



# AIRSTAR 1900/1200 5G SUB-6 GHZ FULL GNB/RDU 2T2R INDOOR RADIO UNIT Installation Guide

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## Document Information

This document details the procedure for installing the Airspan's AirStar 1900/1200 5G Sub-6 GHz, RU aimed as part of the 5G NR standard and its place in the Airspan product suite. This document is intended for qualified personnel with a working knowledge of 5G.

## Revision History

Revision	Date	Summary of Changes	Created by
Rev 0.1 – 0.2	February 2022	<ul style="list-style-type: none"><li>Initial document – draft</li><li>Added new mounting configuration</li></ul>	MSF + YS +SS
Rev 0.3 – 0.4	February 2022	<ul style="list-style-type: none"><li>Added Variant table</li><li>Added Extension Kit</li></ul>	MSF + YS +SS
Rev 0.5 – 0.6	March 2022	<ul style="list-style-type: none"><li>Name change</li><li>Changes from comments</li><li>Added ACP-FCC note</li></ul>	MSF + YS +SS
Rev A	TBD	Published	MSF + YS +SS

## Warnings and Cautions

### Human Exposure to Radio Frequencies

The AirStar 1900/1200 5G Sub-6 GHz should be operated from a minimum safe distance of 20 cm (7.87 in.) during normal operation.

### Radio Interference

The AirStar 1900/1200 5G Sub-6 generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the technician is encouraged to try to correct the interference by performing one or more of the following measures:

- Re-orientate or relocate the unit
- Increase separation between the units and/or End Devices
- Connect the equipment to a circuit different from that to which the power source is connected

### Modifications

Any changes and modifications to this device that are not expressly approved by Airspan Networks may void the user's authority to operate the equipment.

### General

- Only qualified personnel should be allowed to install, replace, and service the equipment.
- The device cannot be sold retail, to the public or by mail order. It must be sold to operators.
- Installation must be controlled.
- Installation must be performed by licensed professionals.
- Installation requires special training. The AirStar 1900/1200 5G Sub-6 should be installed **ONLY** by experienced installation professionals who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate government regulatory authorities. Failure to do so may void Airspan's product warranty and may expose the end user or the service provider to legal and financial liabilities. Airspan and its resellers or distributors are not liable for injury, damage or violation of regulations associated with the installation of outdoor units or antennas.
- The device is to be installed in a Restricted Access Location not easily accessible.

### Important Safety Instructions

- Read and Save these instructions
- This Installation Guide contains instructions and warnings that should be followed during installation, and operation.
- Failure to follow these instructions could cause bodily injury and/or product failure

### Safety

1. Read this guide and follow all operating and safety instructions.
2. Static sensitive components inside - do not remove the lid or base: No user serviceable parts inside.

3. Position the power cord to avoid possible damage; do not overload circuits.
4. Do not place this product on or near a direct heat source, and avoid placing objects on the terminal.
5. Use only a damp cloth for cleaning. Do not use liquid or aerosol cleaners. Disconnect the power before cleaning.
6. The units should not be located too near power lines or other electrical power circuits, where it can come into contact with power lines or circuits.
7. The radio transceiver must be properly grounded to protect against power surges and accumulated static electricity. It is the user's responsibility to install this device in accordance with the local electrical codes.
8. Installation of the AirStar 1900/1200 5G Sub-6 must be contracted to a professional installer.
9. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.



The onsite source circuit breaker (10A) should be gang operated, **double pole** (single phase type).

## Warning of Hazardous Voltages

On AC installations, hazardous voltages exist. Use caution when verifying or working with AC power. Remove metal jewelry that could come into contact with AC power.

On DC sections, short-circuiting the low voltage, low impedance circuits can cause severe arcing that may result in burns or eye damage. Remove rings, watches etc. to avoid shorting DC circuits.



Airspan products do not contain hazardous substances (as defined in UK Control of Substances Hazardous to Health Regulations 1989 and the Dangerous Substances Regulations 1990). At the end of any Airspan products life cycle, the customer should consult with Airspan to ensure that the product is disposed of in conformance with the relevant regulatory requirements.

## Adherence to European Directive 2014/53/EU

European Council Recommendation 2014/53/EU details basic restrictions and reference levels on human exposure to electromagnetic fields as advised by the ICNIRP. Adherence to these recommended restrictions and reference levels should provide a high level of protection as regards the established health effects that may result from exposure to electromagnetic fields.

## Warning Symbols

The following symbols may be encountered during installation or troubleshooting. These warning symbols mean danger. Bodily injury may result if you are not aware of the safety hazards involved in working with electrical equipment and radio transmitters. Familiarize yourself with standard safety practices before continuing.



Caution, hot surface



Caution



Electro-Magnetic  
Radiation



High Voltage



DC



## Service Information

Refer all repairs to qualified service personnel. Do not modify any part of this device, as this will void the warranty.

Disconnect the power to this product and return it for service if the following conditions apply:

1. The terminal does not function after following the operating instructions outlined in this manual.
2. The product has been dropped or the housing is damaged.

Locate the serial number of the terminal and record this on your registration card for future reference. Also, record the MAC address, located on the product sticker.

The unit can be powered by either PoE++ or AC power (using an AC/DC converter).

