IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

SOVEREIGN PEAK VENTURES, LLC,	§	
Plaintiff,	§	
	§	**CASE NO. 6:22-cv-1273**
v.	§	
	§	
TP-LINK CORPORATION LIMITED f/k/a TP-LINK INTERNATIONAL LTD.	§	**JURY TRIAL**
Defendant.	§	

COMPLAINT AND JURY DEMAND

Plaintiff Sovereign Peak Ventures, LLC ("SPV") brings this action against TP-Link Corporation Limited formerly known as TP-Link International Ltd. ("TP-Link") for infringement of U.S. Patent Nos. 7,796,512, 8,045,531, 8,270,384, 8,902,871, 9,357,441, and 10,039,144 and alleges the following:

THE PARTIES

1. Plaintiff, Sovereign Peak Ventures, LLC, is a Texas Limited Liability Company with its principal place of business in Allen, Texas.

2. Defendant TP-Link Corporation Limited is a private limited company organized under the laws of Hong Kong, with its principal place of business located at Suite 901, 9/F., New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong.

3. In 2020, TP-Link International Ltd. changed its name to TP-Link

Corporation Limited.

4. According to its corporate profile published on its website (*available at* https://www.tp-link.com/hk/about-us/corporate-profile/), TP-Link was founded in 1996 and is ranked as "the No. 1 provider of Wi-Fi devices for a consecutive 11 years, supplying distribution to more than 170 countries . . .." TP-Link supplies a full range of products to customers in the United States.

tp-link

About TP-Link

Founded in 1996, TP-Link is a global provider of reliable networking devices and accessories, involved in all aspects of everyday life. The company is ranked by analyst firm IDC as the No. 1 provider of Wi-Fi devices for a consecutive 11 years*, supplying distribution to more than 170 countries and serving billions of people worldwide.

With a proven heritage of stability, performance, and value, TP-Link has curated a portfolio of products that meet the networking needs of all individuals. Now, as the connected lifestyle continues to evolve, the company is expanding today to exceed the demands of tomorrow.

To know more about us, you could get regional contact information from the "Contact Us" part.

For media requests, please mail to pr@tp-link.com.

*According to the latest published IDC Worldwide Quarterly WLAN Tracker Report, Q1 2022 Final Release.

5. TP-Link Corporation Limited may be served with process at its primary office location at Suite 901, New East Ocean Centre, Tsim Sha Tsui, Hong Kong.

JURISDICTION AND VENUE

6. SPV brings this action for patent infringement under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others. This Court has subject-matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. TP-Link is subject to this Court's specific and general personal jurisdiction pursuant to the Texas Long-Arm Statute and consistent with due process, in view of its substantial business in Texas and in this judicial district including: (a) its infringing activities alleged in this complaint by which Defendant purposefully avails itself of the privilege of conducting business activities in this state and district, and thus, submits itself to the jurisdiction of this Court; and (b) regularly doing or soliciting business, contracting with and engaging in other persistent conduct targeting residents of Texas and this district, or deriving substantial revenue from goods and services offered for sale, sold, and imported to and targeting residents of Texas and this district directly and through or in concert with intermediaries, agents, distributors, importers, customers, subsidiaries and/or consumers. *See* https://www.tp-link.com/us/where-

to-buy/.

8. TP-Link's presence and conduct directed to residents of Texas and into this district is intended to further and advance the development, design, manufacture, importation, distribution, sale, and use (including by inducement) of infringing TP-Link products in Texas and in this district.

9. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(c)(3) which provides that "a defendant not resident in the United States may be sued in any judicial district."

10. TP-Link transacts business in this judicial district and has committed acts of infringement in this judicial district.

11. TP-Link directly or through intermediaries, make, use, offer for sale, import, sell, advertise, or distribute products and services in the United States, the State of Texas, and in this district.

12. TP-Link advertises its products to residents in Texas and in this district via its website: www.tp-link.com.

13. TP-Link conducts its business of marketing, distributing, deploying, and selling products and services in Texas and in this district through its agents, representatives, affiliates, related entities, partners, distributors, and retailers.

14. TP-Link continuously and systematically solicits business and contracts with residents of Texas and this district.

15. By way of example, and as a predicate for access and use, TP-Link requires end users, customers, and subscribers to enter a written contract containing certain terms and conditions governing their access and use of TP-Link's mobile applications including the TP-Link Deco and TP-Link Omada App, Kasa Smart Home app, the TP-Link Camera app, the TP-Link Vigi app, and TP-Link's Tapo app.

16. This Court has personal jurisdiction over TP-Link, directly and/or indirectly via the activities of TP-Link and its intermediaries, agents, related entities, affiliates, distributors, importers, customers, subsidiaries, or consumers. Alone and in concert with these entities, TP-Link has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas.

TP-Link Maintains a Sales Network and Channels for Selling and Distributing into the United States and Texas.

17. TP-Link maintains a global network of sales and distribution channels for selling TP-Link products. *See* Choose Your Location, *available at* https://www.tp-link.com/us/choose-your-location/.

18. TP-Link's global network includes retail stores and distributors operating in Texas and in this district. *See* https://www.tp-link.com/us/where-to-buy/.

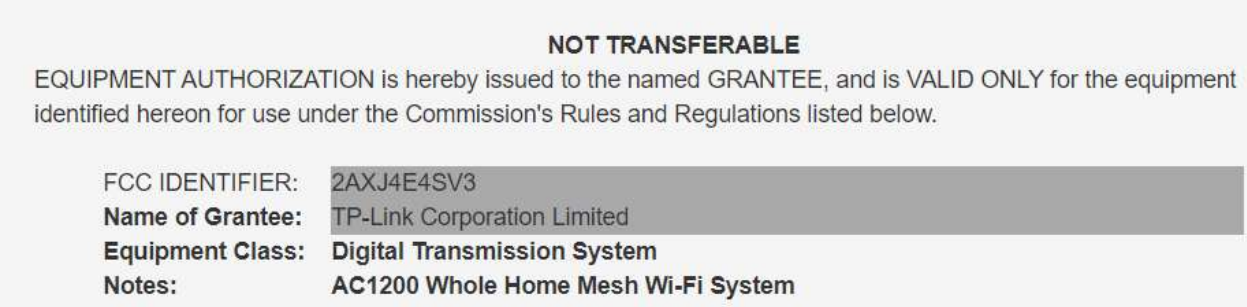
19. TP-Link directs and controls the acts of its affiliates and related entities in the manufacture, shipment, importation, and distribution of TP-Link products into and within the United States.

TP-Link Registers its Products with the U.S. Federal Communications Commission to Sell in the United States.

20. To sell them in the United States, TP-Link applied for and obtained registrations for certain TP-Link products from the United States Federal Communications Commission (FCC). *See* https://fccid.io/2AXJ4X50POE

21. In its application and disclosure to the FCC, TP-Link identified itself as the responsible manufacturing party of TP-Link products intended for the domestic market and for use by United States residents. *See* https://fcc.report/FCC-ID/2AXJ4P9V2/; and https://fcc.report/FCC-ID/2AXJ4P9V2/5079229

22. TP-Link identified itself as "Grantee" for a non-transferrable "equipment authorization" from the FCC for the sale of certain TP-Link products in the United States. *See* https://fccid.io/2AXJ4E4RV3 and https://fcc.report/FCC-ID/2AXJ4P9V2/5079229.



NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER:	2AXJ4E4SV3
Name of Grantee:	TP-Link Corporation Limited
Equipment Class:	**Digital Transmission System**
Notes:	**AC1200 Whole Home Mesh Wi-Fi System**

23. Under the authority of the FCC, TP-Link sought and received

authorization for "equipment for operation at approved frequencies and sale within the USA." *See* FCC Grant of Equipment Authorization Certification for TP-Link, *available at* https://fccid.io/2AXJ4E4SV3.

