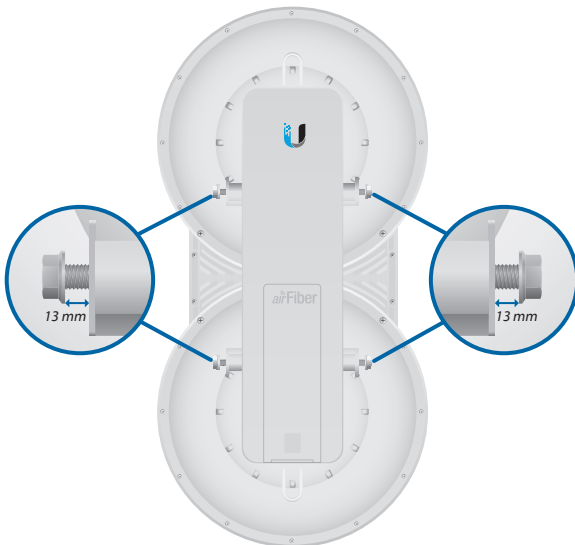
5. Attach the *Pole Clamps* to the *Mount Brackets*.
- a. Slide the slotted hole of each *Pole Clamp* over one upper and one lower *M10x150 Carriage Bolt*.
  - b. Place one *Serrated Flange Nut* on each *M10x150 Carriage Bolt*.



6. Attach the *Azimuth Support Brackets* together.
  - a. Insert the two *M10x100 Carriage Bolts* into the *Azimuth Support Bracket* that has two slotted holes.
  - b. Slide the slotted hole of the other *Azimuth Support Bracket* over one *M10x100 Carriage Bolt*.
  - c. Place one *Serrated Flange Nut* on each *M10x100 Carriage Bolt*.



7. Check the four *Pre-Installed M10x25 Flanged Bolts* to ensure that there is a 13 mm gap between each bolt head and its trunnion.



