

# LV65B Indoor/Outdoor CPE User Guide (LV65B)



# Federal Communication Commission Interference Statement

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 in a residential installation. This equipment 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

## RF Exposure Statement

To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 21 inches from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

When installed on a wall in an outdoor location, the device must be installed at a height above head level to prevent people from standing directly in front of the device and in the line of sight between the device and the 5G base station.

For balcony railing or other installations, the device must be installed at a location that ensures no one is able to pass or stand directly in front of the device, and in the line of sight between the device and the 5G base station.

## Safety Warnings

### Adapter

Do not use any other power adapter except the one that accompanies this unit or a power adapter identified in the list below. Use of another adapter could result in damage to the unit.

The following power adapter is qualified for use with this Tri-band - 5G Business Internet Receiver:

This unit must be powered by Delta Electronics, model ADH-65BR H or equivalent UL listed power adapter rated @ output 56Vdc, Maximum 1.161A.

**Caution**

Ensure to connect the power cord of the power adapter to a socket outlet with an earthing connection.

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.

**Installation Statement**

Installation of the device must be carried out by professional, trained technicians.

This CPE is intended for point-to-point 5G mmWave digital communications applications. The front side of the CPE (the side with the mmWave antenna) should be installed and operated under line-of-sight conditions.

## 1.1 Unboxing Information/Product Package

Inside the product package for the LV65B CPE you should find the following items:

### Outdoor (Device package):

Items	Quantity
Power adapter	1

### IDU Kit (Separate from device package)

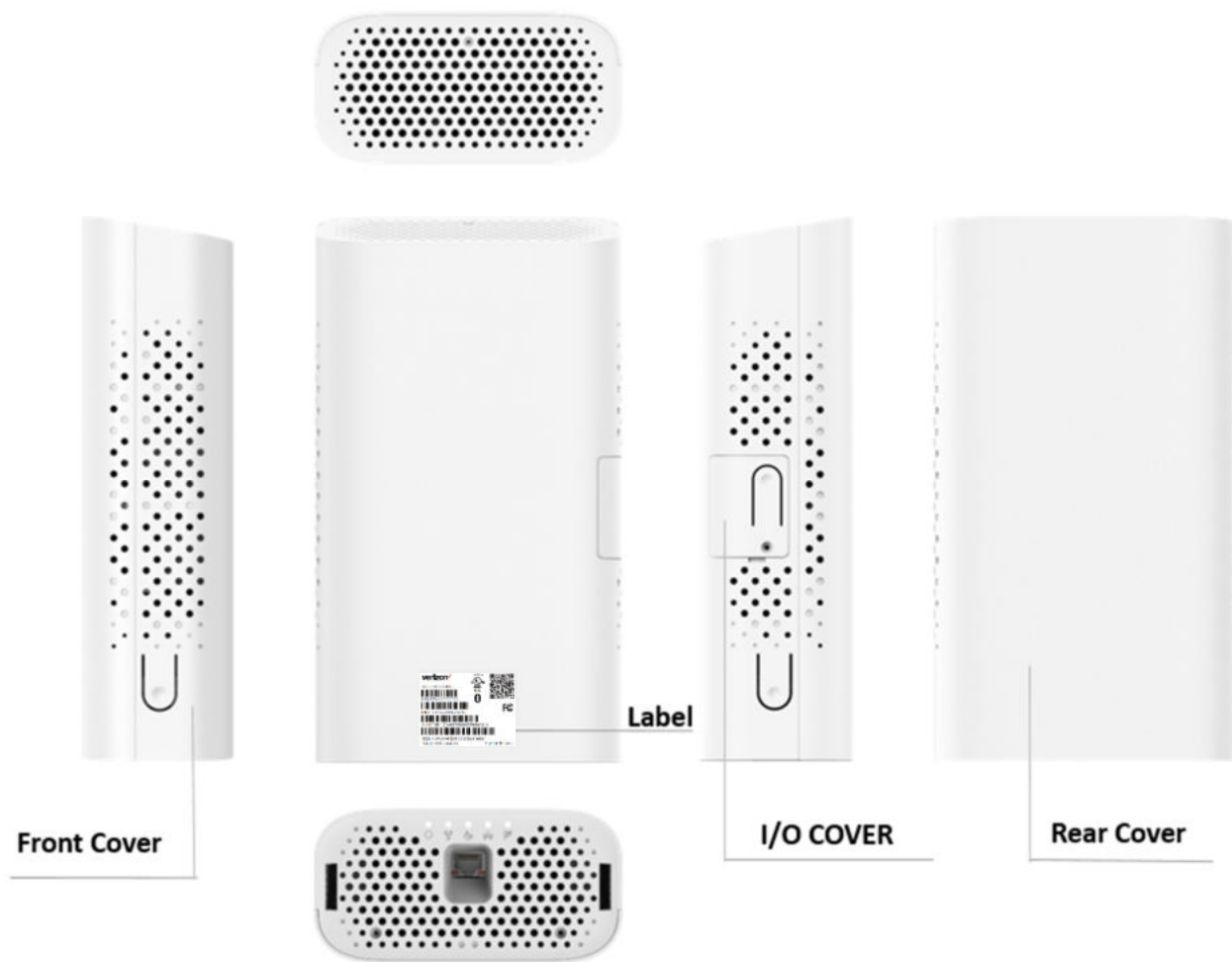
Items	Quantity
Indoor bracket	1
Screws & anchors (indoor)	2 of each
Window wipe	1
Window wedge	2
Device rear cover	1
Device rear cover/IO cover screw pack	4 of each
IO cover	1