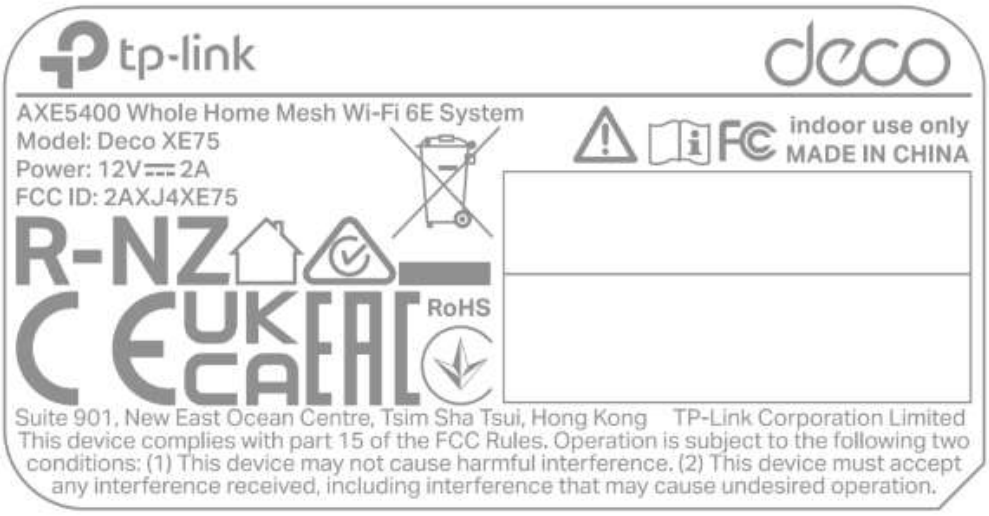
24. TP-Link's FCC product registrations include certain TP-Link Deco Mesh devices and business EAPs enabled for 802.11k/r: AC1200 (https://fccid.io/2AXJ4E4SV3); Whole Home Mesh Wi Fi 6 System Models AX1800 (https://fccid.io/2AXJ4X20V2); AX3000 (https://fccid.io/2AXJ4X50POE); AC2200 (https://fccid.io/2AXJ4M9PLUSV2); AX3600 (https://fccid.io/2AXJ4EAP660HD); AX6600 (https://fccid.io/2AXJ4X90); and AXE5400 (https://fccid.io/2AXJ4XE75).

FCC IDENTIFIER:	2AXJ4XE75
Name of Grantee:	TP-Link Corporation Limited
Equipment Class:	**15E 6 GHz Low Power Indoor Access Point**
Notes:	**AXE5400 Whole Home Mesh Wi-Fi 6E System, AXE5300 Whole Home Mesh Wi-Fi 6E System**

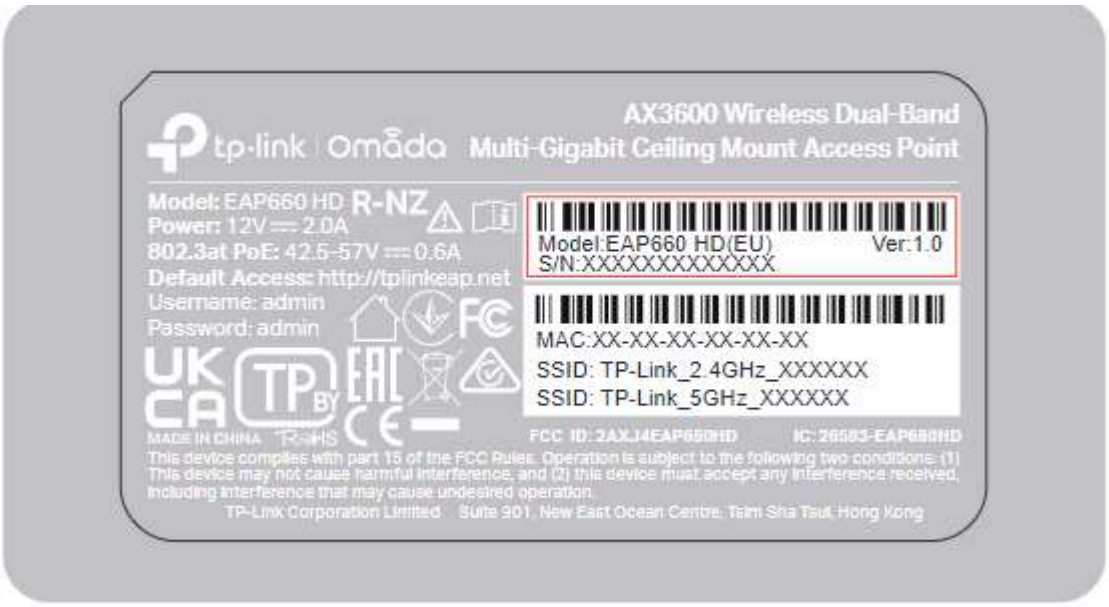
https://fccid.io/2AXJ4XE75

25. TP-Link is listed on the labels of its products as the manufacturing party.

Label



https://fccid.io/2AXJ4XE75/Label/Label-and-Label-Location-5654084



https://fccid.io/2AXJ4EAP660HD/Label/Confidential-EAP660-HD-label-5853893

26. TP-Link certifies that its products comply with all necessary FCC requirements governing usage in the U.S. *See e.g.*, https://fccid.io/2AXJ4E4SV3/Letter/Deco-E4S-FCC-Declaration-of-Conformity-6190845; https://fccid.io/

2AXJ4E4SV3/Letter/Deco-E4S-FCC-Declaration-of-Conformity-6190845; and https://fccid.io/2AXJ4X50POE/Letter/Deco-X50-POE-FCC-Declaration-of-Conformity-Rev01-6195755.

tp-link

Declaration of Conformity

We

Name: TP-Link Corporation Limited

Address: Room 901, 9/F., New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hongkong

Declare that:

Product:	**AC1200 Whole Home Mesh Wi-Fi System**
FCC ID:	2AXJ4E4SV3
Model:	Deco E4S
Brand:	tp-link

Product which bears the above FCC ID is also compliant with the FCC requirements for sDOC. And the sDOC procedure shall be carried out prior to marketing the device in the US.

Sincerely,

Sarah Wang

Name: Sarah Wang

Position: Regulatory Compliance Manager

https://fccid.io/2AXJ4E4SV3/Letter/Deco-E4S-FCC-Declaration-of-Conformity-

6190845

27. TP-Link certifies compliance with FCC requirements in order to sell TP-Link products in the United States.

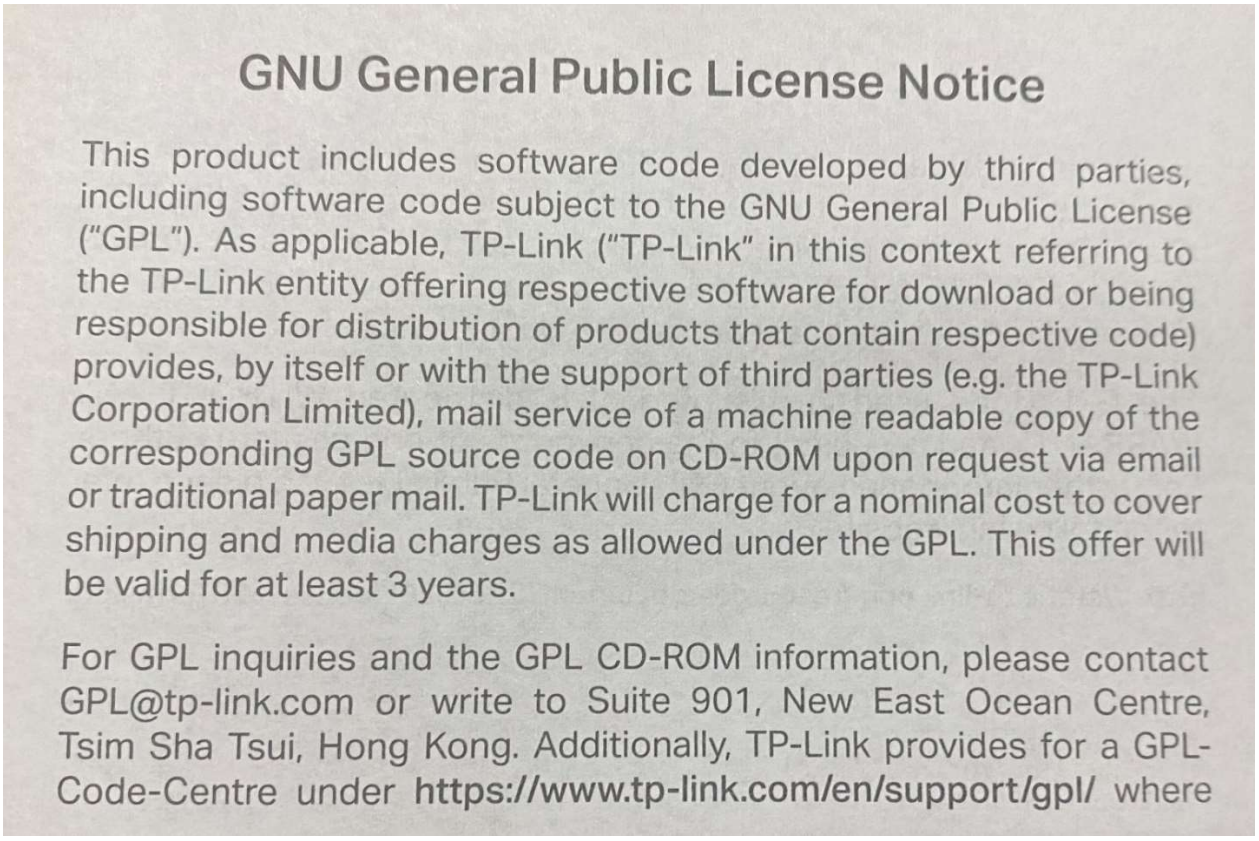
TP-Link Designs and Packages Products for Sale in the United States.

