



Physical Hardware and Mounting Options

- [Access Point Physical Hardware and Mounting Options, page 1](#)

Access Point Physical Hardware and Mounting Options

AP 2800 and AP 3800 have similar physical dimensions with only slight differences in physical appearance mostly to accommodate the different features like modularity and Multigigabit support resulting in slight differences in width.

There are many different installation options available depending upon the business requirements. Brackets are available from Cisco as well as third-party companies. During the ordering process, the customer may choose one of two brackets (but not both). Each bracket is a zero-dollar (\$0) option at the time of configuration. If the customer does not choose a bracket, the selection default is AIR-AP-BRACKET-1, which is the most popular for ceiling installations. The other choice is a universal bracket that carries part number AIR-AP-BRACKET-2.

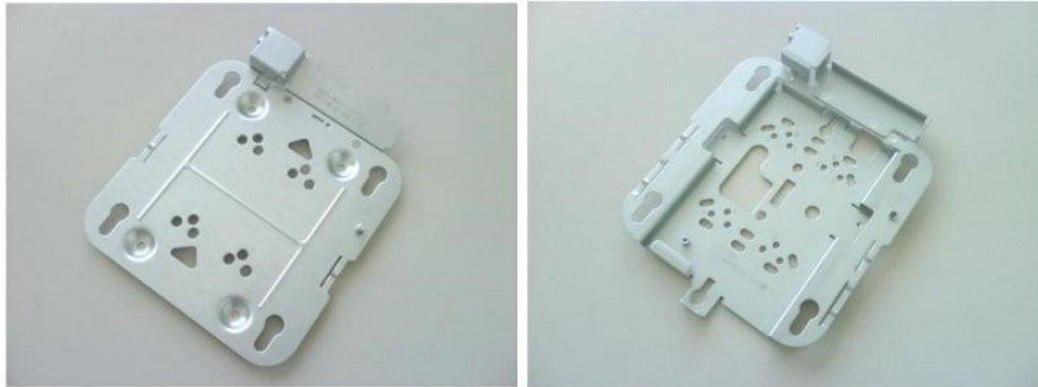


Note

The AP 2800 and AP 3800 is noticeably heavier than the AP 2700 and AP 3700. This is due to the powerful design of the components used, which include a dual core processor, 12 radio transceivers, additional memory and processor power as well as additional Ethernet capability including mGig on the AP 3800 and optional module support.

The mounting brackets and ceiling rails easily handle the extra weight and the intent was to make a very robust Access Point without the need for vent holes and to allow the product to be used in industrial and manufacturing areas as well as commercial enterprise environments.

Figure 1: Access Point Bracket Choices



AIR-AP-BRACKET-1
AP Bracket: Low-Profile

AIR-AP-BRACKET-2
AP Bracket: Universal

If the AP will be mounted directly to a ceiling on the gridwork, then AIR-AP-BRACKET-1 mounts flush and has the lowest profile. However, if the AP will be mounted to an electrical box or other wiring fixture, or inside a NEMA enclosure or perhaps wall mounted, then AIR-AP-BRACKET-2 is a much better choice. The extra space in the bracket allows for wiring, and the extra holes line up with many popular electrical boxes. When mounting the bracket to the ceiling gridwork, some ceiling tiles are recessed. For this reason, two different styles of ceiling clips, recessed and flush rails, are available.

For new installations AIR-BRACKET-2 is recommended as it provides a little extra room and accommodates earlier access points with modules, so it truly is a universal bracket.

Figure 2: Different clips are available for attaching to ceiling grid work



AIR-AP-T-RAIL-R
Ceiling Grid Clip (Recessed)



AIR-AP-T-RAIL-F
Ceiling Grid Clip (Flush)

Channel Rail Adapters

When mounting APs to ceiling channel rails such as the ones shown in Figure 14, an optional channel adapter is used: AIR-CHNL-ADAPTER. It comes in a two-pack and attaches to the ceiling grid clip above.

Thin rail or sometimes referred to as recessed ceiling rails often look like as shown.