### ODU Kit (Separate from device package)

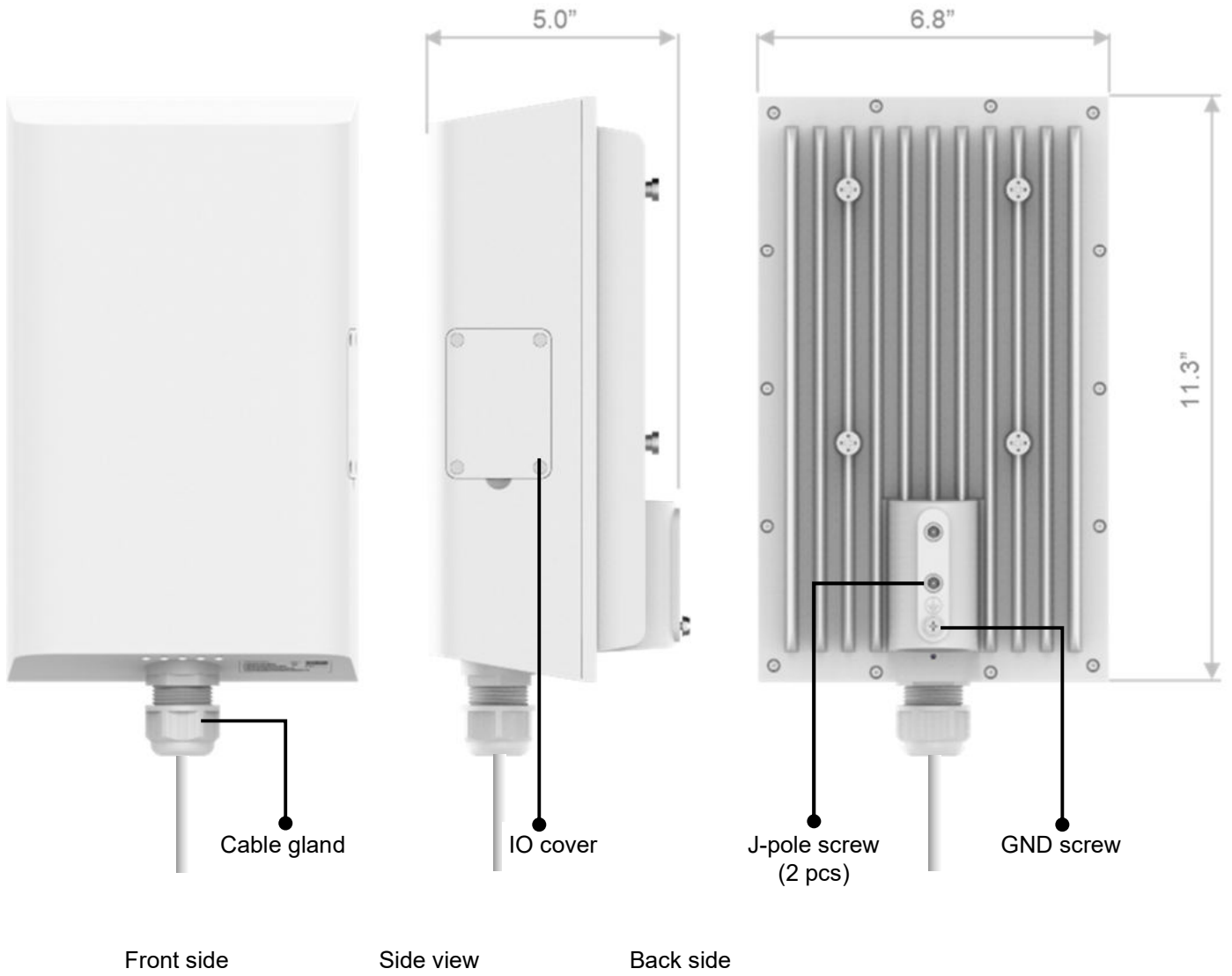
Items	Quantity
J-pole (wood screw included)	1
ODU bracket	1
Hose clamp	2
Ground block (surge protector)	1
Cable gland	1