AirStar 1900/1200 is easy to install on ceiling, suspended ceiling or wall

# About This Document

## Purpose

This guide provides the workflow and step-by-step procedures for installing the Airspan's AirStar 1900/1200 a high performing RU variant. These procedures include:

- Verify prerequisites
- Install Mounting bracket Wall or Ceiling (Suspended or Solid)
- Install the AirStar 1900/1200
- Connect and manage cables
- Connect power





## Intended Audience

This guide is intended for persons who are responsible for installing the AirStar 1900/1200 5G Sub-6. These persons should have a working knowledge of the equipment.

## Document Conventions

This document uses the following typographic conventions.

Table 1: Typographic Conventions

Convention	Element
<a href="#">Blue</a> underlined text	Cross-reference links.
<b>Bold text</b>	Keyboard buttons and GUI elements.
<b>Command</b>	Command names or phrases.
Computer output	Text displayed by the computer.
<a href="#">Hyperlinks</a>	Website and e-mail addresses.
<b><a href="#">Danger</a></b>	Signifies a hazardous situation—if not avoided—will cause death or serious injury. Describes how to avoid it.
 <b>Warning</b>	Signifies a hazardous situation—if not avoided—can cause death or serious personal injury. Describes how to avoid it.
 <b>Caution</b>	Signifies a hazardous situation—if not avoided—can void the product warranty, and cause property damage. Describes how to avoid it.
 <b>Information/Note</b>	Provides necessary information to explain a task.
 <b>Tip</b>	Provides helpful hints.

## Related Reading

The following documents contain related information:

- AirStar 1900/1200 5G Sub-6 Product Specification

# 1 Introduction

This section provides a descriptive overview of the installation of Airspan's AirStar 1900/1200 and its place in the Airspan product suite.

This document is intended for readers with 5G working knowledge.

All information in this document is for general information only, and is subject for change without notice.

## 1.1 AirStar 1900/1200 5G Sub-6Hz

The AirStar1900/1200 is 5G-NR, sub-6 GHz indoor solution that's part of the OpenRANGE product line. It consists of both a radio unit (RU), distributed unit (DU) and in a compact unit (CU). It either can operate as a full gNB solution, or can be based on 3GPP split 2 architecture (SW Roadmap) - thus, allowing network adaptability for operators. The AirStar1900/1200 delivers enhanced, indoor to indoor and indoor to outdoor network coverage and capacity.



For management please refer to the system Commissioning Manual.

Figure 1: AirStar 1900/1200 5G Sub-6Hz



## 2 Getting Started

### 2.1 AirStar 1900/1200 5G Sub-6 Job Sheet

Plan the installation of the AirStar 1900/1200 5G Sub-6 by using the Job Sheet, which you can find as a removable job aid in [Appendix A](#) for this guide.

## 3 Verifying Prerequisites

Prior to installing the AirStar 1900/1200 5G Sub-6Hz, verify the required safety, power, tools, parts and components. This chapter includes the hardware, software, and client requirements for installation.



**Important:** Set up requirements for the installation is detailed in the Job Sheet, see [Appendix A](#).

### 3.1 Verifying Site Requirements

To set up the AirStar 1900/1200 5G Sub-6Hz, an IP connection to a Network Management System (NMS) is required.

### 3.2 Verify Installation Requirements



#### 3.2.1 Verify the Tools




Table 2. Minimum Hardware Requirements

Tool	Use
Philips screwdriver (PH2)	For securing the Wall mounting bracket base, and securing the Ceiling adaptor bracket
5/32" Allen wrench	For ¼-20 screws – Ceiling adaptor to Pole, Hanger and Extension coupler
3/32" Allen wrench	For 8-32 screws – Locking screw and GPS bracket

#### 3.2.2 Verify the Parts and Kits

Table 3. Parts & Kits

Installation Kit / Part	Part No.	Consisting of:	Image
AirStar 1900/1200 5G Sub-6 unit	AR19-N48-DP4C1S	<ul style="list-style-type: none"> <li>AirStar 1900/1200 5G Sub-6</li> <li>GPS antenna</li> <li>PoE++ adaptor + US cable cord with Plug type B</li> <li>Ceiling mounting kit</li> </ul>	
AirStar 1900/1200 5G Sub-6 Ceiling Mounting Kit		<ul style="list-style-type: none"> <li>Ceiling base bracket</li> <li>Basic pole</li> <li>Hanger</li> <li>Top cover</li> <li>Bottom cover</li> <li>Hardware</li> </ul>	

Installation Kit / Part	Part No.	Consisting of:	Image
<b>Optional Accessories – available separately</b>			
AirStar 1900/1200 5G Sub-6 Extension Kit		<ul style="list-style-type: none"> <li>• Extension pole</li> <li>• Extension coupler</li> <li>• Extension Coupler Cap</li> <li>• Hardware</li> </ul>	
AirStar 1900/1200 5G Sub-6 GPS Extension kit		<ul style="list-style-type: none"> <li>•</li> </ul>	
AirStar 1900/1200 5G Sub-6 Suspended Ceiling Mounting Kit		<ul style="list-style-type: none"> <li>• Ceiling base bracket</li> <li>• Long pole</li> <li>• Hanger</li> <li>• Top and bottom sleeve(s)</li> <li>• Bottom cover</li> <li>• Hardware</li> </ul>	
AirStar 1900/1200 5G Sub-6 Wall Mounting Kit		<ul style="list-style-type: none"> <li>• Basic Wall Mounting Bracket Base, hanger bracket &amp; covers</li> <li>• Hardware</li> </ul>	



Standard ceiling mounting kit is included. Available separately - there is a Suspended ceiling mounting kit or a Wall mounting kit, please contact your Airspan supplier.