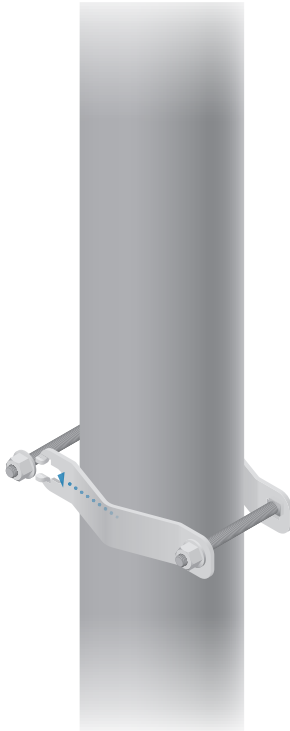
## Pole-Mounting

1. Attach the *Azimuth Support Brackets* to the pole just beneath the area where the airFiber radio will be attached.

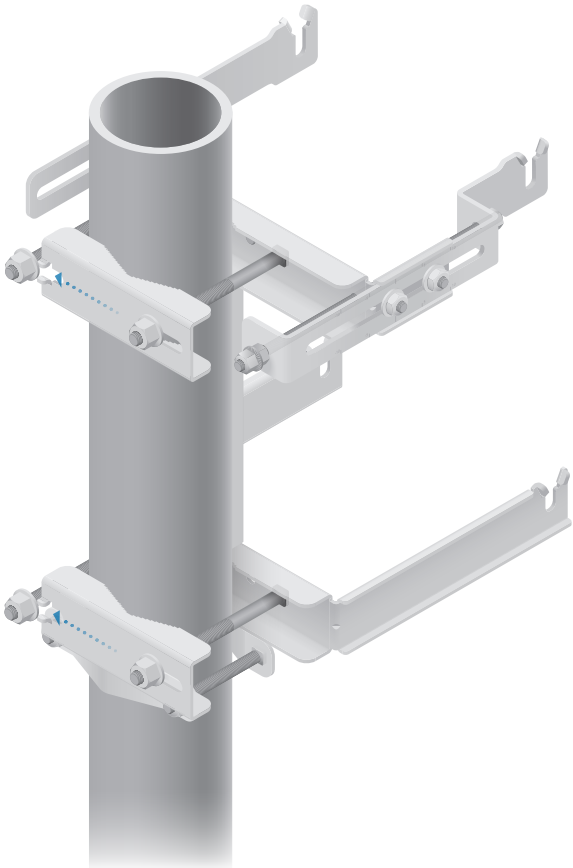


**Note:** The mounting assembly can accommodate a  $\varnothing$  38.1 - 101.6 mm (1.5" - 4.0") pole.

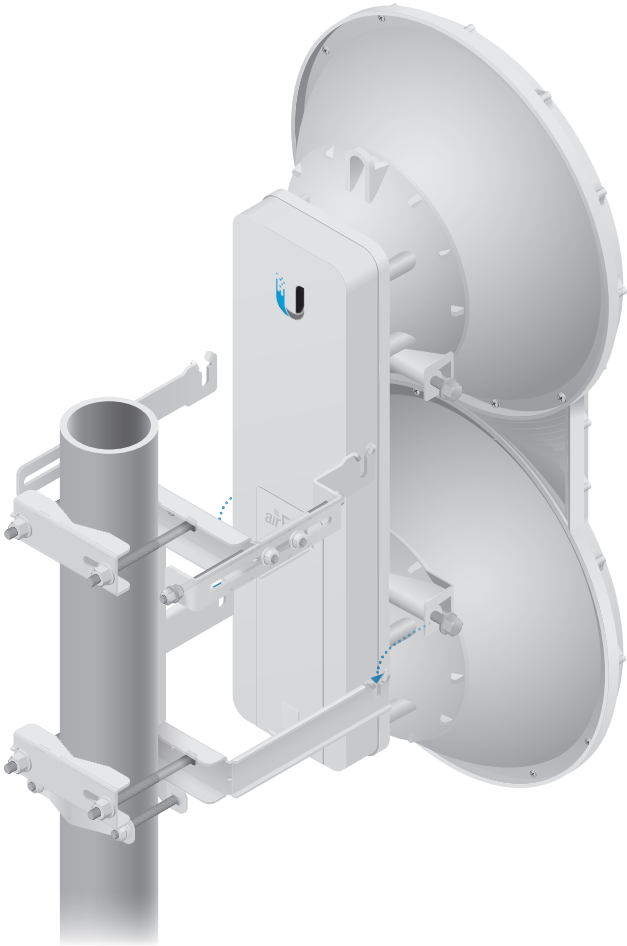
- a. Orient the *Azimuth Support Brackets* around the pole so it is aimed in the direction of the other airFiber radio.
- b. Slide the open slot of the *Azimuth Support Bracket* over the corresponding *M10x100 Carriage Bolt*.
- c. Tighten the *Serrated Flange Nuts* to approximately 50 N-m.



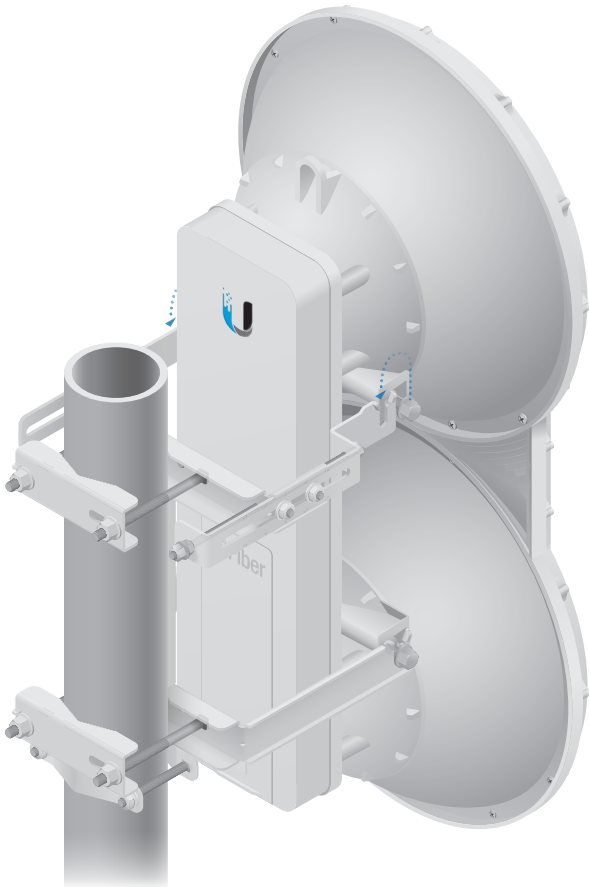
2. Attach the mounting assembly to a pole.
  - a. Orient the mounting assembly around the pole so it is aimed in the direction of the other airFiber radio.
  - b. Slide the open slot of each *Pole Clamp* over the corresponding *M10x150 Carriage Bolt*.
  - c. Tighten the *Serrated Flange Nuts* of the *M10x150 Carriage Bolts* to secure the mounting assembly to the pole.



3. Lift the airFiber radio and align the two lower *Pre-Installed M10x25 Flanged Bolts* with the slots on the *Lower Mount Bracket*. Seat the bolts in the slots.

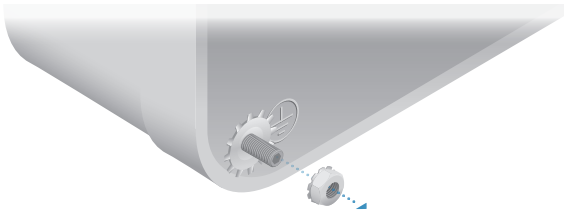


- Align the two upper *Pre-Installed M10x25 Flanged Bolts* of the airFiber radio next to the slots on the *Upper Mount Bracket*. Lift the airFiber radio and seat the bolts in the slots.

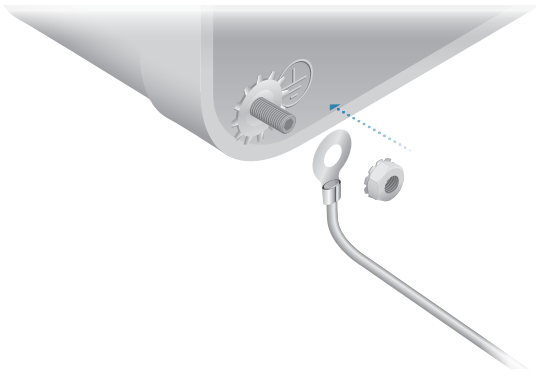


5. Attach a ground wire:

- a. Remove the nut from the *Grounding Point*.



- b. Attach a ground wire (min. 8 AWG or 10 mm<sup>2</sup>) to the lug and replace the nut to secure the wire.



- c. Secure the other end of the ground wire to a grounded mast, pole, tower, or grounding bar.