## 1.2 Product Overview

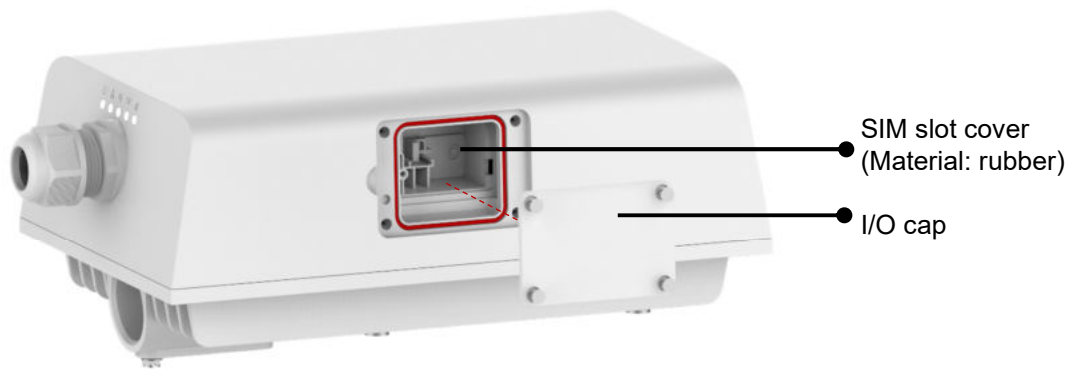
Indoor:



Outdoor:



**Outdoor:**

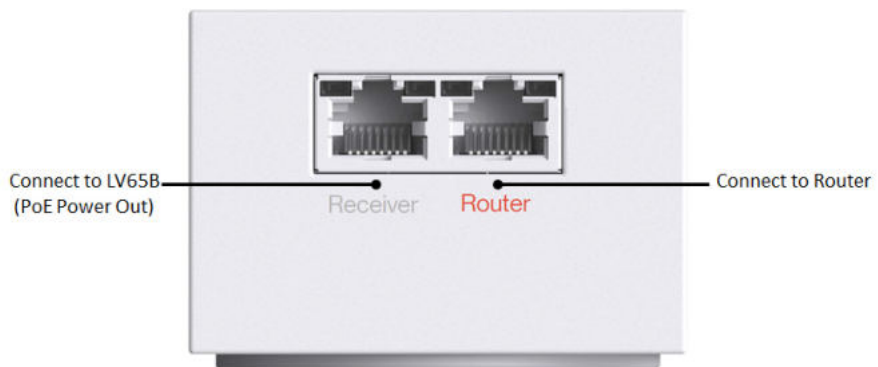
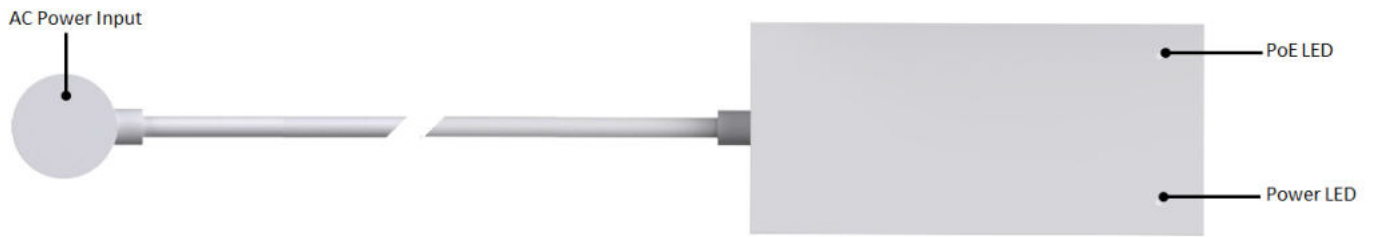


Remove the I/O cap to access the SIM slot cover



Remove the SIM slot cover to insert/remove a SIM card or Micro USB card.