Figure 3: Example of a recessed ceiling rail system



Figure 4: Example of Channel Rails used on thin rail (recessed rail) ceilings

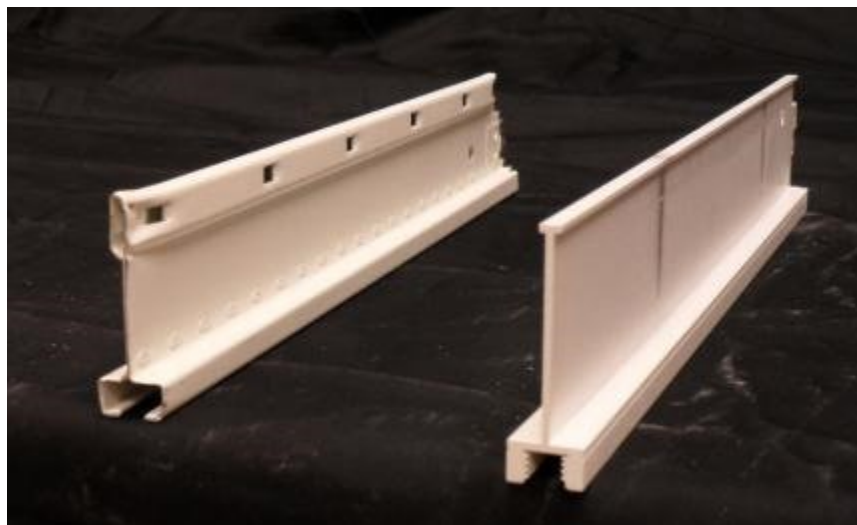


Figure 5: AIR-CHNL-ADAPTER (left) Slides onto the Rails

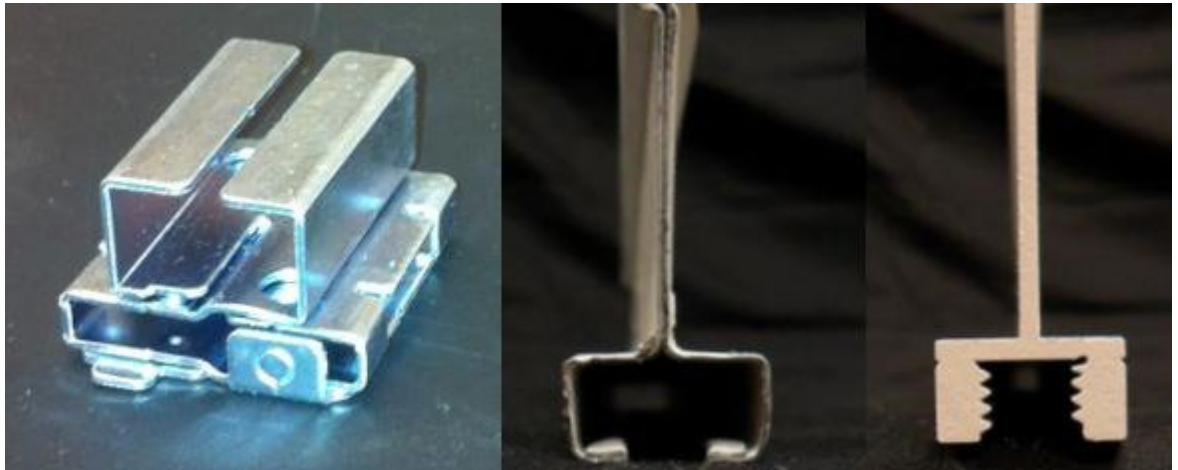


Figure 6: AIR-CHNL-ADAPTER Mounted to Rail Clip (left) and Finished Installation (right)



Note When ordered, part numbers are replacement numbers so they end with an "=".

AIR-AP-T-RAIL-R=Ceiling Grid Clip–Recessed

AIR-AP-T-RAIL-F=Ceiling Grid Clip–Flush

AIR-AP-BRACKET-1=AP Bracket–Low Profile

AIR-AP-BRACKET-2=AP Bracket –Universal

AIR-CHNL-ADAPTER=Additional Adapter for Channel–Rail Ceiling Grid profile

Mounting an AP Directly into the Tile Using Optional AIR-AP-BRACKET-3



Note This bracket is not compatible with the AP 2800 and AP 3800 Series.

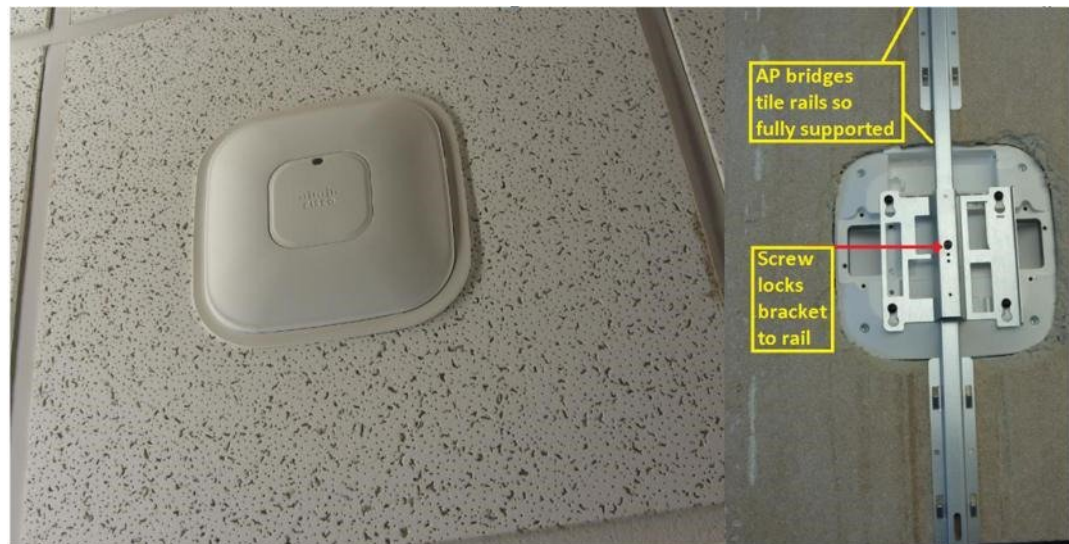
If you have this bracket currently installed and are migrating to the newer AP 2800 and AP 3800 series, you may be able to still use the existing tile and leverage the new in-tile mount available from Oberon Wireless (a Cisco partner).