The AirStar 1900/1200 requires operation using an Airspan FCC-specific version of ACP acting as a CBRS Domain Proxy.

### 3.2.3 Product Variants

Table 4: AirStar Variants

Variant	Description
AR19-N48-DP4C1S	AirStar 1900/1200 5G, 3.55-3.7GHz (n48), PoE/DC
AR19-N48-DP4C1S-CN	AirStar 1900/1200 5G, 3.55-3.7GHz (n48), PoE/DC Connectorized

### 3.2.4 Power Supply and Current

AirStar 1900/1200 5G Sub-6 supports a direct connection to DC power source or Standard 802.3bt Type4 class 8 90w adaptor.

Operational Range: 40.5-57vDC

Safety approved (certified) according to IEC/EN/TUV 60950-1

The use of other power sources may impair safety and will invoke warranty.

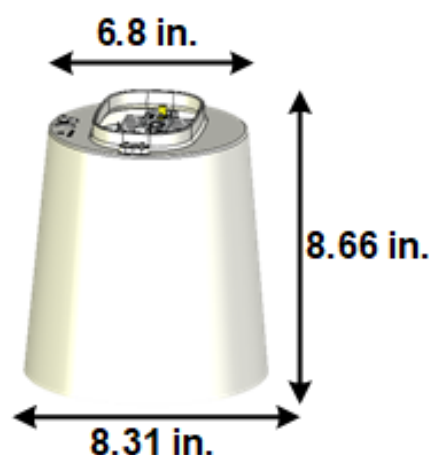
### 3.2.5 Physical Dimensions

AirStar 1900/1200 5G Sub-6 is in an indoor enclosure.

Table 5: AirStar 1900/1200 5G Sub-6 Physical Dimensions

Dimensions (H x W x D)	Weight
8.66 x 8.31 x 6.8 in. / 220 x 211 x 172.5 mm	3.7 Kg / 8.2 Lbs.

Figure 2: AirStar 1900/1200 5G Sub-6 Dimensions



### 3.2.6 Environmental



AirStar 1900/1200 5G Sub-6RU is not for external/outdoor use.

Table 6: AirStar 1900/1200 5G Sub-6 Operational Tolerances

Type	Parameters
Operating temperature	0°C to 40°C
Operating humidity	5% - 85% non-condensing
Storage temperature	-25°C to 70°C
Storage humidity	5% - 95% non-condensing
Rain and dust ingress protection	IP30
Operational altitude	70-106 kPa as well as: From -60m to 1800m @ 40°C From 1800m to 4000m @ 30°C
Radio Performance	AirStar 1900/1200 conforms to the TS 38.104 - Local Area Base Station type 1-O (OTA FR1)
Safety	IEC62368-1:2018 (Edition No. 3)
ROHS	RoHS 3 directive
FCC	FCC Title 47 CFR Part 96.
EMC	FCC Title 47 CFR Parts 15.107 and 15.109 Class-B
Environmental	ETSI EN 300-019-1-3 Operational (class 3.1 - temperature protected locations) ETSI EN 300-019-1-1 Storage (class 1.2 -weather protected, not temperature controlled locations) ETSI EN 300-019-1-2 Transportation (class 2.3 – Public Transportation)
MTBF	50 Years



## 4 AirStar 1900/1200 5G Sub-6 Installation

AirStar 1900/1200 5G Sub-6 supports Ceiling (conventional and suspended) and Wall mounting.

### 4.1 Ceiling Mount

The following defines the AirStar 1900/1200 ceiling-mount assembly procedure for conventional ceiling or suspended ceilings.



Prior to assembly, in any mounting scenario, determine where the unit is to be installed.

#### 4.1.1 Conventional Ceiling Assembly

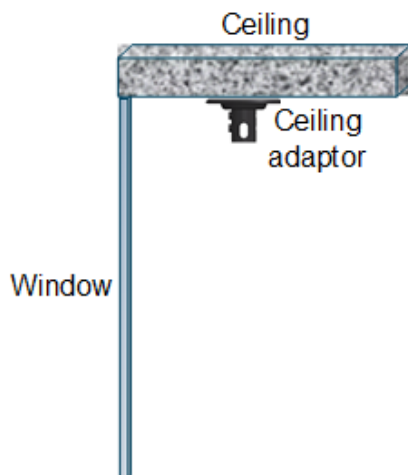
The following are instructions for assembly to a conventional ceiling.

1. Select the required location where the AirStar 1900/1200 unit is to be installed, on the ceiling opposite a window.
2. Position the Ceiling adaptor bracket on the ceiling. Be sure to position the Ceiling adaptor so the unit will be opposite a window.
3. Mark the screw positions carefully through the holes in the Ceiling adaptor bracket onto the ceiling.
4. After drilling holes and inserting approved ceiling anchors (plugs) fasten the Ceiling adaptor bracket to the ceiling with screws and washers (not included).



Screws and washers (x4) and any necessary hardware are not supplied by Airspan and are the responsibility of the installer. Use appropriate ceiling hardware according to field conditions. The holes in the Ceiling adaptor are 5/16 (8mm).

Figure 3: Fasten the Ceiling Adaptor Bracket to the Ceiling



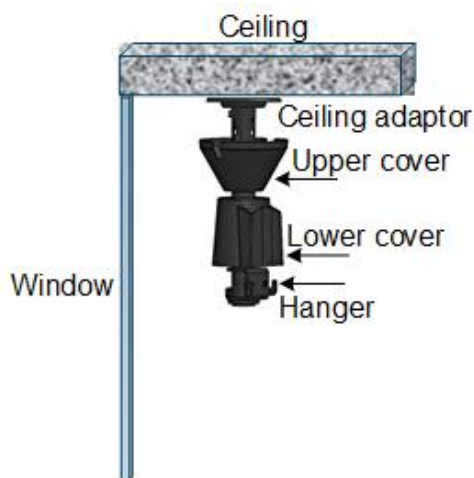
5. Slide the Hanger onto the pole, till the bottom.