28. TP-Link designs and packages the accused products specifically for the United States market. For example, TP-Link includes with the accused products sold in the United States power cords and electrical plugs compatible with United States power outlets. TP-Link knowingly and intentionally directs distribution of such products into the United States.

29. TP-Link product packaging features branding that includes its name and copyright.

30. TP-Link includes written notices to U.S. customers in product

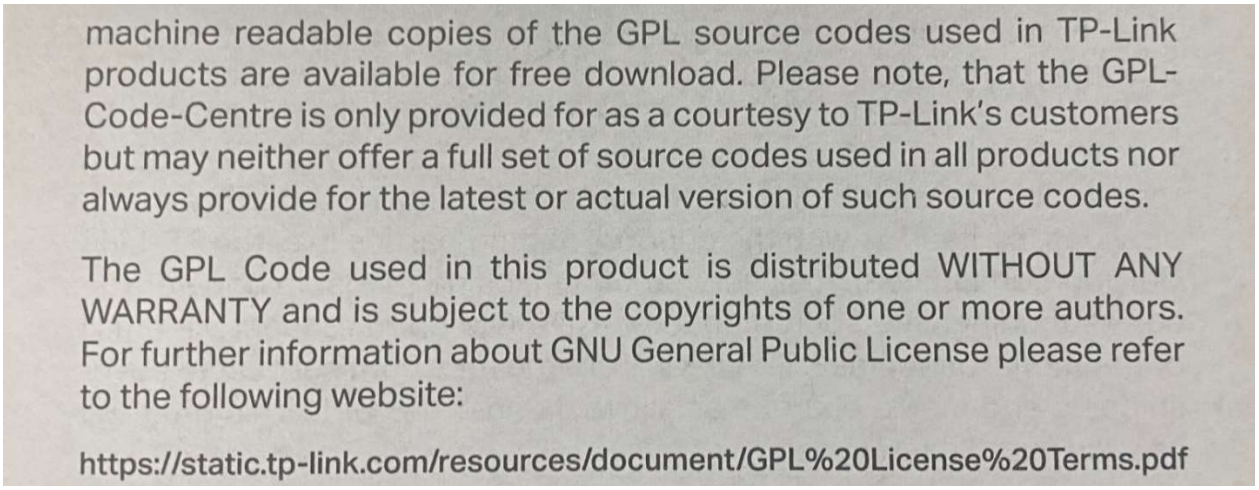
packaging that direct U.S. residents to ask TP-Link about its GNU General Public Licenses at TP-Link's Hong Kong address.



GNU General Public License Notice

This product includes software code developed by third parties, including software code subject to the GNU General Public License ("GPL"). As applicable, TP-Link ("TP-Link" in this context referring to the TP-Link entity offering respective software for download or being responsible for distribution of products that contain respective code) provides, by itself or with the support of third parties (e.g. the TP-Link Corporation Limited), mail service of a machine readable copy of the corresponding GPL source code on CD-ROM upon request via email or traditional paper mail. TP-Link will charge for a nominal cost to cover shipping and media charges as allowed under the GPL. This offer will be valid for at least 3 years.

For GPL inquiries and the GPL CD-ROM information, please contact GPL@tp-link.com or write to Suite 901, New East Ocean Centre, Tsim Sha Tsui, Hong Kong. Additionally, TP-Link provides for a GPL-Code-Centre under **https://www.tp-link.com/en/support/gpl/** where



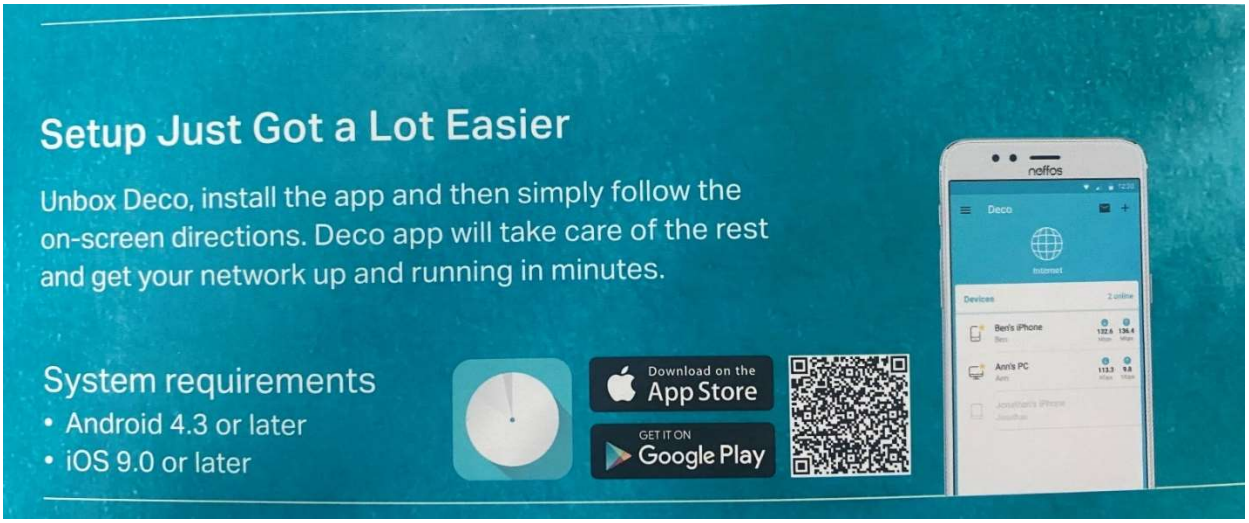
machine readable copies of the GPL source codes used in TP-Link products are available for free download. Please note, that the GPL-Code-Centre is only provided for as a courtesy to TP-Link's customers but may neither offer a full set of source codes used in all products nor always provide for the latest or actual version of such source codes.