For completeness, here is an overview of the existing AIR-BRACKET-3 so you may understand it better should you encounter it within your deployments. Many hospitals and other carpeted Enterprise environments prefer a more streamlined look and wish to install the AP directly into the tile. This can be done on prior Cisco AP products using the optional Cisco AIR-AP-BRACKET-3.

When using this bracket, the "beauty ring" is used as the template to cut the tile which can be cut using a carpet knife or electric tool such as a rotary cutting tool, e.g., Dremel or Rotozip. Cisco does not offer custom cut tiles as there are simply too many different styles and the tiles are easy to cut.

The AP is fully supported above the tile with a metal rail that extends the length of the tile. This supports the AP should the tile become wet or otherwise fail. A mechanical set screw pulls the AP tight to the ceiling and locks it into the bracket. Additionally, physical security of the AP can be maintained by the use of a Kensington style lock, but once installed it is difficult to remove the AP without removing the tile as the AP will not slide out from the front side of the tile.

Figure 7: Optional AIR-AP-BRACKET-3 to install the AP directly into the tile



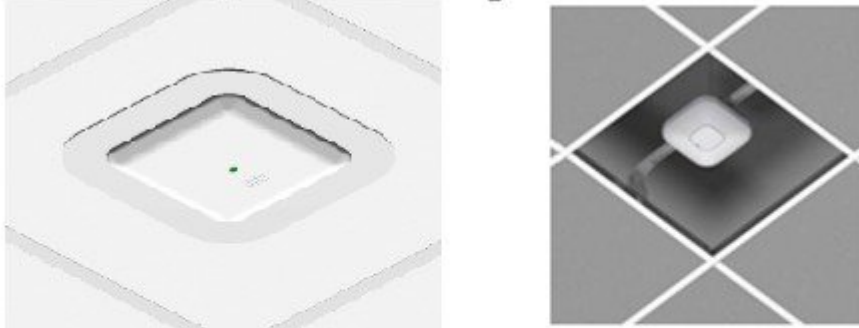
Note

This bracket fits the AP-1040, 1140, 1260, 1600, 2600, 3500, 3600 and 3700 Series Access Points; however, it is not compatible with the 2800 and 3800 series.

Using an In-tile Mount from Oberon Wireless

Figure 8: Oberon in tile and above tile mounting solutions

Third Party options to integrate into & above ceiling



Model 1045- Above ceiling hanger kit- this includes a hanger bar and wire, and a light pipe that can be pressed through the ceiling tile so you can see the status LED from below, without lifting ceiling tile

Recessed ceiling (in tile) mount for suspended ceilings being developed.

www.oberonwireless.com Phone (814) 867-2312

Additionally, Oberon offers a metal locking cabinet that allows the Access Point to be mounted flush to the ceiling, which is often used in hospital infection control areas or places where higher physical security is required.

Wall-mounting the AP

When wall mounting is desired, the installer should understand that walls can be a physical obstacle to the wireless signal; therefore, maintaining 360-degree coverage may be compromised by the wall. If the wall is an outside wall and/or the goal is to send the signal in a 180-degree pattern instead, a directional antenna often

referred to as a "patch" antenna may be a better choice assuming the AP 2800e or AP 3800e is used. Instead, use the AP 2800e or AP 3800e (with dipoles pointing vertical).

Figure 9: Correct orientation of dipole antennas when mounted on a vertical surface



Figure 10: Avoid wall mounting units with internal antennas



**Note**

Wall mounting units with internal antennas in the orientation shown in [Figure 10: Avoid wall mounting units with internal antennas](#) should be avoided. AP 2800i & AP 3800i should use the Oberon mounting bracket unless roaming is not an issue, example: hotspot, kiosk, or very small venue areas where large uniform coverage is not needed.