Figure 4: Slide Hanger onto Pole



6. Slide the decorative (lower) cover over the pole. Verify that the opening is facing downward.
7. Slide the decorative (upper) cover over the pole. Verify that the opening is facing upward.
8. Lift the mounting pole (with the Hanger and covers) into position and insert into the Ceiling adaptor.

Figure 5: Mounting to the Ceiling Adaptor



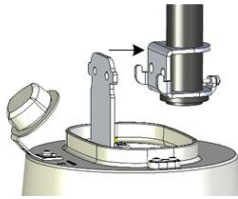
9. Align the holes of the pole and the Ceiling adaptor.
10. Insert the two (2) 1/4 -20 screws, washers and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 6: Insert Screws



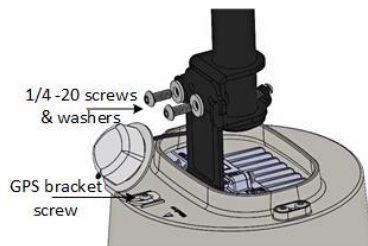
11. At this time, route the cables through the opening in pole and out the bottom, connection will be made later.
12. The Ceiling adaptor bracket is installed and ready for AirStar 1900/1200 unit mounting.
13. Lift the plastic lower cover, up out of the way in order to hang the unit.
14. Lift and hook the AirStar 1900/1200 on the hanger.

Figure 7: Hook Unit on Hanger



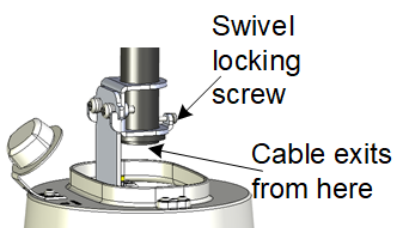
15. Insert the two (2) 1/4 -20 screws, washers and tighten through the holes in the hanger holes and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 8: Insert the Screws



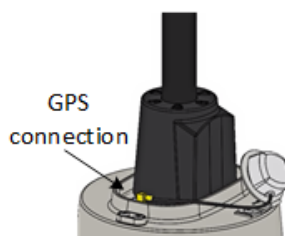
16. Rotate the AirStar 1900/1200 so that the GPS plate faces the window.
17. Tighten the setscrew to lock the unit in the current position (facing the window). Tighten to a torque of no more than 22 lb\*in (2.48 Nm) max.

Figure 9: Tighten Setscrew



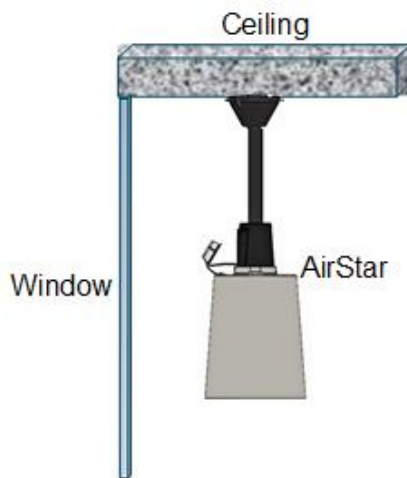
18. Connect the necessary cables to the relevant ports.
19. Once all connections are completed, slide up the decorative top cover over the Ceiling adaptor and snap it closed.
20. Check that the GPS is connected properly.

Figure 10: GPS Connection



21. Next slide down the decorative bottom cover over the top of the and snap it on to fasten it.
22. After assembly, the GPS can be adjusted by loosening the 8-32 screw (with a 3-32 Allen wrench) on the GPS bracket. After adjustment, re-tighten the screw. Tighten to a torque of no more than 8lb\*in (0.90 Nm) max.

Figure 11: Conventional Ceiling Mounted

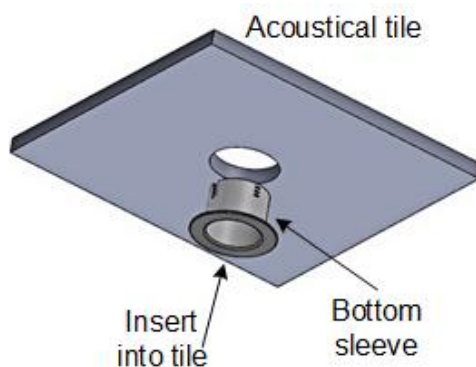


### 4.1.2 Suspended Ceiling Assembly

The following are instructions for assembly to a Suspended (acoustical) ceiling.

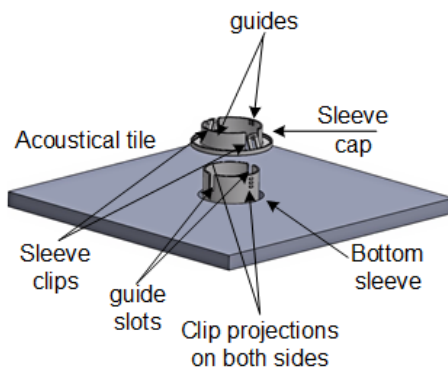
1. Determine the position where the AirStar unit is to be installed.
2. Determine which acoustical ceiling tile the pole will pass thru and remove it to gain access to the conventional ceiling above.
3. Prepare a hole (using a 64mm (2.5 in) hole-saw) in the acoustical tile where the pole will pass through, in order to be fastened to the upper ceiling.
4. Insert the bottom sleeve into the hole in the acoustical tile.