**WARNING:** Failure to properly ground your airFiber units will void your warranty.

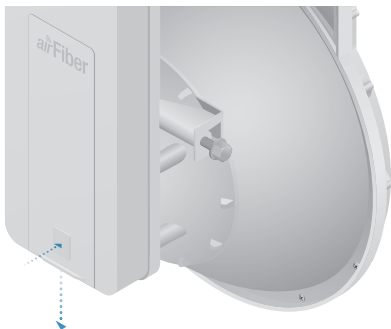


**Note:** The ground wire should be as short as possible and no longer than one meter in length.



## Connecting Ethernet

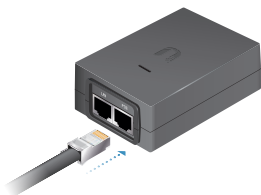
1. Push the button and slide the port cover down to access the cable ports. (The port cover cannot be completely removed.)



2. Connect the Data/PoE Ethernet cable:
  - a. Feed an outdoor, shielded CAT6 cable up through the rightmost cable feed slot on the bottom of the port cover.
  - b. Connect the cable to the *Data* port.
  - c. Create a strain relief for the Ethernet cable by feeding a *Cable Tie* through the tie slot to the side of the cable.
  - d. Wrap the *Cable Tie* around the cable and tighten.



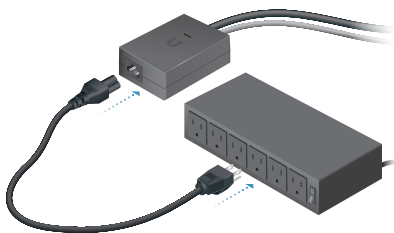
3. Connect the other end of the Ethernet cable from the *Data* port to the Ethernet port labeled **POE** on the *GigE PoE Adapter*.




4. Connect an Ethernet cable from your network to the Ethernet port labeled **LAN** on the *GigE PoE Adapter*.

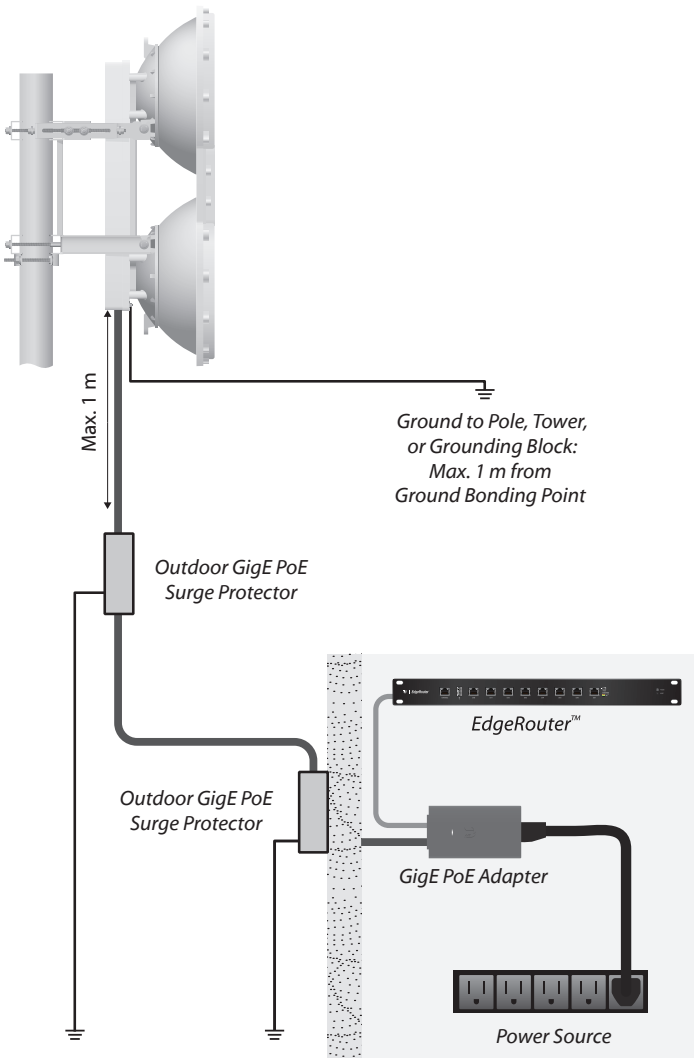


5. Connect the *Power Cord* to the power port on the *GigE PoE Adapter*. Connect the other end of the *Power Cord* to a power source.



 **Note:** For added protection, we recommend installing two GigE PoE surge protectors. Install the first surge protector within 1 m of the airFiber *Data* port, and install the second surge protector at the ingress point of the location housing the wired network equipment.

Below is a diagram of a finished installation with recommended surge protectors installed.



## Alignment

### Tips

- To accurately align the airFiber radios for best performance, you **MUST** align only one end of the link at a time.
- For more convenient alignment, you may consider using long-range scopes (not included) temporarily attached to your airFiber radios.
- You may need to use additional hardware to compensate for issues such as the improper orientation of a mounting pole or significant elevation differences between airFiber radios.

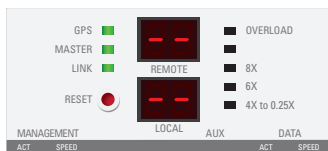
Before a link is established, the *Master's LED Display* looks like this:

- *GPS* and *Master* LEDs are solidly lit



**Note:** The *GPS* LED may not be lit if there is a weak *GPS* signal. A *GPS* signal is not required for alignment.


- *Link Status* LED flashes (Normal Flash 1:1)
- *Remote* and *Local LED Displays* show a double dash



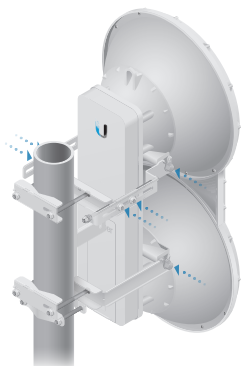
**Note:** The *Local LED Display* may briefly flash a large number (such as 95) when there is no link.

