Ruckus
Simply Better Connections.

T301n Access Point
Mounting Guide

CAUTION!   The minimum software revision for the T301n AP is ZoneFlex (ZF) 9.8.1, or SmartCell Gateway (SCG) 2.5.1 or later, or virtual SmartCell Gateway (vSCG) 3.0 or later.
Do not connect the T301n AP to a Ruckus Wireless Controller with ZF 9.8.x or earlier, or to SCG 2.5.x or earlier, or to vSCG 2.x or earlier.

This *Mounting Guide* provides step-by-step instructions on how to field-install the Ruckus Wireless T301n 30-Degree Narrow Sector 802.11ac outdoor access point (AP). Unless specifically indicated, the rest of this document refers to the T301n as an **AP**.

For detailed information on planning the installation, performing a site survey, preparing the AP at the depot and shipping to the field, refer to the *T300, T301n and T301s 802.11ac Outdoor Access Point Installation Guide*. For information on configuring and operating the AP, refer to the *ZoneFlex Outdoor Access Point User Guide*. Both documents are available at https://support.ruckuswireless.com.

WARNING: *Only trained and qualified personnel should be allowed to install, replace, or service this equipment.*

WARNING: *Installation of this equipment must comply with local and national electrical codes.*

WARNING: *Ruckus Wireless strongly recommends that you wear eye protection before mounting the AP.*

CAUTION: *Make sure that you form a 80mm - 130mm (3"-5") drip loop in any cable that is attached to the AP or the building. This will prevent water from running along the cable and entering the AP or the building where the cable terminates.*

CAUTION: *Be sure that grounding is available and that it meets local and national electrical codes. For additional lightning protection, use lightning rods and lightning arrestors.*

CAUTION: *Make sure that proper lightning surge protection precautions are taken according to local electrical code.*

THIS GUIDE IN OTHER LANGUAGES

- 请从以下网站获得该指南的简体中文版 https://support.ruckuswireless.com.
- Vous trouverez la version française de ce guide à l'adresse suivante https://support.ruckuswireless.com.
- このガイドの日本語版は https://support.ruckuswireless.com でご覧ください。
- 이 가이드의 한국어 버전은 웹 사이트 (https://support.ruckuswireless.com) 에서 확인하시기 바랍니다 .
- Veja a versão em português (Brasil) deste guia em https://support.ruckuswireless.com.
- Puede ver la versión en español (América Latina) de esta guía en https://support.ruckuswireless.com.

BEFORE YOU BEGIN

Before deploying Ruckus Wireless products, please check for the latest software and the release documentation.

- User Guides and Release Notes are available at http://support.ruckuswireless.com/documents
- Software Upgrades are available at http://support.ruckuswireless.com/software
- Open Source information is available at http://opensource.ruckuswireless.com
- Software License and Limited Warranty available at http://support.ruckuswireless.com/warranty

REQUIRED HARDWARE AND TOOLS

- Torque wrench or torque screwdriver with sockets and bits
- Wide flat-blade screwdriver
- Customer-supplied outdoor-rated Cat5e UTP RJ-45 Ethernet cable with 4.0mm to 6.5mm (0.17" to 0.26") round cable sheath

If you are mounting the AP on a flat surface, then you will also need:

- Customer-supplied wall anchors with up to M6 or 0.25" stainless steel screws rated to withstand 128 N or 28.8 lbf (required to withstand wind loads of 266km/h or 165mph)
- Electric drill with drill bits for customer-supplied wall anchors

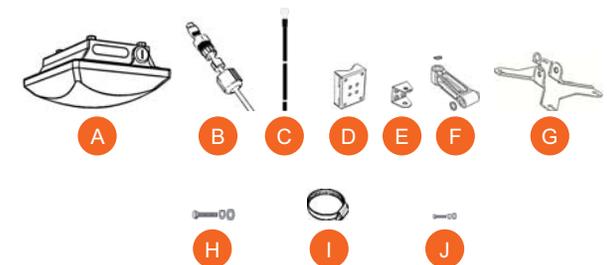If you are mounting the AP on a pipe or pole, then you will also need:

- A 38.1mm to 63.5mm (1.5" to 2.5") pipe or pole
- Four factory-supplied steel clamps

PACKAGE CONTENTS

Before deploying your AP in the field, verify that all items listed below are included in the package. If any item is damaged or missing, notify your authorized Ruckus Wireless sales representative. Also, make sure that you have the required hardware and tools.