Figure 12: Insert Bottom Sleeve



5. Turn the tile over and fit the sleeve cap onto the bottom sleeve.

Figure 13: Fit Sleeve Cap on the Bottom Sleeve



6. The guides and the guide slots allow for correct alignment of the sleeve and cap.
7. The clip projections enable the sleeve to clinch on various tile thicknesses.
8. Put the acoustical tile aside (briefly) while attaching the Ceiling bracket.
9. Position the Ceiling adaptor bracket on the conventional ceiling above the suspended ceiling. Be sure to position the Ceiling adaptor so the unit will be opposite a window. The clearance should be 203 mm (8 in.) from the window.
10. Mark the screw positions carefully through the holes in the Ceiling adaptor bracket onto the ceiling.
11. After drilling holes and inserting approved ceiling anchors (plugs), fasten the Ceiling bracket to the ceiling with screws and washers (not included).



Screws and washers (x4) and any necessary hardware are not supplied by Airspan and are the responsibility of the installer. Use appropriate ceiling hardware according to field conditions. The holes in the Ceiling adaptor are 5/16 (8mm).

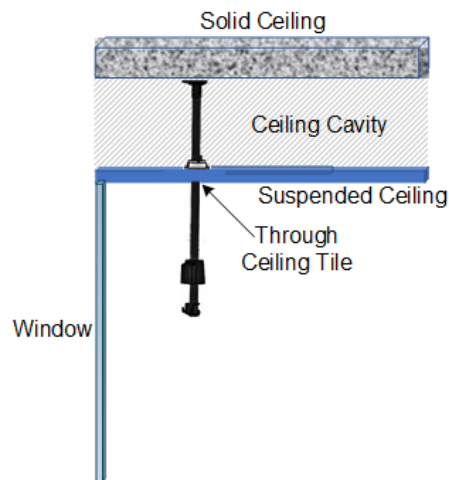
12. Slide the Hanger onto the pole, until the bottom.

Figure 14: Slide the Hanger onto Pole



13. Slide the decorative (bottom) cover over the pole. Verify that the opening is facing downward.
14. Replace the acoustical ceiling tile, with the sleeve attached, back in place.
15. Lift the mounting pole (with the Hanger and cover) and pass it through the acoustical ceiling tile, and insert into the Ceiling adapter.

Figure 15: Suspended Ceiling Assembly



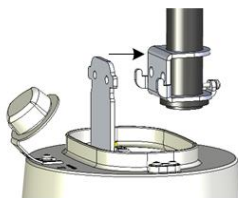
16. Align the holes of the pole and the Ceiling adaptor.
17. Insert the two (2) 1/4 -20 screws, washers and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 16: Insert the 2 Screws



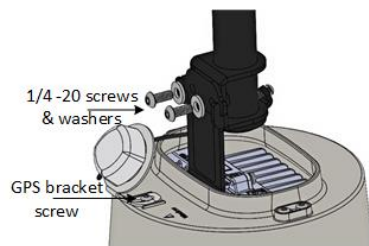
18. At this time route the cables into and on down through the pole, for later connection.
19. Lift and hook the AirStar 1900/1200 on the hanger.

Figure 17: Hook Unit on Hanger



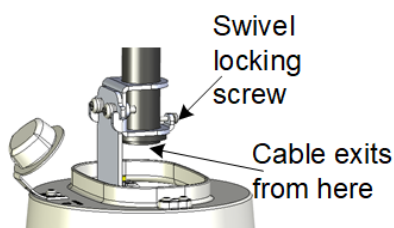
20. Insert the two (2) 1/4 -20 screws, washers and tighten through the holes in the hanger holes and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 18: Insert the Screws



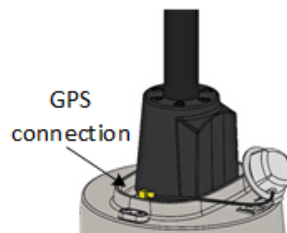
21. Rotate the AirStar 1900/1200 so that the GPS plate faces the window.
22. Tighten the setscrew to lock the unit in the current position (facing the window). Tighten to a torque of no more than 22 lb\*in (2.48 Nm) max.

Figure 19: Insert Screws and Tighten



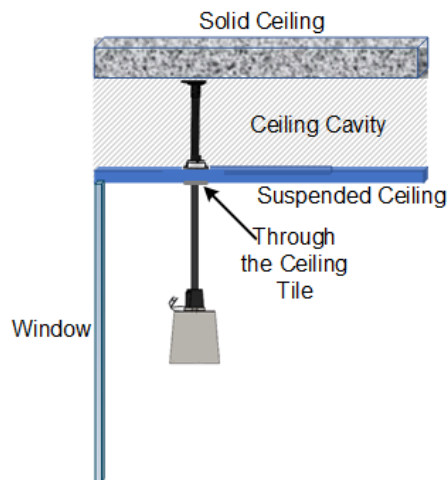
23. Connect the necessary cables to the relevant ports.
24. Check that the GPS is connected properly.

Figure 20: Check GPS Connection



25. Once all connections are completed, slide down the plastic cover over the top of the unit and snap it on to fasten it.
26. After assembly, the GPS can be adjusted by loosening the 8-32 screw (with a 3-32 Allen wrench) on the GPS bracket. After adjustment, re-tighten the screw. Tighten to a torque of no more than 8lb\*in (0.90 Nm) max.