## PSE Adapter:



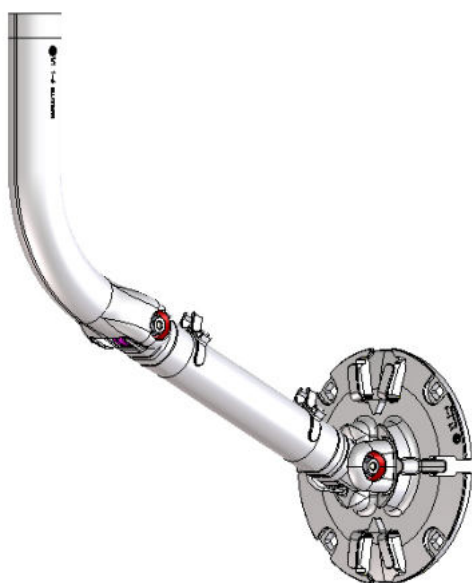
Ethernet Ports on the side of the PSE Adapter



## 1.3 J-Pole Installation

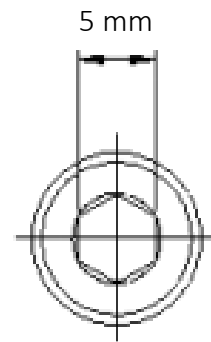
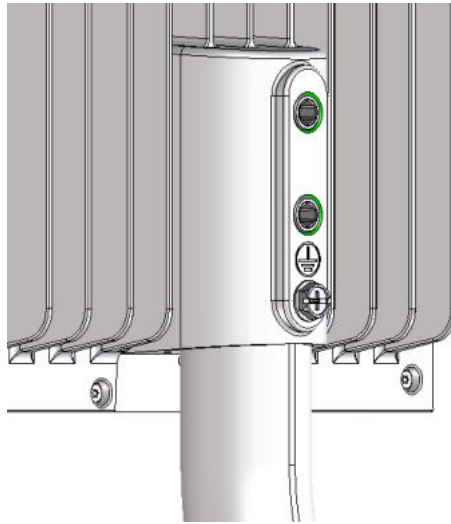
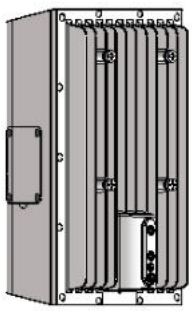


### Step 1:



- Adjust pole angle to best meet base station direction.
- Tighten 2 elbow nut to fix the angle:  
Torque: 140 +/-10 kgf-cm  
Torque: 10.12 +/-0.72 lbf-ft
- Detail of the elbow screw is shown in next page.

### Step 2:



- Hang the ODU device on the J-Pole
- Tightening two HEXI screw after ODE hang in place (screw had pre-mounted with j-pole already)

Torque: 60 +/-10 kgf-cm  
Torque: 4.32 +/-0.72 lbf-ft

### Step 3:

Detail of the elbow screw:



Left View



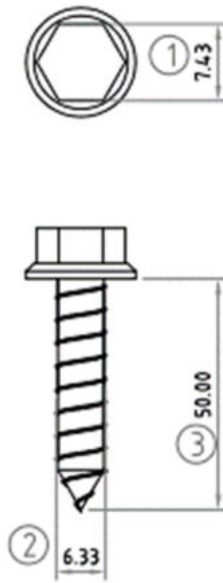
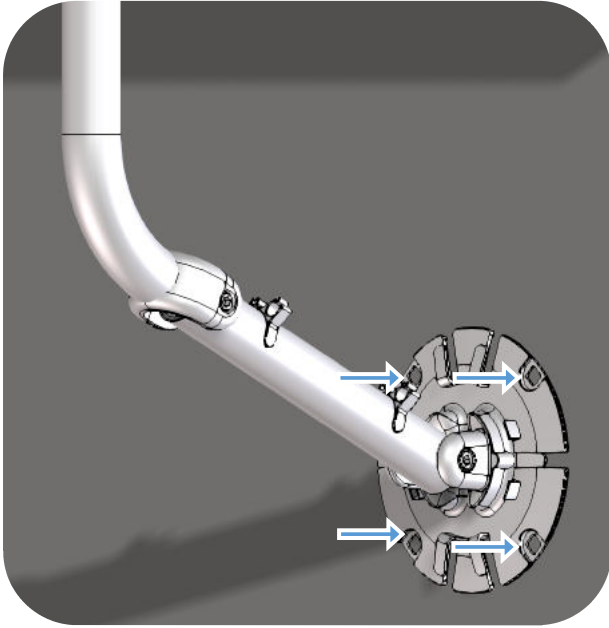
Top View



Right View

M6 nut  
Tighten the nut to  
fix the angle

### Step 4:



Unit: mm

- Tighten 4 screws to fix the base bracket onto the wall.
- Screw information:

Screw Type: ¼"x2" Wood Screw  
Screw Head: HEX head

**Step 5:**

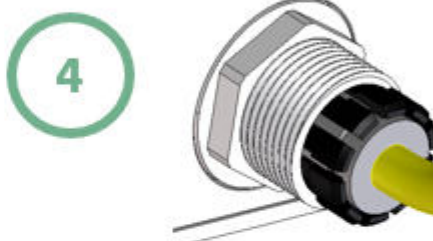
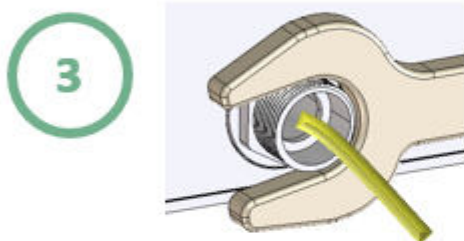
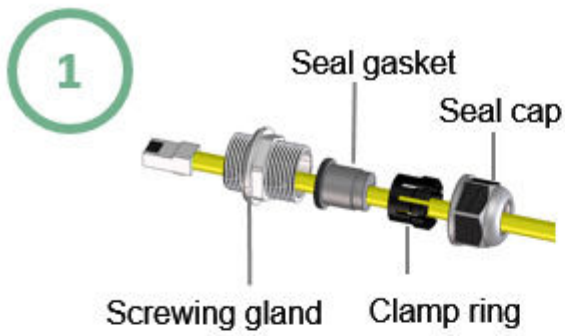


- (If need) Loosen 2 nuts and re-adjust pole angle to best meet base station direction.
- Tighten 2 elbow nut to fix the angle:

Torque: 140 +/-10 kgf-cm  
Torque: 10.12 +/-0.72 lbf-ft

**Step 6:**

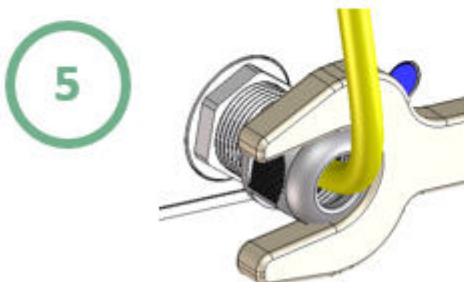
Finish the waterproof cable gland setup as below:



Wrench fix the screwing gland

Torque: 25~27kgf-cm

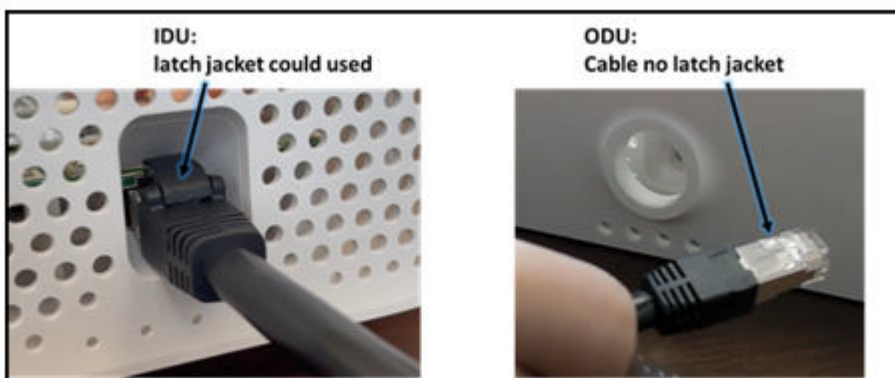
Put the gasket and clamp ring in



Wrench fix the seal cap

Torque: 15~25kgf-cm

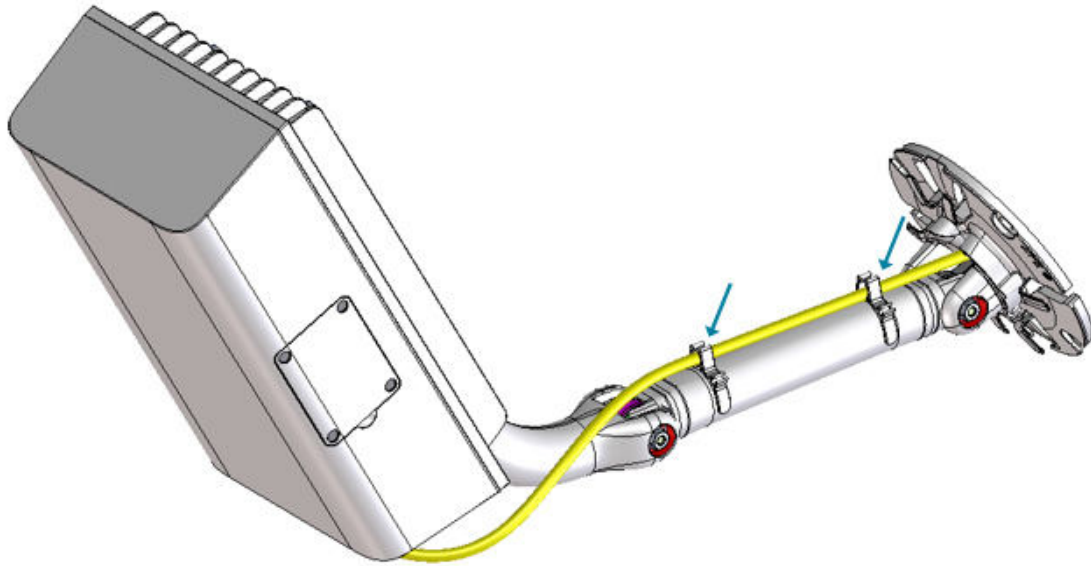
Note: For ODU installation, please use the RJ45 cable without latch jacket.