- One T301n AP (A in Figure 1); includes one 12mm stainless steel M6x1 earth ground screw with split lock and flat washers
- One M25 data cable gland (B in Figure 1)
- One green/yellow earth ground wire with ring terminal (C in Figure 1)
- One wall- or pole-mounting bracket (D in Figure 1)
- One U-joint bracket (E in Figure 1)
- One linkage bracket with two serrated external-tooth lock washers (F in Figure 1)
- One AP bracket (G in Figure 1)
- Two sets 50mm stainless steel M8x1.25 hex bolt with split lock and flat washers (H in Figure 1)
- Four SAE32-sized stainless steel clamps, 38.1mm to 63.5mm (1.5" to 2.5") inner diameter (I in Figure 1)
- Eight sets stainless steel 0.5-inch x 0.250-28 hex bolt with split lock and flat washers (J in Figure 1)
- Four sets stainless steel 8mm M4x0.7 pan head Phillips screws with split lock and flat washers (not shown, and not used)

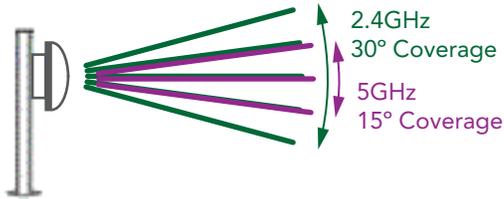*Figure 1:   AP field-installation package contents*

The field installation package can also include:

- Service Level Agreement/Limited Warranty Statement
- Regulatory Statement
- Registration card
- Declaration of Conformity, if required
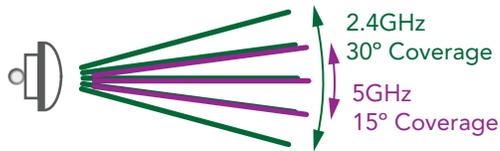- This *Mounting Guide*

T301n Sector Antenna Coverage

The T301n 30-Degree Narrow Sector AP (ordering part number 901-T301-xx61) is best deployed where internal-antenna narrow beamforming can provide exceptional coverage to a narrow sector, or can support extended reach in a point-to-point deployment. See Figure 2 for typical internal-antenna coverage patterns and see Figure 3 for a typical high-density narrow-sector coverage pattern.

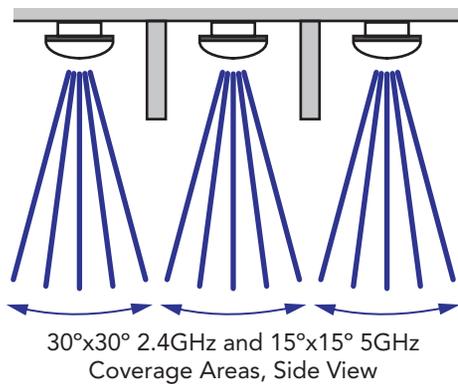*Figure 2: Typical AP narrow sector or point-to-point coverage*

2.4GHz
30° Coverage

5GHz
15° Coverage

Elevation Plane Beamwidth Coverage, Side View

2.4GHz
30° Coverage

5GHz
15° Coverage

Azimuth Plane Horizontal Coverage, Top View

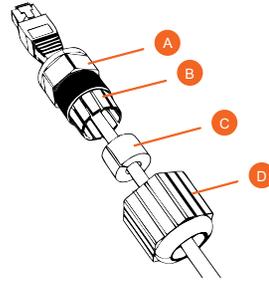*Figure 3: Typical AP high-density narrow-sector coverage*

30°x30° 2.4GHz and 15°x15° 5GHz
Coverage Areas, Side View

Step 1: Connecting and Sealing the RJ-45 Cable

The AP uses one RJ-45 cable for Power over Ethernet (PoE). Connect and seal the cable using the M25 data cable gland (B in Figure 1).

1   Feed the end of the RJ-45 cable through the sealing nut (D in Figure 4), rubber sealing insert (C in Figure 4), clamping ring assembly (B in Figure 4) and cable gland base (A in Figure 4).