The GPL Code used in this product is distributed WITHOUT ANY WARRANTY and is subject to the copyrights of one or more authors. For further information about GNU General Public License please refer to the following website:

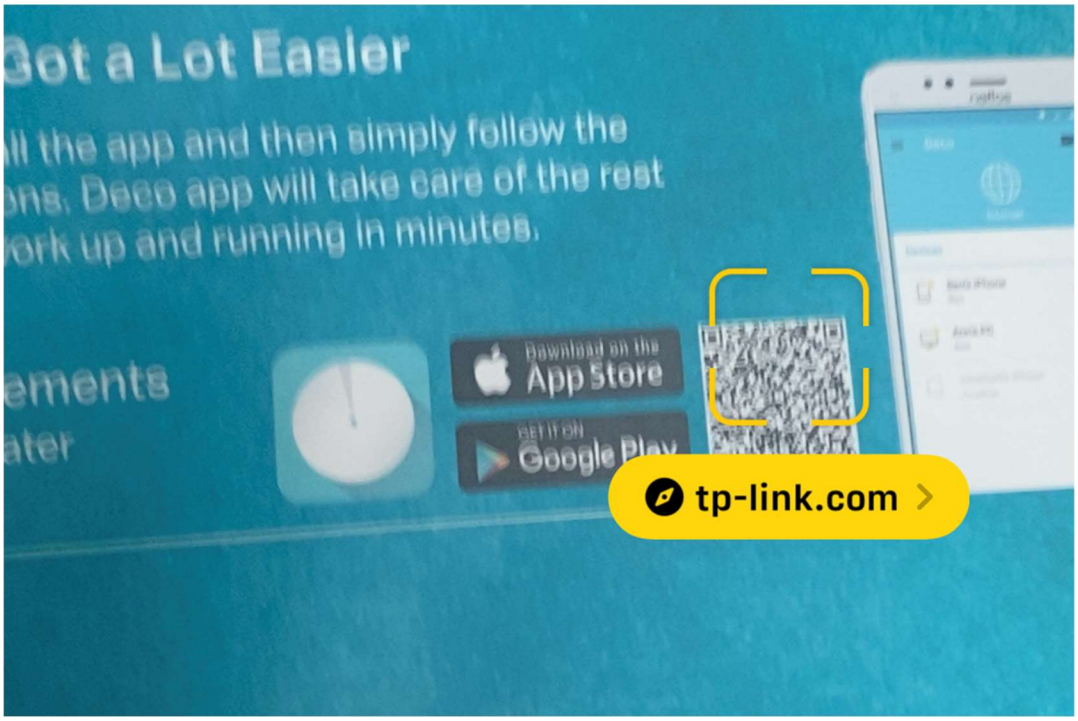
https://static.tp-link.com/resources/document/GPL%20License%20Terms.pdf

31. TP-Link includes English-language product manuals in its products along with the TP-Link logo and instructions to access the TP-Link apps (e.g.,

Omada, Deco App).



32. TP-Link includes on its U.S.-bound product packaging QR codes providing links directing customers in Texas and throughout the United States to TP-Link's website (www.tp-link.com).



33. As part of its global manufacturing and distribution network, TP-Link purposefully places infringing TP-Link products into established distribution channels in the stream of commerce, including in Texas, via distribution partners, retailers (including national retailers), reseller partners, affiliates, related entities, solution partners, service providers, consumers, and other users.

TP-Link Purposefully Directs Sales Activities to Residents of Texas and this District Through Its TP-Link Website and Sales Channels.

34. TP-Link operates the www.tp-link.com website.

35. The TP-Link website provides United States customers with sales and product information, including referring links and directions on how to purchase TP-Link products in the United States, in Texas, and in this district.

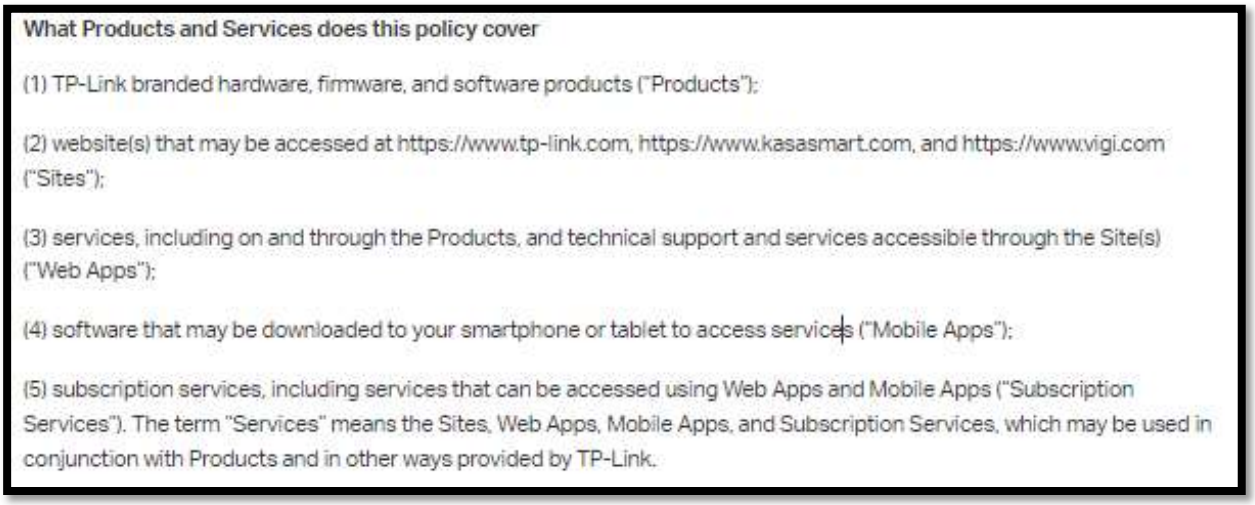
36. TP-Link holds the copyright registrations corresponding to TP-Link's

websites. *See* https://www.tp-link.com/us/; https://www.tp-link.com/us/where-to-buy/; https://www.tp-link.com/us/omada-sdn/; https://www.tp-link.com/us/deco-mesh-wifi/; and https://www.tp-link.com/us/business-networking/all-switch/.

37. TP-Link controls the content of its website, gathers consumer information through it, and controls how such information is utilized. For example, TP-Link and its affiliates are listed as the responsible parties for the TP-Link privacy policy. *See* https://www.tp-link.com/us/about-us/privacy/#sec_a.

38. TP-Link's Privacy Policy provides that "TP-Link Corporation Limited, and its affiliates (collectively, "TP-Link," "we" "us," or "our"), takes your privacy seriously. TP-Link provides (1) TP-Link branded hardware, firmware, and software products ("Products"), (2) website(s) that may be accessed at https://www.tp-link.com/us/ and http://www.kasasmart.com and https://www.vigi.com ("Sites"), (3) services, including on and through the Products, and technical support and services accessible through the Site(s) ("Web Apps") (4) software that may be downloaded to your smartphone or tablet to access services ("Mobile App"), and (5) subscription services, including services that can be accessed using the Web Apps and Mobile Apps ("Subscription Services"). The term "Services" means the Sites, Web Apps, Mobile Apps, and

Subscription Services, which may be used in conjunction with Products and in other ways provided by TP-Link." https://www.tp-link.com/us/about-us/privacy/#sec_a



What Products and Services does this policy cover

(1) TP-Link branded hardware, firmware, and software products ("Products");

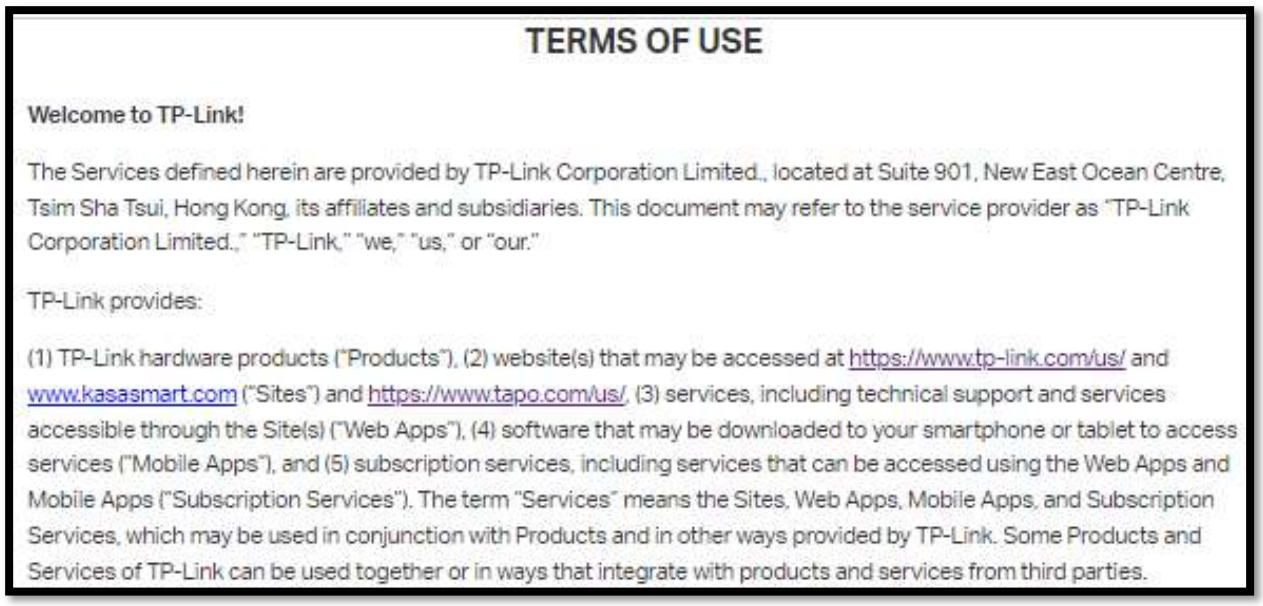
(2) website(s) that may be accessed at https://www.tp-link.com, https://www.kasasmart.com, and https://www.vigi.com ("Sites");