Figure 21: Suspended Ceiling Mount

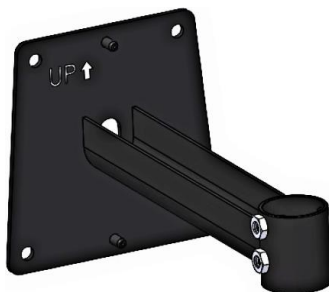


## 4.2 Wall Mount

The following describes the Wall mounting procedure:

1. Select the optimal location where the AirStar 1900/1200 unit is to be installed, on the wall above a window.
2. Take the Wall mount bracket and position it against the wall where the unit is to be mounted. Position the Wall mount bracket with the arrow pointed up. Be sure to position the wall mount plate straight and level to ensure the unit sits level.

Figure 22: Wall Mount Bracket



3. Mark the holes carefully through the wall mount plate onto the wall.
4. Drill the four (4) holes. After drilling insert wall plugs, (x4) (not included).

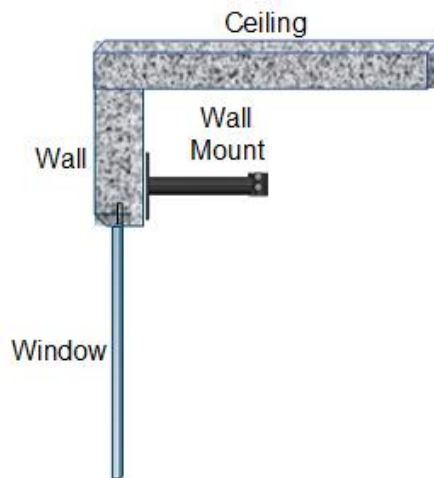


Wall plugs (x4) and necessary hardware are **not** supplied by Airspan and are the responsibility of the installer. Use appropriate wall plugs according to field conditions. The holes in the Wall bracket are 5/16 (8mm).

5. Position the Wall mount on the wall and drive the screws into the inserted plugs through the holes on the Wall mount bracket base plate, as shown below:

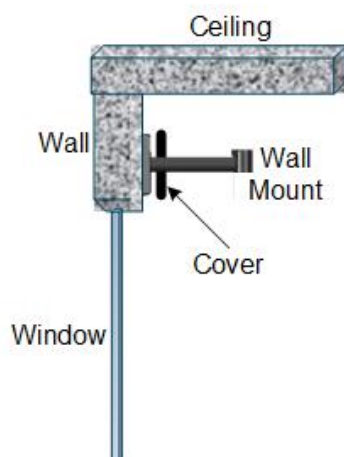


Figure 23: Fix Wall Mount on Wall



6. Slide the Wall mount bracket cover over the Wall mount.

Figure 24: Slide Wall Mount Cover on Wall Mount



7. Push slightly to engage the protruding pins onto the restraints of the Wall mount cover.
8. Slide the Hanger onto the mounting pole, until the bottom.

Figure 25: Slide Hanger on Pole



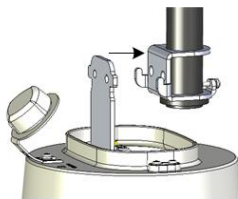
9. Slide the decorative (bottom) cover over the mounting pole. Verify that the opening is facing downward.
10. Lift the mounting pole (with the Hanger and cover), and insert into the Wall bracket.
11. Align the holes of the pole and the Wall mount.
12. Insert the two (2) 1/4 -20 screws, washers and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 26: Insert the Screws



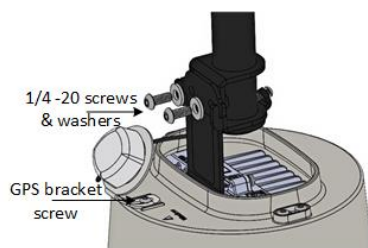
13. Lift the plastic cover out of the way in order to hang the unit.
14. At this time route the cables, into the Wall bracket and on down into the pole, for connection later.
15. Lift and hook the AirStar 1900/1200 on the hanger.

Figure 27: Hook Unit on Hanger



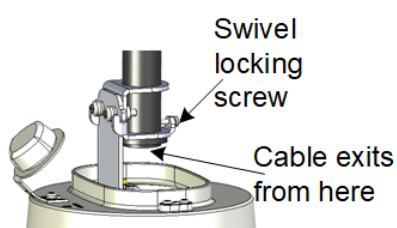
16. Insert the two (2) 1/4 -20 screws, washers and tighten through the holes in the hanger holes and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 28: Insert both Screws



17. Rotate the AirStar 1900/1200 so that the GPS plate faces the window.
18. Tighten the setscrew to lock the unit in the current position (facing the window). Tighten to a torque of no more than 22 lb\*in (2.48 Nm) max.

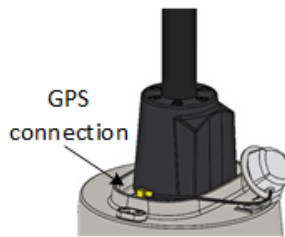
Figure 29: Insert Screws and Tighten



19. Connect the necessary cables to the relevant ports.

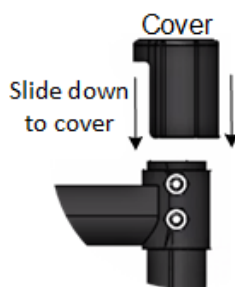
20. Check that the GPS is connected properly.