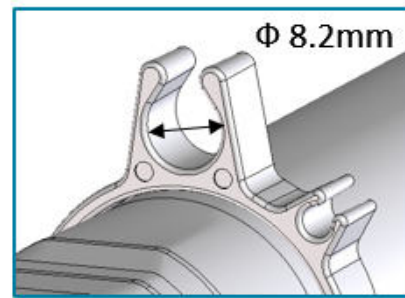
IDU: cable type  
no specified

ODU: cable type  
recommend by WNC

Step 7:



- Fix the cable along the pole with the clamps, shown in.



## 1.4 Indoor Installation (Glass Window Mounting)



### **Step 1: Signal scanning**

Hold the Verizon Receiver close to the window to perform signal scanning (hold the device at a height above your head when doing so). Once a location with good signal strength is found, the LED on the device will turn solid white. Affix a location sticker to the spot on the window glass where the device will be mounted (the location stickers can be found on the side of the device's cover).

### **Step 2:**

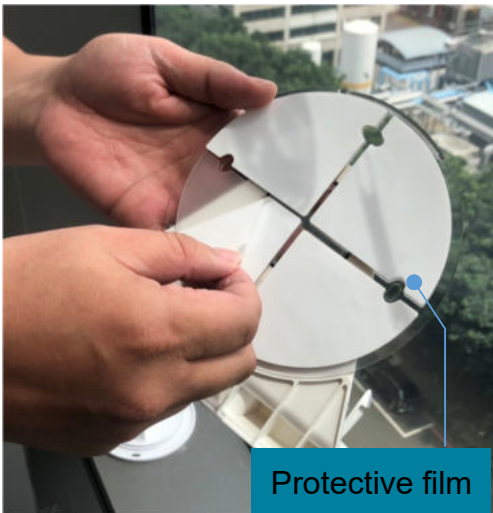
Clean the mounting location with the included alcohol wipes. Wait for the alcohol to dry before proceeding to the next step.





**Step 3:**

Peel off the protective film from the Gecko tape on the indoor bracket, and then affix the indoor bracket on the window in the orientation shown below.



**Step 4:**

Use both thumbs to apply solid pressure in all areas where Gecko tape makes contact with the glass to ensure a secure installation. Whenever possible, check the adhesion by looking at the bracket from the outside in.



Note: If, after installation, the bracket is not horizontal, you can use the lazy Susan feature to adjust the orientation of the bracket.



**Step 5:**

Once the indoor bracket is securely affixed to the window, align the bracket slot on the IDU with the bracket arms on the bracket, then push the device into the bracket until a “click” sound is heard.



**Step 6:**

Adjust the orientation of the device until its top and sides are perfectly horizontal or vertical. Refer to the image on the bottom right for the correct orientation.