(3) services, including on and through the Products, and technical support and services accessible through the Site(s) ("Web Apps");

(4) software that may be downloaded to your smartphone or tablet to access services ("Mobile Apps");

(5) subscription services, including services that can be accessed using Web Apps and Mobile Apps ("Subscription Services"). The term "Services" means the Sites, Web Apps, Mobile Apps, and Subscription Services, which may be used in conjunction with Products and in other ways provided by TP-Link.

39. TP-Link represents on its website that the TP-Link hardware products, websites including https://ww.tp-link.com/us/, technical support and services accessible through the TP-Link websites, and software downloaded to the users smartphone or tables to access services and subscription services (collectively referred to by TP-Link as "Services") are provided by TP-Link located at Suite 901, New East Ocean Centre, Tsim Sha Tsui, Hong Kong, its affiliates and subsidiaries. https://www.tp-link.com/us/about-us/privacy/#sec_b.



TERMS OF USE

Welcome to TP-Link!

The Services defined herein are provided by TP-Link Corporation Limited., located at Suite 901, New East Ocean Centre, Tsim Sha Tsui, Hong Kong, its affiliates and subsidiaries. This document may refer to the service provider as "TP-Link Corporation Limited.," "TP-Link," "we," "us," or "our."

TP-Link provides:

(1) TP-Link hardware products ("Products"), (2) website(s) that may be accessed at https://www.tp-link.com/us/ and www.kasasmart.com ("Sites") and https://www.tapo.com/us/, (3) services, including technical support and services accessible through the Site(s) ("Web Apps"), (4) software that may be downloaded to your smartphone or tablet to access services ("Mobile Apps"), and (5) subscription services, including services that can be accessed using the Web Apps and Mobile Apps ("Subscription Services"). The term "Services" means the Sites, Web Apps, Mobile Apps, and Subscription Services, which may be used in conjunction with Products and in other ways provided by TP-Link. Some Products and Services of TP-Link can be used together or in ways that integrate with products and services from third parties.

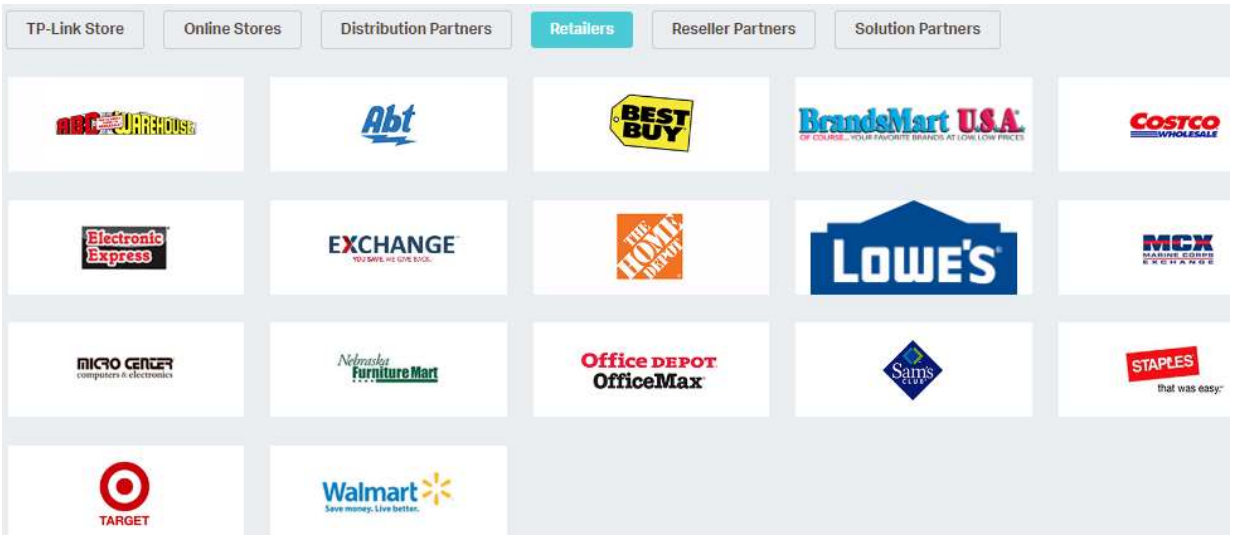
https://www.tp-link.com/us/about-us/privacy/#sec_b.

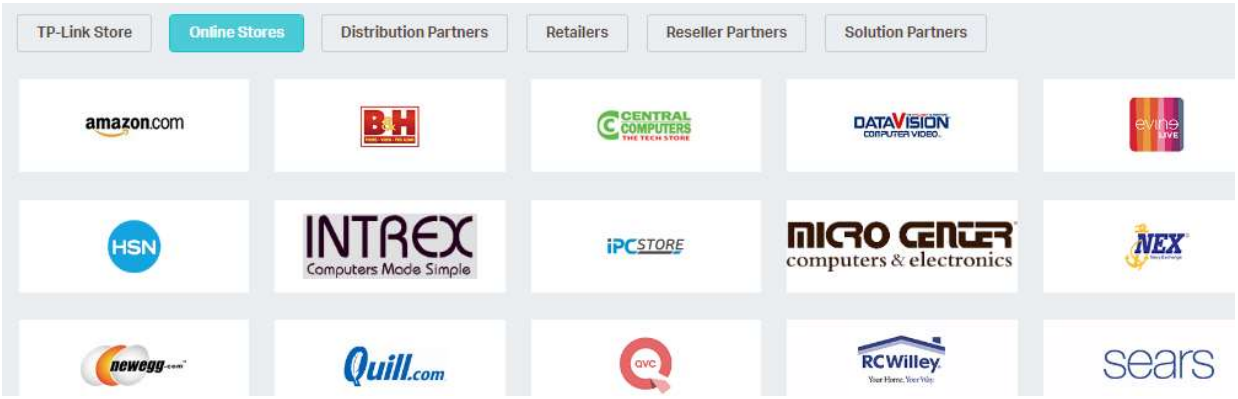
40. TP-Link provides specifications, user manuals, installation videos, and other technical support documents for certain referenced products on its website. *See* http://www.tp-link.com/us/support.

41. TP-Link ships products (including the accused products) to its affiliate TP-Link USA. Accused TP-Link products are currently sold at major retailers in Texas and in this district including Target and Home Depot stores.