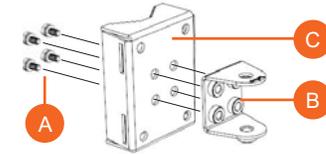*Figure 4: RJ-45 cable and cable gland assembly*

2   Use a wide flat-blade screwdriver to remove the blanking cap from the AP.

3   Connect the cable to the Ethernet port in the AP.

4   Tighten the cable gland base into the AP chassis to 7 N-m or 62 in-lbs.

5   Wrap the clamping ring assembly around the rubber sealing insert. Make sure that the clamping ring assembly fully encloses the rubber sealing insert.

6   Seat the clamping ring assembly and rubber sealing insert in the cable gland base.

7   Tighten the sealing nut to 1.1 N-m or 10 in-lbs, or until the rubber sealing insert is compressed.

8   Continue with Step 2: Mounting the U-Joint Bracket to the Mounting Bracket.

Step 2: Mounting the U-Joint Bracket to the Mounting Bracket

1   Position the U-joint bracket on the mounting bracket.

NOTE: *Mount the U-joint bracket in any direction on the mounting bracket, preferably to allow AP azimuth adjustments. Then the AP bracket allows AP elevation adjustments.*

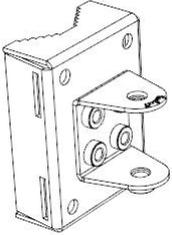*Figure 5: U-joint bracket attached horizontally to the mounting bracket*

2   Use four M6 bolt and washer sets (A) to mount the U-joint bracket (B) to the mounting bracket (C). Tighten the bolts to 9.5 N-m (7 ft-lbs).

3   Continue with Step 3a: Attaching the Mounting Bracket to a Flat Surface or Step 3b: Attaching the Mounting Bracket to a Metal Pole.

Step 3a: Attaching the Mounting Bracket to a Flat Surface

1   Place the mounting bracket at the location on the flat surface where you want to mount the AP. Use the holes on the mounting bracket as a template to mark the locations of the mounting holes.

Figure 6:   Mounting bracket flat surface holes

2   Remove the mounting bracket from the flat surface.
3   Drill holes required for the mounting hardware.
4   Attach the mounting bracket to the flat surface using the mounting hardware.
5   Using the mounting hardware instructions, tighten the hardware to secure the mounting bracket.
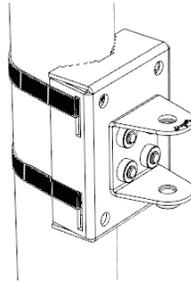6   Continue with Step 4: Mounting the Linkage Bracket to the U-Joint Bracket.

Step 3b: Attaching the Mounting Bracket to a Metal Pole

1   Insert the open end of one steel clamp into the upper two slots on the mounting bracket.
2   Take the other steel clamp and insert it into the lower two slots on the mounting bracket.

NOTE: *The clamps can be daisy-chained together to accommodate larger poles.*

3   Use the clamps to attach the mounting bracket to the pole. Tighten the clamps to 3 N-m or 27 in-lbs, or per manufacturer's specifications.

Figure 7:   Attaching the mounting bracket to a vertical pole

4   Continue with Step 4: Mounting the Linkage Bracket to the U-Joint Bracket.
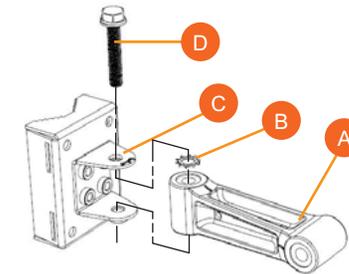
Step 4: Mounting the Linkage Bracket to the U-Joint Bracket

The linkage bracket attaches to the U-joint bracket using an M8 bolt and washer set. The linkage bracket is symmetrical, and either end can be attached to the U-joint bracket.

NOTE: *Make sure that linkage bracket is installed with its serrated external-tooth lock washer on the <u>inside</u> of the U-joint bracket flanges. This ensures that the azimuth adjustment does not change.*

1   Loosely assemble the linkage bracket (A), one serrated external-tooth lock washer (B), the U-joint bracket (C), and one M8 bolt and washer set (D).

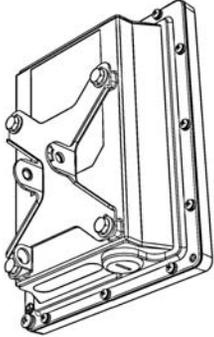*Figure 8:   Attaching the linkage bracket to the U-joint bracket*

2   Set the azimuth required by the AP.
3   Tighten the M8 bolt to 13.6 N-m (10 ft-lbs).
4   Continue with Step 5: Assembling the AP Bracket and the Access Point.