## Establishing a Link

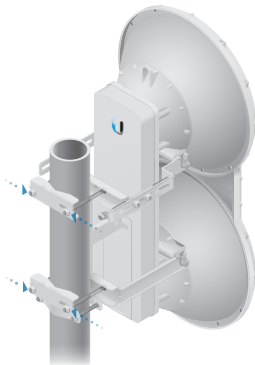
Adjust the positions of the *Master* and the *Slave* to establish a link.

 **Note:** The *Master* must be aimed first at the *Slave* because the *Slave* does not transmit any RF signal until it detects transmissions from the *Master*.

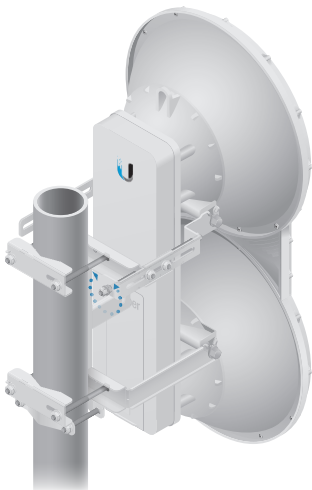
1. Ensure that the following bolts and nuts are loose:
  - Four *Pre-Installed M10x25 Flanged Bolts* on the airFiber radio (two on each side)
  - Four *M10 Hex Nuts* used to lock the elevation alignment on the *Upper Mount Bracket* (two on each side)



2. Ensure that the pole mount is snug yet the four *Serrated Flange Nuts* attaching the *Pole Clamps* are loose enough to allow rotation around the pole for azimuth alignment.

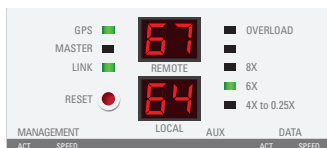


3. **Master** Visually aim the *Master* at the *Slave*. To adjust the *Master's* position:
  - a. Rotate the airFiber radio on the pole to align the azimuth.
  - b. Use the hex nut on the *Elevation Rod* to adjust the elevation.





**Note:** Do NOT make simultaneous adjustments on the *Master* and *Slave*.

4. **Slave** Visually aim the *Slave* at the *Master*. To adjust the *Slave's* position:
  - a. Rotate the airFiber radio on the pole to align the azimuth.
  - b. Use the hex nut on the *Elevation Rod* to adjust the elevation.
5. Check to see if a link is established. Ensure that the *Link Status* LED is solidly lit green and the *Remote* and *Local LED Displays* of the *Slave* are displaying signal levels.




6. **Slave** Aim the *Slave* at the *Master* to achieve the strongest signal level on the *Remote LED Display* of the *Slave*.

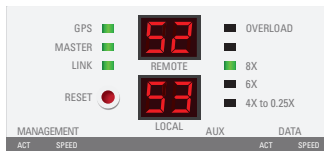
 **Note:** Values on the *LED Displays* are displayed in negative (-) dBm. For example, 67 represents a received signal level of -67 dBm. Smaller numerical values indicate stronger received signal levels. For example, a reading of 49 is stronger than a reading of 55.

 **Note:** Maximum signal strength can best be achieved by iteratively sweeping through both azimuth and elevation.

7. **Master** Aim the *Master* at the *Slave* to achieve the strongest signal level on the *Remote LED Display* of the *Master*.

 **Note:** If the Overload LED lights up, refer to the airFiber AF-5/AF-5U User Guide at: [documentation.ubnt.com/airfiber](http://documentation.ubnt.com/airfiber)

8. Repeat steps 6 and 7 until you achieve a symmetric link, with the signal levels within 1 dB of each other. This ensures the best possible data rate between the airFiber radios.



9. Lock the alignment on both airFiber radios by tightening the nuts and bolts.
10. Observe the *Local* and *Remote LED Displays* of each airFiber radio to ensure that the values remain constant while tightening the nuts and bolts. If any LED value changes during the locking process, loosen the nuts and bolts, finalize the alignment of each airFiber radio again, and retighten the nuts and bolts.
11. For each airFiber radio, close the port cover and ensure that the Ethernet cable stays in the cable feed slot.

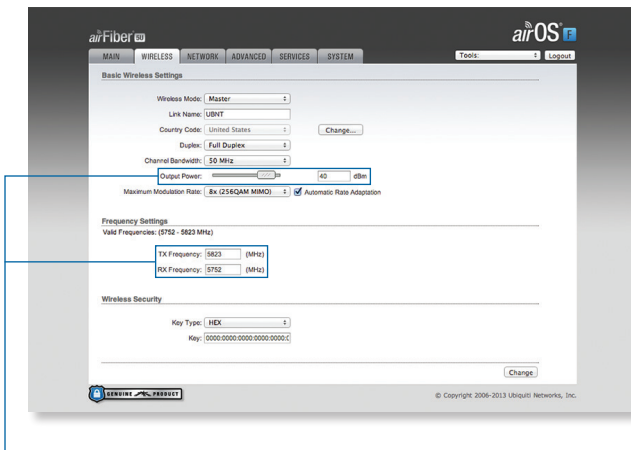
There are three methods for determining the received signal level:

- LED Displays (described above)
- airFiber Configuration Interface (webpage)
- Audio tone (optional equipment required)

Refer to the airFiber AF-5/AF-5U User Guide for instructions on the airFiber Configuration Interface and audio tone methods.