## 1.5 Indoor Installation (Glass Window Mounting)



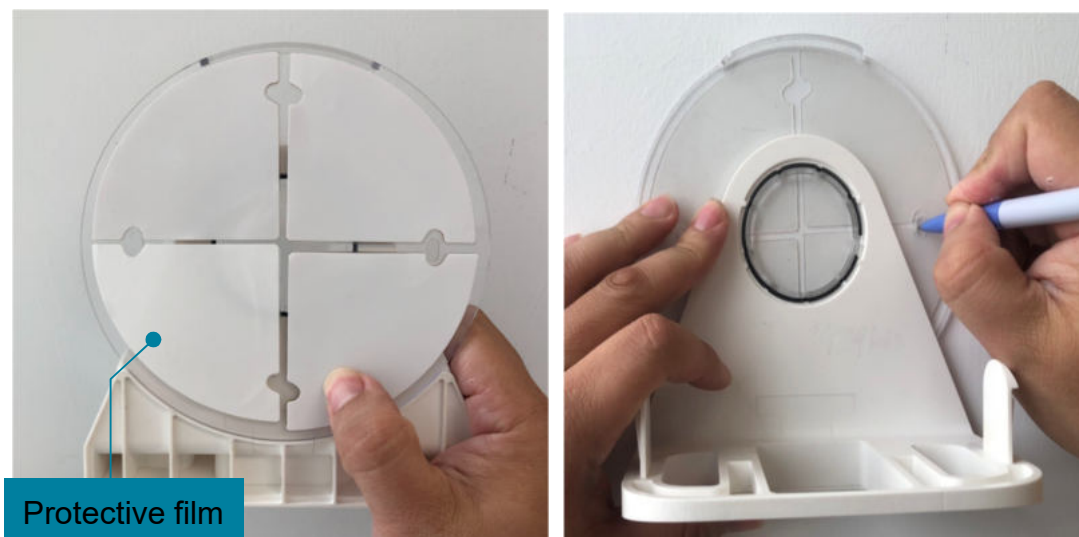
### Step 1: Signal scanning

Hold the Tri-band - 5G Business Internet Receiver near different locations on the wall to perform signal scanning (hold the device at a height above your head when doing so). Once a location with good signal strength is found, the LED on the device will turn solid white. Affix a location sticker to the spot.

### Step 2: Mark the screw locations

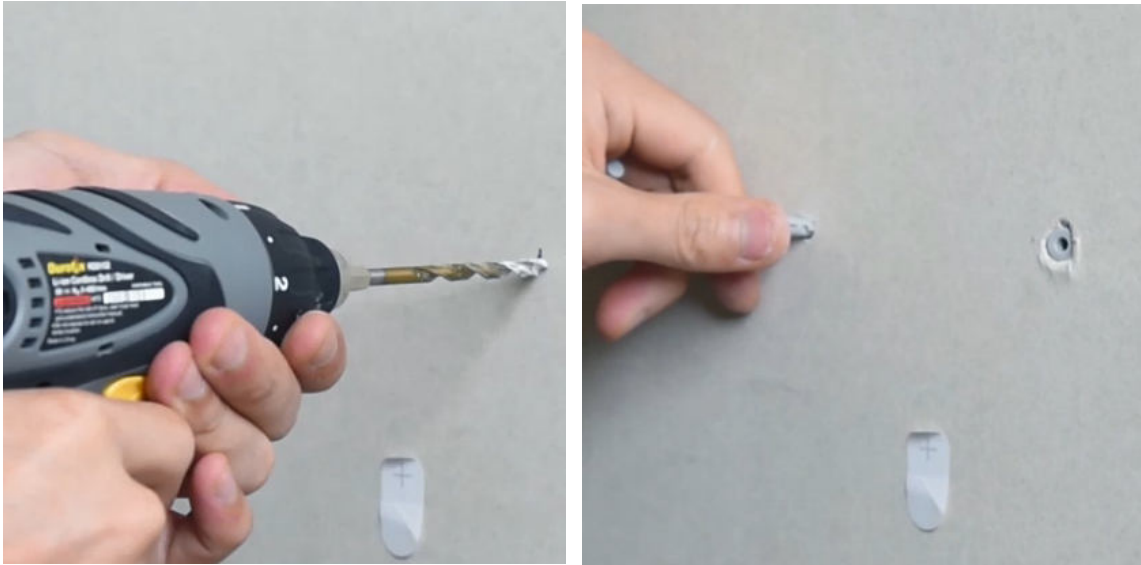
Place the indoor bracket on the location on the wall where you want to install the device, then use a pen to mark the locations where the screws will be drilled into the wall (as indicated in the right image below).

Note: **DO NOT** peel off the protective backing when installing the bracket on a wall.



### Step 3: Drill installation holes and install the bracket

Use a power screwdriver to drill holes in the marked locations, then take two wall anchors and place them into the holes (make sure the tops of the anchors are flush with the wall).



### Step 4: Install bracket

Align the holes on the indoor bracket with the wall anchors, then take two screws from the indoor wall screw pack and screw them into the wall anchors.































### Step 5: Install the device onto the bracket

After installing the bracket, place the device onto the bracket (refer to step 5 of the indoor glass window mounting process) and conduct cable management as needed.





