Figure 11: Third Party options to Wall Mount

Third Party options to Wall Mount



Oberon Model
1008-CCOAP
black right
angle bracket
with black
vanity cover



Oberon has one that
is similar to a “wedge”

Allows for hiding of
Electrical box or
cabling

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Changing the Color of an AP

If there is a desire to change the color of an AP, rather than painting the AP which would void the warranty, consider using colored vinyl tape or using a colored plastic cover from Oberon.

Figure 12: Third-party option for changing AP color, adding custom Logo, or hiding the LED

Third Party options to change color



Oberon Model
1008-CCOAP
black right
angle bracket
with black
vanity cover



Specifications:

- Fabricated from textured ABS plastic
- The skin is virtually transparent to access point radio frequency transmission.
- Attaches to access point with Velcro tabs (included)
- Available in five standard colors: Black, Dark Grey, Light Grey, Tan, Navy Blue
- Custom colors are available on request.

www.oberonwireless.com Phone (814) 867-2312

Clean Rooms (Healthcare)

Many hospitals and factories have requirements to wipe down or gently spray the environment with a chemical (often diluted liquid that has cleaning / disinfectant properties). The Cisco AP 2800 and AP 3800 are designed with a purpose-build Wi-Fi chipset using Enterprise and industrial class components. This enables the AP enclosure to have a Plenum rating and is vent-less, so the unit is ideal for these types of applications.



Note

The plastic material used on the AP 2800 and AP 3800 series is Lexan 945. This material was tested for clean room use with a Steris chemical, trademark name SPOR-KLENZ. See <http://www.sterislifesciences.com/Products/Surface-Disinfectants-Cleaners-and-Alcohols/Sporicides-Sterilant/Spor-Klenz-Ready-To-Use-Cold-Sterilant.aspx>

Figure 13: Third Party Locking Ceiling Mount

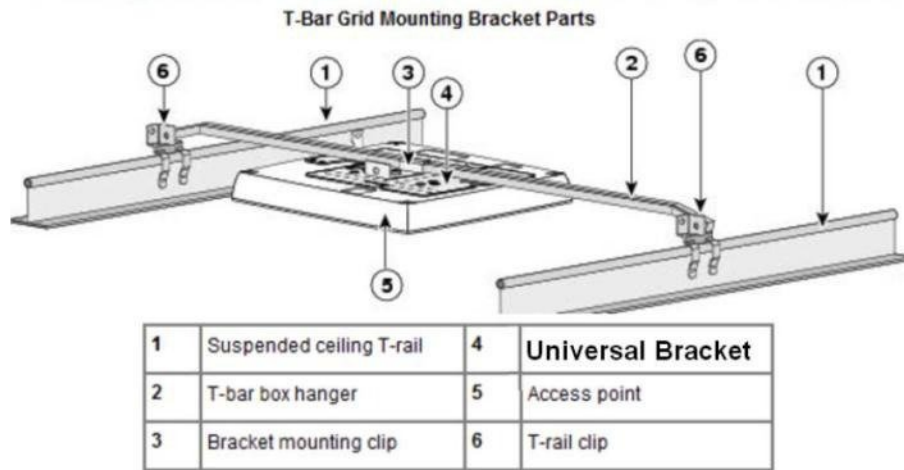


Above the Ceiling Tiles

The AP 2800 and 3800 are rated for installation in the Plenum area (UL-2043). Many customers prefer to locate the AP so that nothing can be visible on the ceiling. In some cases this is preferred for aesthetic reasons, so customers may install the AP above a drop ceiling. This also may be preferred in high theft areas such as classrooms or in areas where policy dictates that nothing can be visible on the ceiling.

When this is a hard requirement, optional T-Bar hanger accessories from third-party companies such as Erico and Cooper can be used. The Erico Caddy 512a or the Cooper B-Line BA50a or similar T-Bar Grid T-Bar hangers can be used.

Figure 14: Example of How to Hang an AP above the Ceiling Tiles



For more information see:

<http://www.erico.com/>

<http://www.cooperindustries.com/>

Additionally, Oberon also offers above tile solutions.

Figure 15: Oberon Model 1045- Above ceiling hanger kit - this includes a hanger bar and wire, and a light pipe that can be pressed through the ceiling tile so you can see the status LED from below, without lifting ceiling tile



**Note**

Installing APs above the ceiling tiles should only be done when mounting below the ceiling is not an option. The tiles must not be conductive; such installations can certainly degrade advanced RF features such as voice and location, so verify coverage and performance. Always try to mount the AP as close to the inside middle of the tile as possible, and avoid areas with obstructions.

Figure 16: Installing AP above ceiling tiles: Pick an area clear of obstructions, avoid ceiling clutter