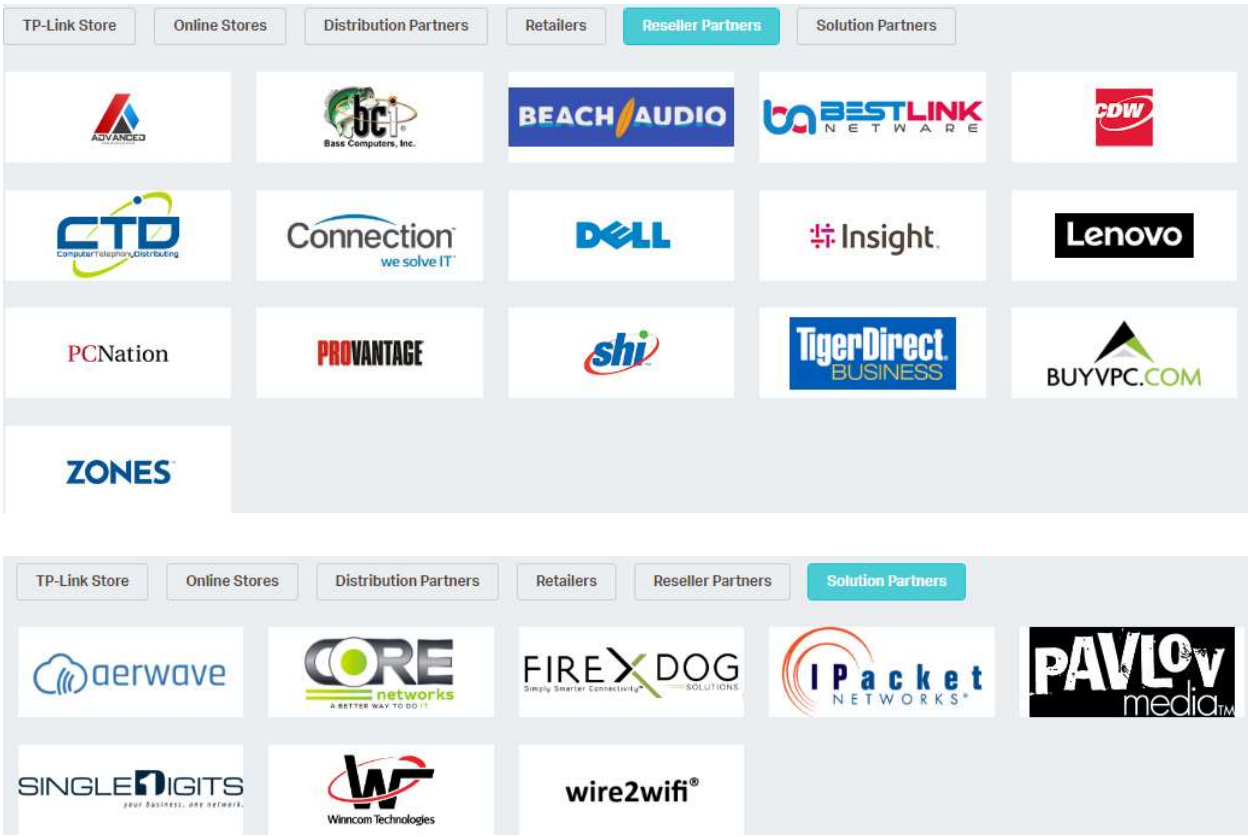
42. TP-Link's website directs customers to purchase accused products from its website (i.e., "Where to Buy") and through its store, online stores, distribution partners, retailers, reseller partners and solution partners. For example, TP-Link lists and includes referring links to retailers that sell TP-Link products in this district including Target, Amazon, Office Depot, Best Buy, Home Depot, and

others.


TP-Link Store
Online Stores
Distribution Partners
Retailers
Reseller Partners
Solution Partners
BrandsMart U.S.A.
COSTCO WHOLESALE
Electronic Express
EXCHANGE
LOWE'S
MCX
MARINE CORPS EXCHANGE
MICRO CENTER
computers & electronics
Nebraska Furniture Mart
Office DEPOT
OfficeMax
Sam's CLUB
STAPLES
that was easy.
TARGET
Walmart
Save money. Live better.

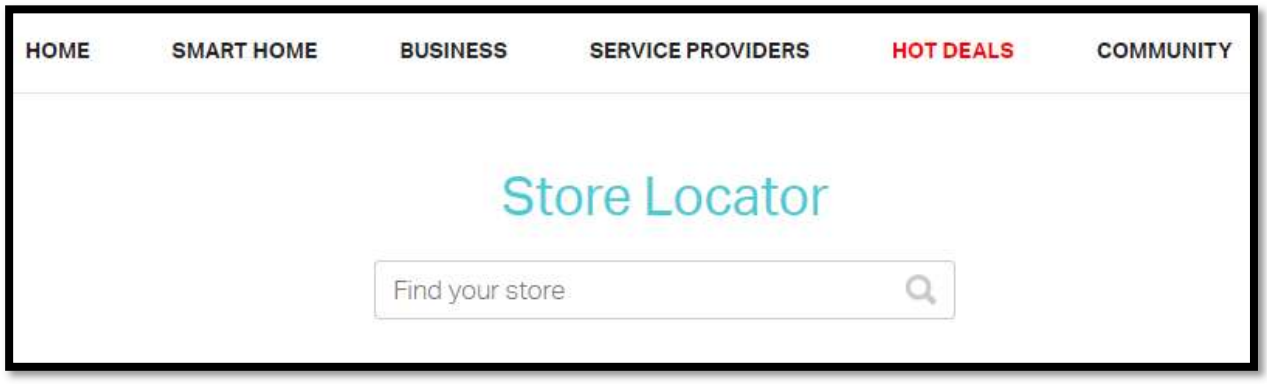

TP-Link Store
Online Stores
Distribution Partners
Retailers
Reseller Partners
Solution Partners
amazon.com
B&H
CENTRAL COMPUTERS
THE TECH STORE
DATAVISION
COMPUTER VIDEO
evine
LIVE
HSN
INTREX
Computers Made Simple
iPCSTORE
MICRO CENTER
computers & electronics
NEX
newegg
Quill.com
QVC
RC Willey
Your Home. Your Way.
sears


TP-Link Store
Online Stores
Distribution Partners
Retailers
Reseller Partners
Solution Partners
ADI
GLOBAL DISTRIBUTION
ANIXTER
ASI
D&H
INGRAM
ISPSupplies
MA·LABS
MICROCOM
scansource
TD SYNNEX
TELEDYNAMICS
Tristate Low Voltage Supply
VITAL COMMUNICATIONS INC
"Not Just Products, Solutions"
Winncom Technologies



https://www.tp-link.com/us/where-to-buy/.

43. TP-Link's website has a store locator feature, and direct consumers including those in Texas where to buy TP-Link products.