STEP 5: ASSEMBLING THE AP BRACKET AND THE ACCESS POINT

1   Place the AP bracket onto the back side of the AP so that the four larger screw holes on the bracket align with the four screw holes on the AP. Make sure that the end of the AP bracket with the hoisting loop is on the same side as the AP **PoE IN** port.

Figure 9:   Attaching the AP bracket to the AP

2   Use four 0.5-inch x 0.250-28 hex bolt with split lock and flat washer sets to mount the AP bracket to the AP. Tighten the bolts to 2.5-3.0 N.m or 22-27 in-lbs.

CAUTION: *Make sure that the screws are no longer than 0.5 inch. If a screw is longer than 0.5 inch, it can damage the AP chassis.*

3   If required, suspend the AP by attaching a carabiner to the hoisting loop on the AP bracket.

NOTE: *This kit may include extra screws, nuts and washers. You may use the extras wherever required.*

4   Continue with Step 6: Attaching the AP Bracket and AP to the Linkage Bracket.

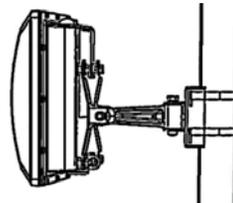## STEP 6: ATTACHING THE AP BRACKET AND AP TO THE LINKAGE BRACKET

The AP bracket attaches to the linkage bracket using an M8 bolt and washer set. The linkage bracket is symmetrical, and either end can be attached to the AP bracket.

NOTE: *Make sure that the linkage bracket is installed with its serrated external-tooth lock washer on the inside of the AP bracket flanges. This ensures that the elevation adjustment does not change.*

1   As described in Step 4: Mounting the Linkage Bracket to the U-Joint Bracket, loosely assemble the AP bracket (shown in Figure 9), the linkage bracket (A in Figure 8), the second serrated external-tooth lock washer (B in Figure 8), and the second M8 bolt and washer set (D in Figure 8).

CAUTION: *Make sure that the* **PoE IN** *port points downward to help prevent water intrusion.*

Figure 10:   AP bracket and AP attached to the linkage bracket on pole

2   Set the elevation required by the AP.
3   Tighten the M8 bolt to 13.6 N-m (10 ft-lbs).
4   Continue with Step 7: Earth Grounding the AP.
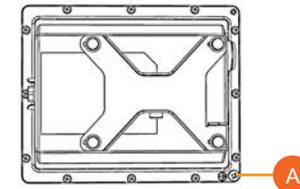
STEP 7: EARTH GROUNDING THE AP

CAUTION: *Make sure that earth grounding is available and that it meets local and national electrical codes. For additional lightning protection, use lightning rods and lightning arrestors.*

NOTE: *The color coding of ground wires varies by region. Before completing this step, check your local wiring standards for guidance.*

•   Using the factory-supplied ground wire and ground screw/washer set, connect a good earth ground to the AP chassis ground point (A in Figure 11).

CAUTION: *The T301n AP includes one 12mm stainless steel M6x1 earth ground screw with split lock and flat washers. Make sure that any replacement screw is no longer than 12mm. If a screw is longer than 12mm, it can damage the AP chassis.*

Figure 11:   Connect good earth ground to AP here

Congratulations! You have mounted your T301n access point.

TROUBLESHOOTING

CAUTION: *If required, you can reset the AP to its factory default settings by pressing the reset button located inside the PoE IN port. DO NOT DO THIS UNLESS SO INSTRUCTED. (Doing this resets the AP IP address to 192.168.0.1.)*

NOTE: *After a reset, you can access the internal AP web interface using* **https://192.168.0.1***. Your device must use any other address from 192.168.0.2 through 192.168.0.254, with subnet mask 255.255.255.0. The username is* super*, and the password is* sp-admin*. Refer to the T300, T301n and T301s 802.11ac Outdoor Access Point Installation Guide and the ZoneFlex Outdoor Access Point User Guide for information on configuring and operating the AP. Both documents are available at* https://support.ruckuswireless.com*.*

NOTE: *After an AP is removed from its mounting, it may drip some water from the channel surrounding the radome. As long as the AP has been operating normally, this incidental water collection and dripping is normal, and is not service-affecting.*