Figure 30: Check the GPS Connection



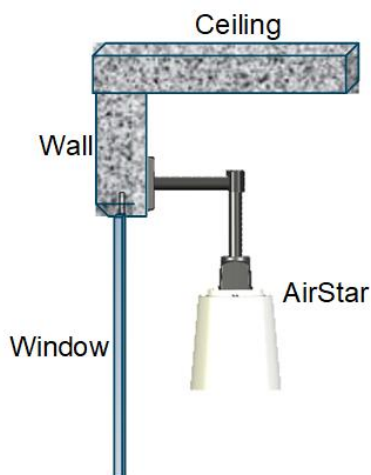
21. Once all connections are completed, slide down the plastic cover over the top of the unit and snap it on to fasten it.

Figure 31: Slide down Cover



22. After assembly, the GPS can be adjusted by loosening the 8-32 screw (with a 3-32 Allen wrench) on the GPS bracket. After adjustment, re-tighten the screw. Tighten to a torque of no more than 8lb\*in (0.90 Nm) max.

Figure 32: Mounted on Wall



## 4.3 Extension Kit

In the event there are high ceilings and the optimal position of the AirSpeed unit would be effected, there is an extension length available.

The following displays how to attach the extension length.

The Extension kit consists of:

- One (1) extension pole
- One (1) extension coupler
- One (1) extension coupler cover
- 4 x ¼-20 screws & washers

### 4.3.1 Extension Assembly

1. Slide the Hanger onto the basic mounting pole, until the bottom, as explained in the other assembly types.
2. Slide the decorative (bottom) cover over the mounting pole. Verify that the opening is facing downward.
3. Align the two (2) holes of the mounting pole and two (2) of the holes in the extension coupler, the lower holes.



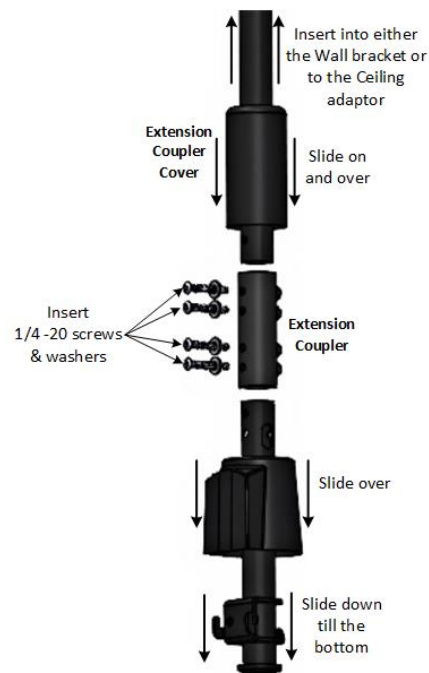
The extension coupler is symmetrical for ease of assembly.

4. Insert the two (2) ¼ -20 screws, washers and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.
5. Insert the extension pole into the extension coupler; align the two (2) holes of the extension pole with two (2) of the holes in the extension coupler, the upper holes.
6. Insert the two (2) ¼ -20 screws, washers and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.
7. Slide the extension coupler cover over the extension coupler.



The extension coupler cover only fits on one way, for ease of assembly.

Figure 33: Extension Assembly



8. Lift the assembled extension pole and mounting pole (with the Hanger and cover), and insert into either the Wall bracket or the Ceiling adaptor.
9. Align the holes of the assembled extension pole with the holes in either the Wall bracket or the Ceiling adaptor.
10. Insert the two (2) 1/4 -20 screws, washers and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

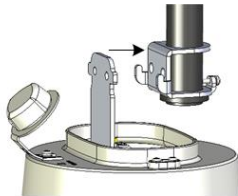
Figure 34: Extension Assembled



11. Lift the plastic cover out of the way in order to hang the unit.

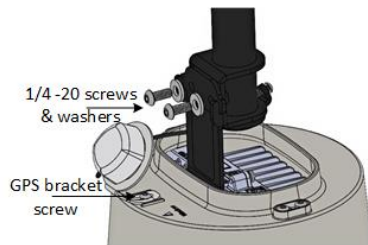
12. At this time route the cables, into the extension pole and on down into the pole, for connection later.
13. Lift and hook the AirStar 1900/1200 on the hanger.

Figure 35: Hook Unit on Hanger



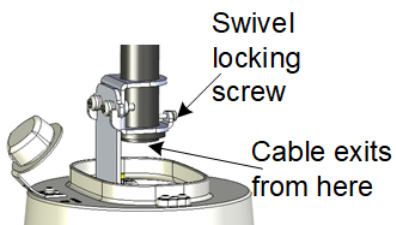
14. Insert the two (2) 1/4 -20 screws, washers and tighten through the holes in the hanger holes and tighten. Tighten to a torque of no more than 17.5lb\*in (1.98 Nm) max.

Figure 36: Insert both Screws



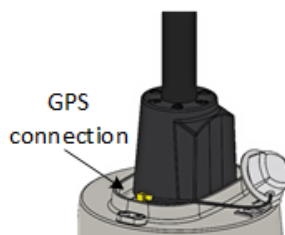
15. Rotate the AirStar 1900/1200 so that the GPS plate faces the window.
16. Tighten the setscrew to lock the unit in the current position (facing the window). Tighten to a torque of no more than 22 lb\*in (2.48 Nm) max.