## Installer Compliance Responsibility

Devices must be professionally installed and it is the professional installer's responsibility to make sure the device is operated within local country regulatory requirements.



The *Frequency and Output Power* fields are provided to the professional installer to assist in meeting regulatory requirements.



## Specifications

airFiber AF-5/AF-5U	
Dimensions	938.4 x 468.4 x 281.4 mm (36.94 x 18.44 x 11.08 in)
Weight	
Mount Not Included	11.5 kg (25.35 lb)
Mount Included	16 kg (35.27 lb)
Operating Frequency	
AF-5	
FCC 15.247, 15.407, IC RSS 210	5470 - 5600 MHz, 5650 - 5850 MHz
ETSI EN 301 893, EN 302 502	5470 - 5875 MHz
Other Regions	5470 - 5950 MHz
AF-5U	
FCC 15.247, IC RSS 21	5725 - 5850 MHz
ETSI EN 302 502	5725 - 5875 MHz
Other Regions	5725 - 6200 MHz
Max Power Consumption	40 W
Power Supply	50V, 1.2A PoE GigE Adapter (Included)
Power Method	Passive Power over Ethernet (42-58VDC)
Certifications	CE, FCC, IC
Mounting	Pole Mount Kit (Included)
Wind Loading	863 N @ 200 km/hr (194 lbf @ 125 mph)
Wind Survivability	200 km/hr (125 mph)
Operating Temperature	-40 to 55° C (-40 to 131°F)
Networking Interface	
Data Port	(1) 10/100/1000 Ethernet Port
Management Port	(1) 10/100 Ethernet Port

Receive Sensitivity					
Rate	Modulation	Sensitivity (10 MHz)	Sensitivity (20 MHz)	Sensitivity (30 MHz)	Sensitivity (40 MHz)
10x	1024QAM	-63 dBm	-60 dBm	-59 dBm	-58 dBm
8x	256QAM	-70 dBm	-67 dBm	-66 dBm	-65 dBm
6x	64QAM	-77 dBm	-74 dBm	-73 dBm	-72 dBm
4x	16QAM MIMO	-84 dBm	-81 dBm	-80 dBm	-79 dBm
2x	QPSK MIMO	-90 dBm	-87 dBm	-86 dBm	-85 dBm
1x	½ Rate QPSK xRT**	-93 dBm	-90 dBm	-89 dBm	-88 dBm
¼x	¼ Rate QPSK xRT	-95 dBm	-93 dBm	-93 dBm	-92 dBm

Receive Sensitivity				
Rate	Modulation	Sensitivity (50 MHz)	FDD Capacity*	TDD Capacity*
10x	1024QAM	-57 dBm	1280 Mbps	640 Mbps
8x	256QAM	-64 dBm	1024 Mbps	512 Mbps
6x	64QAM	-71 dBm	768 Mbps	384 Mbps
4x	16QAM MIMO	-78 dBm	512 Mbps	256 Mbps
2x	QPSK MIMO	-84 dBm	256 Mbps	128 Mbps
1x	½ Rate QPSK xRT**	-87 dBm	128 Mbps	64 Mbps
¼x	¼ Rate QPSK xRT	-91 dBm	32 Mbps	16 Mbps

\* FDD = (2) 50 MHz channels and TDD = (1) 50 MHz channel

\*\* xtreme Range Technology

## Safety Notices

1. Read, follow, and keep these instructions.
2. Heed all warnings.
3. Only use attachments/accessories specified by the manufacturer.



**WARNING:** Do not use this product in location that can be submerged by water.



**WARNING:** Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

## Electrical Safety Information

1. Compliance is required with respect to voltage, frequency, and current requirements indicated on the manufacturer's label. Connection to a different power source than those specified may result in improper operation, damage to the equipment or pose a fire hazard if the limitations are not followed.
2. There are no operator serviceable parts inside this equipment. Service should be provided only by a qualified service technician.
3. This equipment is provided with a detachable power cord which has an integral safety ground wire intended for connection to a grounded safety outlet.
  - a. Do not substitute the power cord with one that is not the provided approved type. Never use an adapter plug to connect to a 2-wire outlet as this will defeat the continuity of the grounding wire.
  - b. The equipment requires the use of the ground wire as a part of the safety certification, modification or misuse can provide a shock hazard that can result in serious injury or death.
  - c. Contact a qualified electrician or the manufacturer if there are questions about the installation prior to connecting the equipment.
  - d. Protective earthing is provided by Listed AC adapter. Building installation shall provide appropriate short-circuit backup protection.
  - e. Protective bonding must be installed in accordance with local national wiring rules and regulations.

## Limited Warranty

UBIQUITI NETWORKS, Inc (“UBIQUITI NETWORKS”) warrants that the product(s) furnished hereunder (the “Product(s)”) shall be free from defects in material and workmanship for a period of one (1) year from the date of shipment by UBIQUITI NETWORKS under normal use and operation. UBIQUITI NETWORKS’ sole and exclusive obligation and liability under the foregoing warranty shall be for UBIQUITI NETWORKS, at its discretion, to repair or replace any Product that fails to conform to the above warranty during the above warranty period. The expense of removal and reinstallation of any Product is not included in this warranty. The warranty period of any repaired or replaced Product shall not extend beyond its original term.