## 1.6 LED and Audio Behavior

### Receiver LED Definition:



Status	PWR LED	Sound	
<b>Boot up</b>			
<b>Power On / Normal Operating Mode</b> Solid White			Not Applicable
<b>Bluetooth</b>			
<b>Pairing BT (Shows for 60 seconds or until the device is paired)</b> Cyan to OFF to Green to OFF (switch every 200 ms)			Not Applicable
<b>BT connection successful</b> Cyan blinking (200 ms ON, 200 ms OFF) × 3			Not Applicable
<b>BT connection failure</b> Red blinking (200 ms ON, 200 ms OFF) × 3			Not Applicable
<b>Changing modes manually</b>			
<b>Changing from installation mode to regular mode (press and hold RESET button for at least 3 seconds)</b> Cyan blinking (200 ms ON, 200 ms OFF) × 3			Not Applicable
<b>Installation mode enabled</b> Solid Amber			Not Applicable
<b>Changing from regular mode to installation mode (press and hold RESET button for at least 3 seconds)</b> Amber blinking (200 ms ON, 200 ms OFF) × 3			Not Applicable
<b>FW Updated</b>			
<b>FW updating</b> Green blinking (200 ms ON, 200 ms OFF) × 3 until FW update is completed			Not Applicable
Status	LAN LED	Sound	
<b>LAN</b>			
<b>Ethernet port is connected and active</b> Solid White, Link partner advertisement speed is equal or higher than 1 Gbps (ETH0)			Not Applicable
<b>Ethernet Port Trouble</b> Solid Red, Link partner advertisement speed is less than 1 Gbps (ETH0)			Not Applicable
Status	DATA LED	Sound	
<b>Regular mode</b>			

<b>Internet available</b> Solid White, Internet APN is available			Not Applicable
<b>Internet not available</b> Solid Red, Internet APN is not available			Not Applicable
<b>Internet disabled through device settings</b> Amber blinking (600 ms ON, 600 ms OFF) until Internet's available	  		Not Applicable









Status	Connectivity LED	Sound
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Cellular Connectivity			
<b>mmWave Connectivity</b> Solid White, Blink for Operation/Search Mode.	 	  	Not Applicable
<b>Sub-6 Connectivity</b> Solid Cyan, Blink for Operation/Search Mode.	 	  	Not Applicable
<b>4G Connectivity</b> Solid Green, Blink for Operation/Search Mode.	 	  	Not Applicable
<b>No service / No signal</b> Solid Red, Blink for Operation/Search Mode.	 	  	Not Applicable

Error Scenario			
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<b>SIM related error (No SIM card / SIM card error or locked)</b> Solid Amber			Not Applicable
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Status	RSSI LED	Sound
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Signal strength			
<b>Excellent Signal (aka strong)</b> Solid White			Not Applicable
<b>Good Signal</b> Solid Cyan			Not Applicable
<b>Adequate signal (aka weak)</b> Solid Green			Not Applicable
<b>Poor signal</b> Solid Red			Not Applicable

**Power adapter LED Definition:**

Mode	Status	Power LED Pattern	PoE LED Pattern
AC Power connected	Power LED will turn white only if the AC power cord is connected to the AC power outlet.	White	--
Receiver connected	PoE LED will turn white only if the Receiver is connected to the port.	--	White
No AC Power connection	If there is no connected AC power outlet, these two LED will not light up.	Off	Off
No Receiver connection	If there is no connected Receiver or Ethernet cable is connected to the wrong port, the PoE LED will not light up.	--	Off

## 1.7 Reset Button

Button press duration	Function
Hold (>3 seconds)	Switch between installation mode and regular usage mode
Hold (1-2 seconds)	Restores device to factory settings
Single click (<1 second)	Resets the device's smart antenna (this needs to be done before any subsequent signal scans after the first one)

## Chapter 2 Product Specifications

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<b>Bands</b>	<ul style="list-style-type: none"><li>• <b>5G mmWave: n261 / n260</b></li><li>• <b>5G Sub-6: n2, n5, n48, n66, n77</b></li><li>• <b>4G: B2, B5, B13, B48, B66</b></li></ul>
<b>Memory</b>	<ul style="list-style-type: none"><li>• MCP (1 GB LPDDR4 + 1 GB NAND)</li></ul>
<b>Dimensions</b>	<ul style="list-style-type: none"><li>• 9.9 × 5.5 × 2.8 inches (Indoor)</li><li>• 11.3 × 6.8 × 5.0 inches (Outdoor)</li></ul>
<b>Weight</b>	<ul style="list-style-type: none"><li>• 2.68 lb (Indoor device only; bracket not included)</li><li>• 8.44 lb (Outdoor device only; bracket not included)</li></ul>
<b>Connector Type</b>	<ul style="list-style-type: none"><li>• RJ45 (5 Gbps) × 1</li></ul>
<b>Operating Temperature</b>	<ul style="list-style-type: none"><li>• 0 °C to 40 °C (Indoor)</li><li>• -30 °C to 55 °C (Outdoor)</li></ul>