Figure 37: Insert Screws and Tighten



17. Connect the necessary cables to the relevant ports.
18. Check that the GPS is connected properly.

Figure 38: Check the GPS Connection



19. Your AirStar 1900/1200 unit is now assembled.

## 4.4 LED Display

Two (2) LEDs appear on the upper part of the unit, providing unit status indication: System/Access, Backhaul.

When powering up refer to the following table for indication of the current status:

Table 7: Status LED Display

State Name	Color	Status	Description
Powering Up	White	On Continuously	Until running from operational SW image
Software loading	Green	Blinking (4Hz)	Till SW startup is finished
Unit up with RF off	Blue	On Continuously	When Unit is up and configured by the operators to RF off on all cells
Normal Operation	Green	On Continuously	Normal operation (Radiating on at least one of the cells)
	In the event ACP configuration for LED switched off, will be initiated after 10 minutes.		
Major Alarm*	Orange	On Continuously	Service <u>not</u> affected
Critical alarm*	Red	On Continuously	Service affected.

Table 8: BH LED Display

State Name	Color	Status	Description
Powering Up	White	On Continuously	Until running from operational SW image
Software loading	Green	Blinking (4Hz)	Until SW startup is finished and the Physical link in OK (like a router/switch)  A timer of 60 sec will be triggered and in case that link not established the led will turn to red. Can take a few seconds.
Normal Operation	Green	On Continuously	Normal operation (physical link is OK) If at least 1 backhaul port link is OK.
	In the event ACP configuration for LED switched off, will be initiated after 10 minutes.		
Critical alarm*	Red	On Continuously	Service affected

## 4.5 GPS LED Display

A LED appears on the upper part of the unit, providing unit the GPS status indication:

When powering up refer to the following table for status indication:

Table 9: GPS LED Display

State Name	Color	Status	Description
Powering Up/Reboot	White	On Continuously	Until running from operational SW image
Initial	Red or Blue or Green	Blink Continuously	<ul style="list-style-type: none"><li>• No sufficient GPS Reception – Red</li><li>• Good GPS Reception – Blue</li><li>• Excellent GPS Reception – Green</li></ul>
Steady	Blue or Green	On Continuously	Good GPS Reception – Blue Excellent GPS Reception – Green
Switched off	Off		In the event ACP configuration for LED switched off, will be initiated 300sec post steady state reached.



## 5 Connect and Manage Cables

Before connecting any of the cables to the appropriate port, you can manage and store any excess cable by winding it and tying it off. This takes up any excess slack and presents a more thorough and orderly installation.

### 5.1 Physical Interfaces

#### 5.1.1 Fiber SFP 1GbE (B.H) Cable

1 x SFP socket - SFP module and connector (when applicable), **not** supplied by Airspan.

#### 5.1.2 Ethernet Cable Copper 1GbE (B.H.) Cable

1x RJ45 Socket - Typical RJ45 connection (when applicable).

#### 5.1.3 Power Connection DC

Connector Type	Voltage Range
Phoenix Type Connector 2-Pole 5mm Pitch	40.5:-57vDC

#### 5.1.4 Power Connection PoE

Connector Type	RJ45
Standard	Standard 802.3bt Type4 class 8 90w

## 5.2 Mounting the AC to PoE++/DC Power Supply

The AC/DC PSU power supply should be mounted on a wall in close proximity to the AirStar unit. The power supply should be mounted close to an available electrical outlet.

The POE++/DC power supply can be mounted remotely from to the AirStar unit, according to the 802.11bt standard allowable distance.

## Appendix A. Job Sheet

This job sheet enables the users to keep track of their installation. It covers all the prerequisites required for accomplishing the AirStar 1900/1200 5G installation.

Table 10: Job Sheet

<b>Site Requirements</b>
<ul style="list-style-type: none"><li>• Area for installation identified</li><li>• Position on ceiling or wall identified</li><li>• Method of reaching ceiling / wall positions (ladders, elevated work platform)</li><li>• All equipment items available at the installation site:<ul style="list-style-type: none"><li>• AirStar 1900/1200 5G Sub-6 unit</li><li>• Mounting bracket, and required hardware</li><li>• Required cables</li></ul></li></ul>
<b>Tool Requirements</b> (For further information, see <a href="#">Verify the Tools.</a> )
<ul style="list-style-type: none"><li>• Philips screwdriver - securing the Ground and opening the back covers</li><li>• Screw driver (for Wall mounting if required)</li></ul>
<b>Required Ancillary Equipment</b>
<ul style="list-style-type: none"><li>• Laptop PC for initial configuration</li><li>• Cable for temporary connection of the laptop</li></ul>
<b>Other installed materials</b>
<ul style="list-style-type: none"><li>• Cable ties (good to have)</li><li>• Labels (good to have)</li></ul>

## Acronyms, Abbreviations, and Definitions

Table 11: Acronyms, Abbreviations, and Definitions

Term	Description
AC /DC	Alternating/Direct Current
RU	Radio Unit
CU	Control Unit
5GC	5G Core Network
5G NR	5G New Radio
PoE	Power over Ethernet
3GPP	3rd Generation Partnership Project
ETSI	European Telecommunication Standards Institute
TCP	Transmission Control Protocol
SFP	Small Form-factor Pluggable
CE	Conformité Européenne
EMC	Electromagnetic Compatibility
FCC	Federal Communications Commission
IEC	International Electrotechnical Commission
ROHS	Restriction of Hazardous Substances

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To help *Customer Care Help Desk* identify your issue, include the issue number and your *Customer Care Helpdesk* account details in all further communications.

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