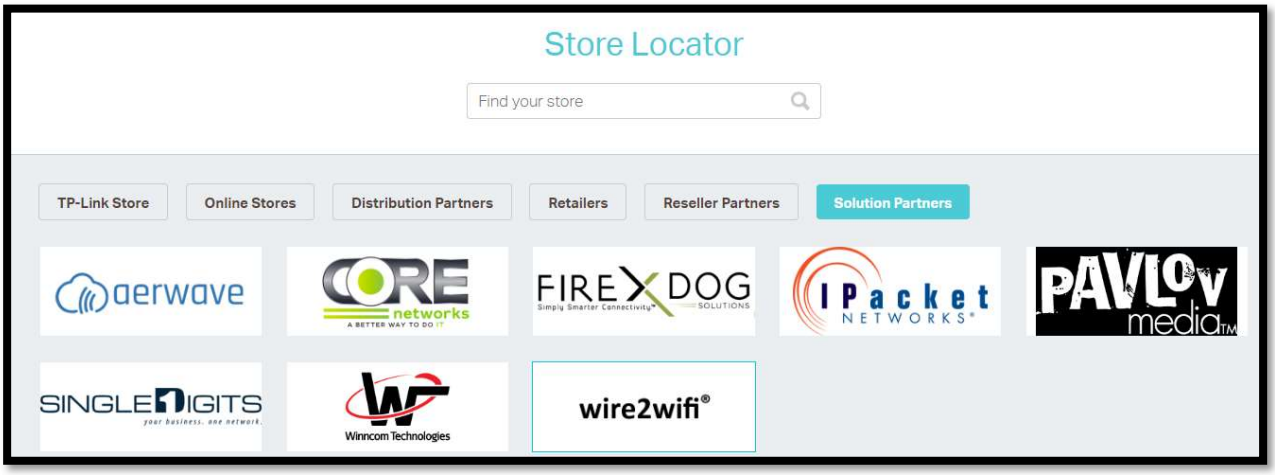


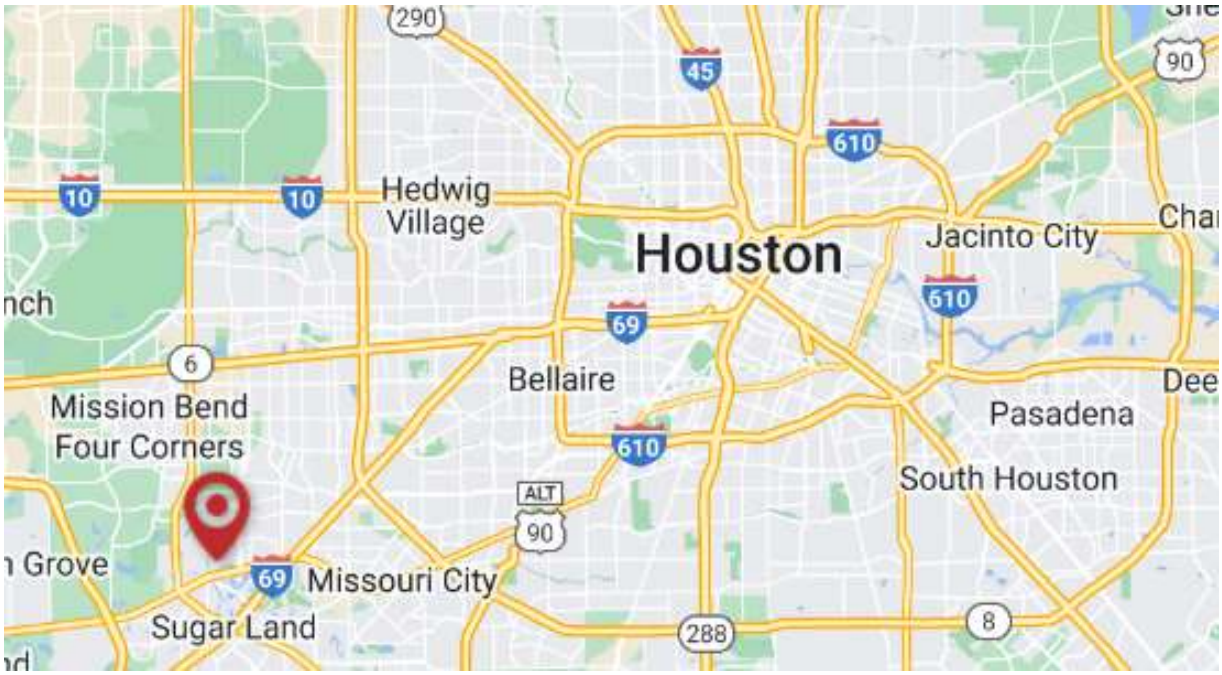
Id.

44. TP-Link sells its products in the United States and to residents in

Texas and this district through the TP-Link Store, Online Stores, Distribution Partners, Retailers, Reseller Partners, and Solution Partners.

45. TP-Link's Solution Partners include Solution Partners that are located and sell in Texas (e.g., wire2wifi, IPacket Networks). TP-Link Solution Partners wire2wifi and IPacket Networks support and sell TP-Link products in Texas.





https://www.wire2wifi.com/contact-us.html; and https://www.ipacketnet.com/.

46. For example, TP-Link's Solution Partner, wire2wifi, is headquartered in Houston, Texas and sells TP-Link accused products. TP-Link's Solution Partner, wire2wifi, also provides network design and installation, 24/7 support and

proactive monitoring to customers in Texas. *See* https://www.wire2wifi.com/wifi-services.html.

https://www.wire2wifi.com/wifi-products.html.

47. Through its website, TP-Link provides weblinks to distributors (i.e., referring links) and directs consumers where to purchase TP Link products (including the Accused Products). *See* https://www.tp-link.com/us/where-to-buy/.

48. TP-Link introduced its products (including Accused Products) at Target stores in the United States, in Texas, and in this district. TP-Link promoted its partnership with Target and directed its customers to purchase TP-Link products from Target stores including locations in Texas and this district.

New Deco Mesh WiFI, WiFi 6 Router, Kasa Smart Camera and Plugs Now Available at Target

TP-Link®, a leading global provider of consumer and business networking products, introduced highly affordable WiFi 6 Routers, Mesh WiFi Systems, WiFi 6 Range Extenders, Kasa Security Cameras, and Kasa Smart Plugs to select Target stores nationwide. TP-Link products provide advanced technology and give your home a smart upgrade. TP-Link is committed to delivering affordable solutions to meet increasing demands, now more than ever.

Shop the new line up of products at Target.

https://www.tp-link.com/us/press/news/19198/.

49. TP-Link identifies its Hong Kong entity as associated with the Target sales channel.

About TP-Link

Founded in 1996, TP-Link is a global provider of reliable networking devices and accessories, involved in all aspects of everyday life. The company is consistently ranked as top provider of WLAN products, supplying distribution to more than 170 countries and serving hundreds of millions of people worldwide.

https://www.tp-link.com/us/press/news/19198/.

50. TP-Link's advertisement and promotion of its products at Target is directly linked to its Hong Kong entity founded in 1996 and not its US affiliate (TP-Link USA Corporation). TP-Link's affiliate US entity was not founded until 2008.

51. TP-Link directs Texas customers to purchase TP-link products at physical store locations in Texas. For example, TP-Link links to the Target website (i.e., referring website) which sells the TP-Link AC1200 Dual Band Mesh 3-Pack (an accused product) in Texas and provides for pickup.

Processing for in-store pickup

Your pickup store:

Austin South Lamar Target store - 2300 W Ben White Blvd, Austin, TX 78704-7525

TP-Link AC1200 Dual Band Mesh 3-Pack

Qty: 1

$149.99 / ea

Processing

Item picked up

TP-Link AC1200 Dual Band Mesh 3-Pack

Qty: 1

Visit order details

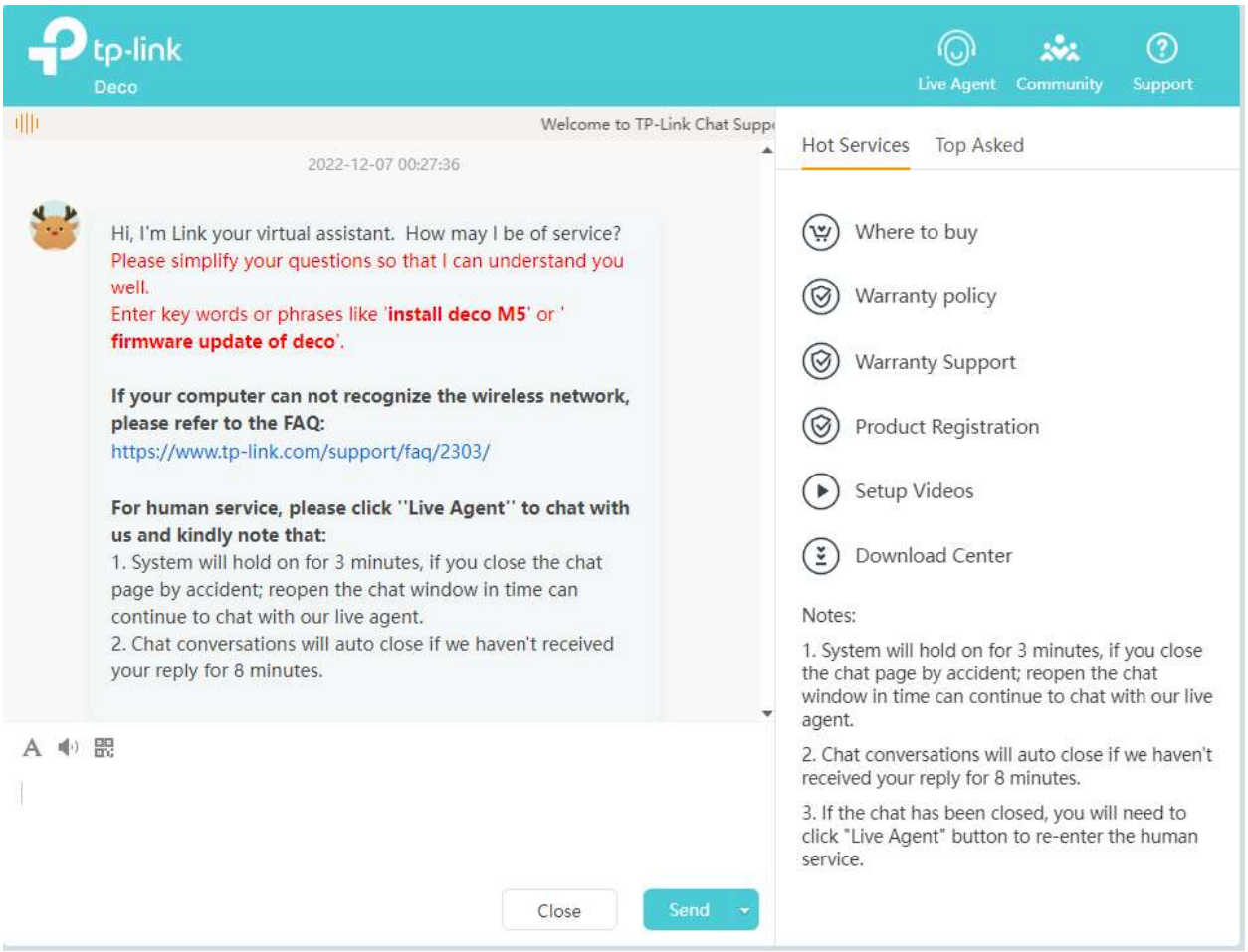
https://www.target.com/p/tp-link-ac1200-dual-band-mesh-3-pack/-/A-79847622?ref=&ref=OpsEmail_Order_572_Default%20OPU/DU%20B&j=185208&sfmc_s