## Warranty Conditions

The above warranty does not apply if the Product:

- (I) has been modified and/or altered, or an addition made thereto, except by Ubiquiti Networks, or Ubiquiti Networks’ authorized representatives, or as approved by Ubiquiti Networks in writing;
- (II) has been painted, rebranded or physically modified in any way;
- (III) has been damaged due to errors or defects in cabling;
- (IV) has been subjected to misuse, abuse, negligence, abnormal physical, electromagnetic or electrical stress, including lightning strikes, or accident;
- (V) has been damaged or impaired as a result of using third party firmware;
- (VI) has no original Ubiquiti MAC label, or is missing any other original Ubiquiti label(s); or
- (VII) has not been received by Ubiquiti within 30 days of issuance of the RMA.

In addition, the above warranty shall apply only if: the product has been properly installed and used at all times in accordance, and in all material respects, with the applicable Product documentation; all Ethernet cabling runs use CAT5 (or above), and for outdoor installations, shielded Ethernet cabling is used, and for indoor installations, indoor cabling requirements are followed.



**WARNING: Failure to properly ground your airFiber units will void your warranty.** (Please follow the instructions on page 22 for installation of the ground wires.)

## Returns

No Products will be accepted for replacement or repair without obtaining a Return Materials Authorization (RMA) number from UBIQUITI NETWORKS during the warranty period, and the Products being received at UBIQUITI NETWORKS’ facility freight prepaid in accordance with the RMA process of UBIQUITI NETWORKS. Products returned without an RMA number will not be processed and will be returned freight collect or subject to disposal. Information on the RMA process and obtaining an RMA number can be found at: [www.ubnt.com/support/warranty](http://www.ubnt.com/support/warranty).

## Disclaimer

EXCEPT FOR ANY EXPRESS WARRANTIES PROVIDED HEREIN, UBIQUITI NETWORKS, ITS AFFILIATES, AND ITS AND THEIR THIRD PARTY Data, SERVICE, SOFTWARE AND HARDWARE PROVIDERS HEREBY DISCLAIM AND MAKE NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, REPRESENTATIONS, GUARANTEES, OR WARRANTIES OF MERCHANTABILITY, ACCURACY, QUALITY OF SERVICE OR RESULTS, AVAILABILITY, SATISFACTORY QUALITY, LACK OF VIRUSES, QUIET ENJOYMENT, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT AND ANY WARRANTIES ARISING FROM ANY COURSE OF DEALING, USAGE OR TRADE PRACTICE IN CONNECTION WITH SUCH PRODUCTS AND SERVICES. BUYER ACKNOWLEDGES THAT NEITHER UBIQUITI NETWORKS NOR ITS THIRD PARTY PROVIDERS CONTROL BUYER'S EQUIPMENT OR THE TRANSFER OF Data OVER COMMUNICATIONS FACILITIES, INCLUDING THE INTERNET, AND THAT THE PRODUCTS AND SERVICES MAY BE SUBJECT TO LIMITATIONS, INTERRUPTIONS, DELAYS, CANCELLATIONS AND OTHER PROBLEMS INHERENT IN THE USE OF COMMUNICATIONS FACILITIES. UBIQUITI NETWORKS, ITS AFFILIATES AND ITS AND THEIR THIRD PARTY PROVIDERS ARE NOT RESPONSIBLE FOR ANY INTERRUPTIONS, DELAYS, CANCELLATIONS, DELIVERY FAILURES, Data LOSS, CONTENT CORRUPTION, PACKET LOSS, OR OTHER DAMAGE RESULTING FROM ANY OF THE FOREGOING. In addition, UBIQUITI NETWORKS does not warrant that the operation of the Products will be error-free or that operation will be uninterrupted. In no event shall UBIQUITI NETWORKS be responsible for damages or claims of any nature or description relating to system performance, including coverage, buyer's selection of products (including the Products) for buyer's application and/or failure of products (including the Products) to meet government or regulatory requirements.

## Limitation of Liability

EXCEPT TO THE EXTENT PROHIBITED BY LOCAL LAW, IN NO EVENT WILL UBIQUITI OR ITS SUBSIDIARIES, AFFILIATES OR SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES (INCLUDING LOST PROFIT, LOST Data, OR DOWNTIME COSTS), ARISING OUT OF THE USE, INABILITY TO USE, OR THE RESULTS OF USE OF THE PRODUCT, WHETHER BASED IN WARRANTY, CONTRACT, TORT OR OTHER LEGAL THEORY, AND WHETHER OR NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## Note

Some countries, states and provinces do not allow exclusions of implied warranties or conditions, so the above exclusion may not apply to you. You may have other rights that vary from country to country, state to state, or province to province. Some countries, states and provinces do not allow the exclusion or limitation of liability for incidental or consequential damages, so the above limitation may not apply to you. EXCEPT TO THE EXTENT ALLOWED BY LOCAL LAW, THESE WARRANTY TERMS DO NOT EXCLUDE, RESTRICT OR MODIFY, AND ARE IN ADDITION TO, THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE LICENSE OF ANY SOFTWARE (EMBEDDED IN THE PRODUCT) TO YOU. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to any transactions regarding the sale of the Products.

## Compliance

### AF-5

#### FCC

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operations of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This radio transmitter FCC ID: SWX-AF5 has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna Information: Dish antenna, Gain: 23 dBi

### Industry Canada

#### CAN ICES-3(B)/NMB-3(B)

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter (IC: 6545A-AF5) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna Information: Dish antenna, Gain: 23 dBi

## CAN ICES-3(B)/NMB-3(B)

Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour une communication réussie.

Cet appareil est conforme à la norme RSS Industrie Canada exempts de licence norme(s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne peut pas provoquer d'interférences et
2. Cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

Cet émetteur radio (IC: 6545A-AF5) a été approuvée par Industrie Canada pour l'exploitation avec l'antenne types énumérés ci-dessous avec le gain maximal admissible et requis l'impédance de l'antenne pour chaque type d'antenne indiqué. Types d'antenne non inclus dans cette liste, ayant un gain supérieur au gain maximal indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil. Immédiatement suite à la remarque, le fabricant doit fournir une liste de tous les types d'antenne approuvé pour une utilisation avec l'émetteur, ce qui indique le gain maximal d'antenne permis (en dBi) et requis d'impédance pour chacun.

Informations d'antenne: Antenne parabolique, Gain: 23 dBi

## AF-5U

### FCC

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operations of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This radio transmitter FCC ID: SWX-AF5U has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna Information: Dish antenna, Gain: 23 dBi

## Industry Canada

### CAN ICES-3(B)/NMB-3(B)

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter (IC: 6545A-AF5) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna Information: Dish antenna, Gain: 23 dBi



## CAN ICES-3(B)/NMB-3(B)

Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour une communication réussie.

Cet appareil est conforme à la norme RSS Industrie Canada exempts de licence norme(s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne peut pas provoquer d'interférences et
2. Cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

Cet émetteur radio (IC: 6545A-AF5) a été approuvée par Industrie Canada pour l'exploitation avec l'antenne types énumérés ci-dessous avec le gain maximal admissible et requis l'impédance de l'antenne pour chaque type d'antenne indiqué. Types d'antenne non inclus dans cette liste, ayant un gain supérieur au gain maximal indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil. Immédiatement suite à la remarque, le fabricant doit fournir une liste de tous les types d'antenne approuvé pour une utilisation avec l'émetteur, ce qui indique le gain maximal d'antenne permis (en dBi) et requis d'impédance pour chacun.

Informations d'antenne: Antenne parabolique, Gain: 23 dBi

## RF Exposure Warning

The antennas used for this transmitter must be installed to provide a separation distance of at least 126 cm (AF-5) or 123 cm (AF-5U) from all persons and must not be located or operating in conjunction with any other antenna or transmitter.

Les antennes utilisées pour ce transmetteur doivent être installées en considérant une distance de séparation de toute personne d'au moins 126 cm (AF-5) ou 123 cm (AF-5U) et ne doivent pas être localisées ou utilisées en conflit avec toute autre antenne ou transmetteur.

## Australia and New Zealand



Warning: This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## CE Marking

CE marking on this product represents the product is in compliance with all directives that are applicable to it.

## Alert Sign (!) Follows CE Marking

Alert sign must be indicated if a restriction on use applied to the product and it must follow the CE marking.



## RoHS/WEEE Compliance Statement



### English

European Directive 2002/96/EC requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

### Deutsch

Die Europäische Richtlinie 2002/96/EC verlangt, dass technische Ausrüstung, die direkt am Gerät und/oder an der Verpackung mit diesem Symbol versehen ist, nicht zusammen mit unsortiertem Gemeindeabfall entsorgt werden darf. Das Symbol weist darauf hin, dass das Produkt von regulärem Haushaltsmüll getrennt entsorgt werden sollte. Es liegt in Ihrer Verantwortung, dieses Gerät und andere elektrische und elektronische Geräte über die dafür zuständigen und von der Regierung oder örtlichen Behörden dazu bestimmten Sammelstellen zu entsorgen. Ordnungsgemäßes Entsorgen und Recyceln trägt dazu bei, potentielle negative Folgen für Umwelt und die menschliche Gesundheit zu vermeiden. Wenn Sie weitere Informationen zur Entsorgung Ihrer Altgeräte benötigen, wenden Sie sich bitte an die örtlichen Behörden oder städtischen Entsorgungsdienste oder an den Händler, bei dem Sie das Produkt erworben haben.

### Español

La Directiva 2002/96/CE de la UE exige que los equipos que lleven este símbolo en el propio aparato y/o en su embalaje no deben eliminarse junto con otros residuos urbanos no seleccionados. El símbolo indica que el producto en cuestión debe separarse de los residuos domésticos convencionales con vistas a su eliminación. Es responsabilidad suya desechar este y cualesquiera otros aparatos eléctricos y electrónicos a través de los puntos de recogida que ponen a su disposición el gobierno y las autoridades locales. Al desechar y reciclar correctamente estos aparatos estará contribuyendo a evitar posibles consecuencias negativas para el medio ambiente y la salud de las personas. Si desea obtener información más detallada sobre la eliminación segura de su aparato usado, consulte a las autoridades locales, al servicio de recogida y eliminación de residuos de su zona o pregunte en la tienda donde adquirió el producto.

## Français

La directive européenne 2002/96/CE exige que l'équipement sur lequel est apposé ce symbole sur le produit et/ou son emballage ne soit pas jeté avec les autres ordures ménagères. Ce symbole indique que le produit doit être éliminé dans un circuit distinct de celui pour les déchets des ménages. Il est de votre responsabilité de jeter ce matériel ainsi que tout autre matériel électrique ou électronique par les moyens de collecte indiqués par le gouvernement et les pouvoirs publics des collectivités territoriales. L'élimination et le recyclage en bonne et due forme ont pour but de lutter contre l'impact néfaste potentiel de ce type de produits sur l'environnement et la santé publique. Pour plus d'informations sur le mode d'élimination de votre ancien équipement, veuillez prendre contact avec les pouvoirs publics locaux, le service de traitement des déchets, ou l'endroit où vous avez acheté le produit.

## Italiano

La direttiva europea 2002/96/EC richiede che le apparecchiature contrassegnate con questo simbolo sul prodotto e/o sull'imballaggio non siano smaltite insieme ai rifiuti urbani non differenziati. Il simbolo indica che questo prodotto non deve essere smaltito insieme ai normali rifiuti domestici. È responsabilità del proprietario smaltire sia questi prodotti sia le altre apparecchiature elettriche ed elettroniche mediante le specifiche strutture di raccolta indicate dal governo o dagli enti pubblici locali. Il corretto smaltimento ed il riciclaggio aiuteranno a prevenire conseguenze potenzialmente negative per l'ambiente e per la salute dell'essere umano. Per ricevere informazioni più dettagliate circa lo smaltimento delle vecchie apparecchiature in Vostro possesso, Vi invitiamo a contattare gli enti pubblici di competenza, il servizio di smaltimento rifiuti o il negozio nel quale avete acquistato il prodotto.

## Declaration of Conformity

Česky [Czech]	UBIQUITI NETWORKS tímto prohlašuje, že toto UBIQUITI NETWORKS zařízení, je ve shod se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Hermed, UBIQUITI NETWORKS, erklærer at denne UBIQUITI NETWORKS enhed, er i overensstemmelse med de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Nederlands [Dutch]	Hierbij verklaart UBIQUITI NETWORKS, dat deze UBIQUITI NETWORKS apparaat, in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EC.
English	Hereby, UBIQUITI NETWORKS, declares that this UBIQUITI NETWORKS device, is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Eesti [Estonian]	Käesolevaga UBIQUITI NETWORKS kinnitab, et antud UBIQUITI NETWORKS seade, on vastavus oluliste nõuetele ja teistele asjakohastele sätetele direktiivi 1999/5/EÜ.
Suomi [Finnish]	Täten UBIQUITI NETWORKS vakuuttaa, että tämä UBIQUITI NETWORKS laite, on yhdenmukainen olennaisten vaatimusten ja muiden sitä koskevien direktiivin 1999/5/EY.
Français [French]	Par la présente UBIQUITI NETWORKS déclare que l'appareil UBIQUITI NETWORKS, est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Deutsch [German]	Hiermit erklärt UBIQUITI NETWORKS, dass sich dieses UBIQUITI NETWORKS Gerät, in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet.
Ελληνική [Greek]	Δια του παρόντος, UBIQUITI NETWORKS, δηλώνει ότι αυτή η συσκευή UBIQUITI NETWORKS, είναι σε συμμόρφωση με τις βασικές απαιτήσεις και τις λοιπές σχετικές διατάξεις της οδηγίας 1995/5/EK.
Magyar [Hungarian]	Ezennel UBIQUITI NETWORKS kijelenti, hogy ez a UBIQUITI NETWORKS készülék megfelel az alapvető követelményeknek és más vonatkozó 1999/5/EK irányelv rendelkezéseit.
Íslenska [Icelandic]	Hér, UBIQUITI NETWORKS, því yfir að þetta UBIQUITI NETWORKS tæki er í samræmi við grunnkröfur og önnur viðeigandi ákvæði tilskipun 1999/5/EC.
Italiano [Italian]	Con la presente, UBIQUITI NETWORKS, dichiara che questo dispositivo UBIQUITI NETWORKS, è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti della direttiva 1999/5/CE.

<b>Latviski</b> [Latvian]	Ar šo, UBIQUITI NETWORKS, deklarē, ka UBIQUITI NETWORKS ierīce, ir saskaņā ar būtiskajām prasībām un citiem attiecīgiem noteikumiem Direktīvā 1999/5/EK.
<b>Lietuviškai</b> [Lithuanian]	UBIQUITI NETWORKS deklaruoja, kad šis UBIQUITI NETWORKS įrenginys atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
<b>Malti</b> [Maltese]	Hawnhekk, UBIQUITI NETWORKS, tid dikjara li dan il-mezz UBIQUITI NETWORKS huwa konformi mar-rekwiżiti essenzjali u dispozizzjonijiet rilevanti oħrajn ta 'Direttiva 1999/5/EC.
<b>Norsk</b> [Norwegian]	Herved UBIQUITI NETWORKS, erklærer at denne UBIQUITI NETWORKS enheten, er i samsvar med de grunnleggende kravene og andre relevante bestemmelser i direktiv 1999/5/EF.
<b>Slovensky</b> [Slovak]	Týmto UBIQUITI NETWORKS, prehlasuje, že toto UBIQUITI NETWORKS zariadenie, je v súlade so základnými požiadavkami a ďalšími relevantnými ustanoveniami smernice 1999/5/ES.
<b>Svenska</b> [Swedish]	Härmed UBIQUITI NETWORKS, intygar att denna UBIQUITI NETWORKS enhet är i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
<b>Español</b> [Spanish]	Por medio de la presente UBIQUITI NETWORKS declara que este dispositivo UBIQUITI NETWORKS, cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
<b>Polski</b> [Polish]	Niniejszym, Ubiquiti Networks, oświadcza, że urządzenie UBIQUITI NETWORKS, jest zgodny z zasadniczymi wymaganiami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
<b>Português</b> [Portuguese]	UBIQUITI NETWORKS declara que este dispositivo UBIQUITI NETWORKS, está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
<b>Română</b> [Romanian]	Prin prezenta, UBIQUITI NETWORKS declară că acest dispozitiv UBIQUITI NETWORKS este în conformitate cu cerințele esențiale și alte prevederi relevante ale Directivei 1999/5/CE.





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