ub=499773374&l=20_HTML&u=133557433&mid=7284873&jb=10661.

52. TP-Link has sold and continues to sell accused TP-Link products (e.g., TP-Link AC1200 Dual Band Mesh 3-Pack, AC1350, OC200) to customers in Texas and in this district.

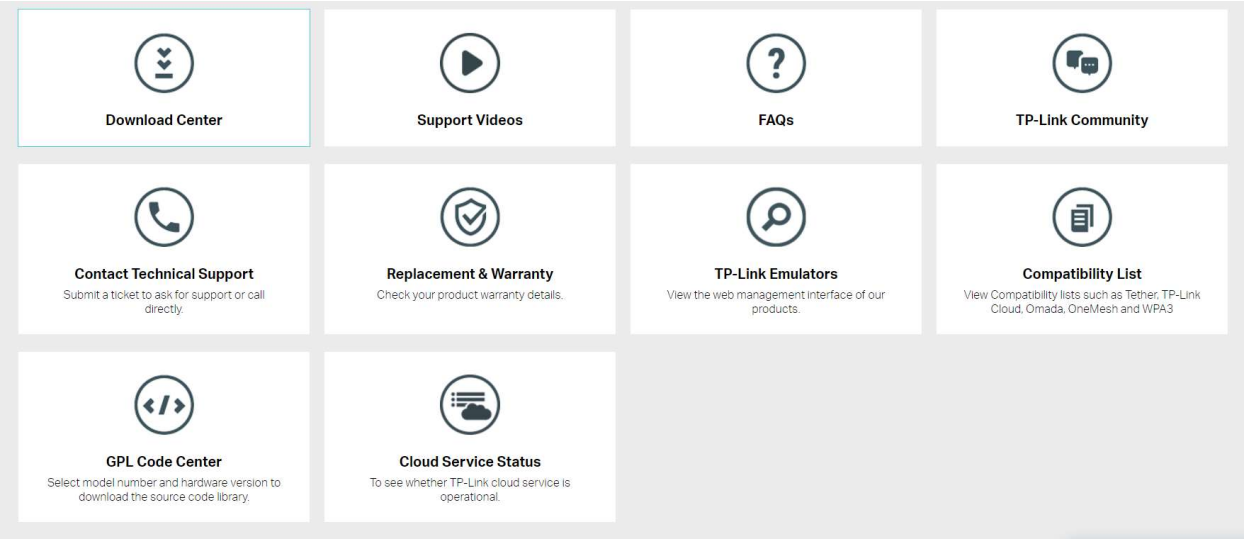
TP-Link Maintains Established Channels for Providing Pre- and Post-Sale Advice to Customers in Texas.

53. TP-Link provides technical support to users of its products (including applications) in Texas through its website, available at www.tp-link.com, and its live chat and live agent support.



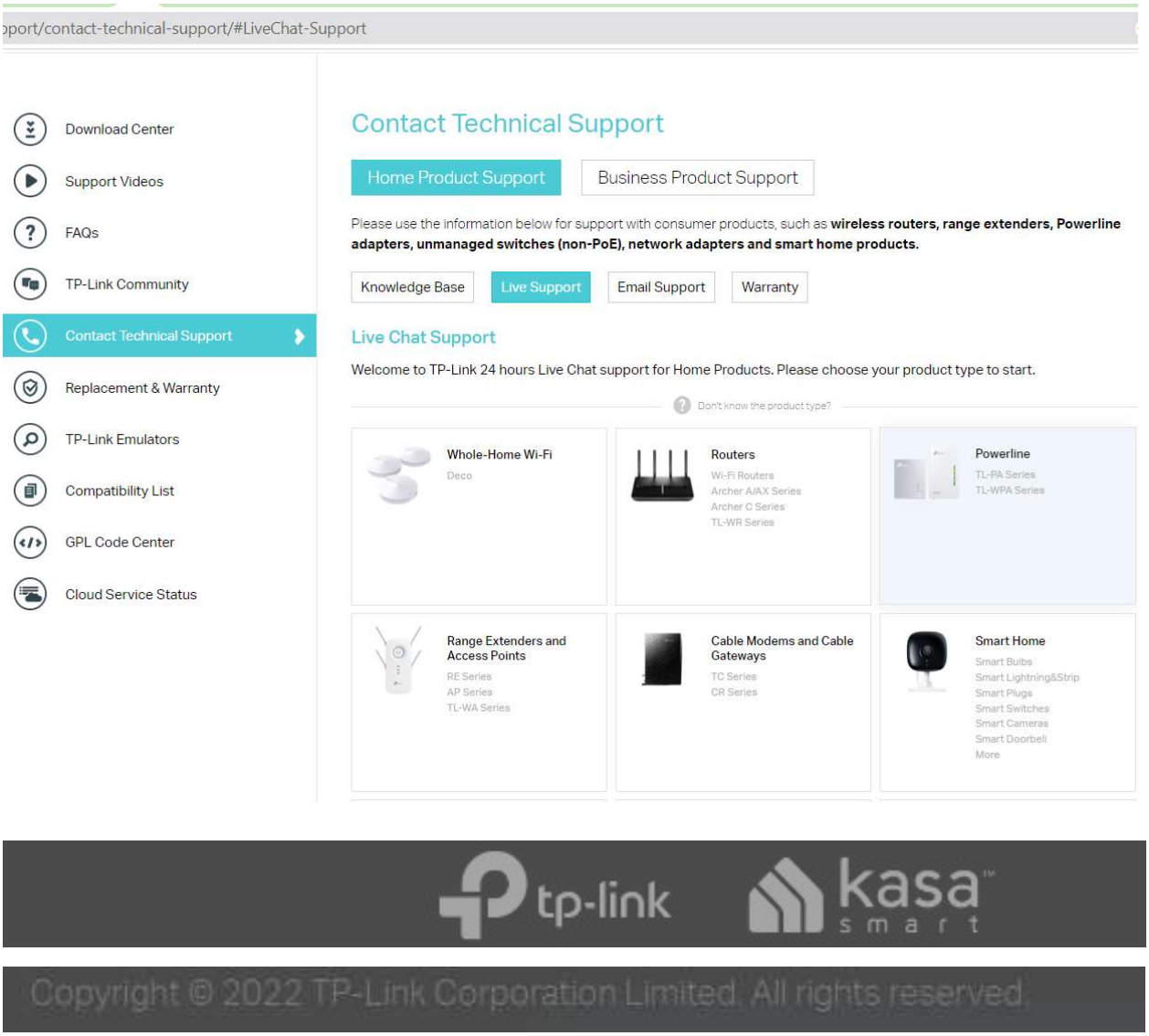
https://livechat.tp-link.com/us/deco/

54. TP-Link provides technical support to its customers on its website through its download center, support videos, FAQs, TP-Link Community, Contact Technical Support, Replacement and Warranty, TP-Link Emulators, Compatibility List, GPL Code Center, and Cloud Service Status tabs.



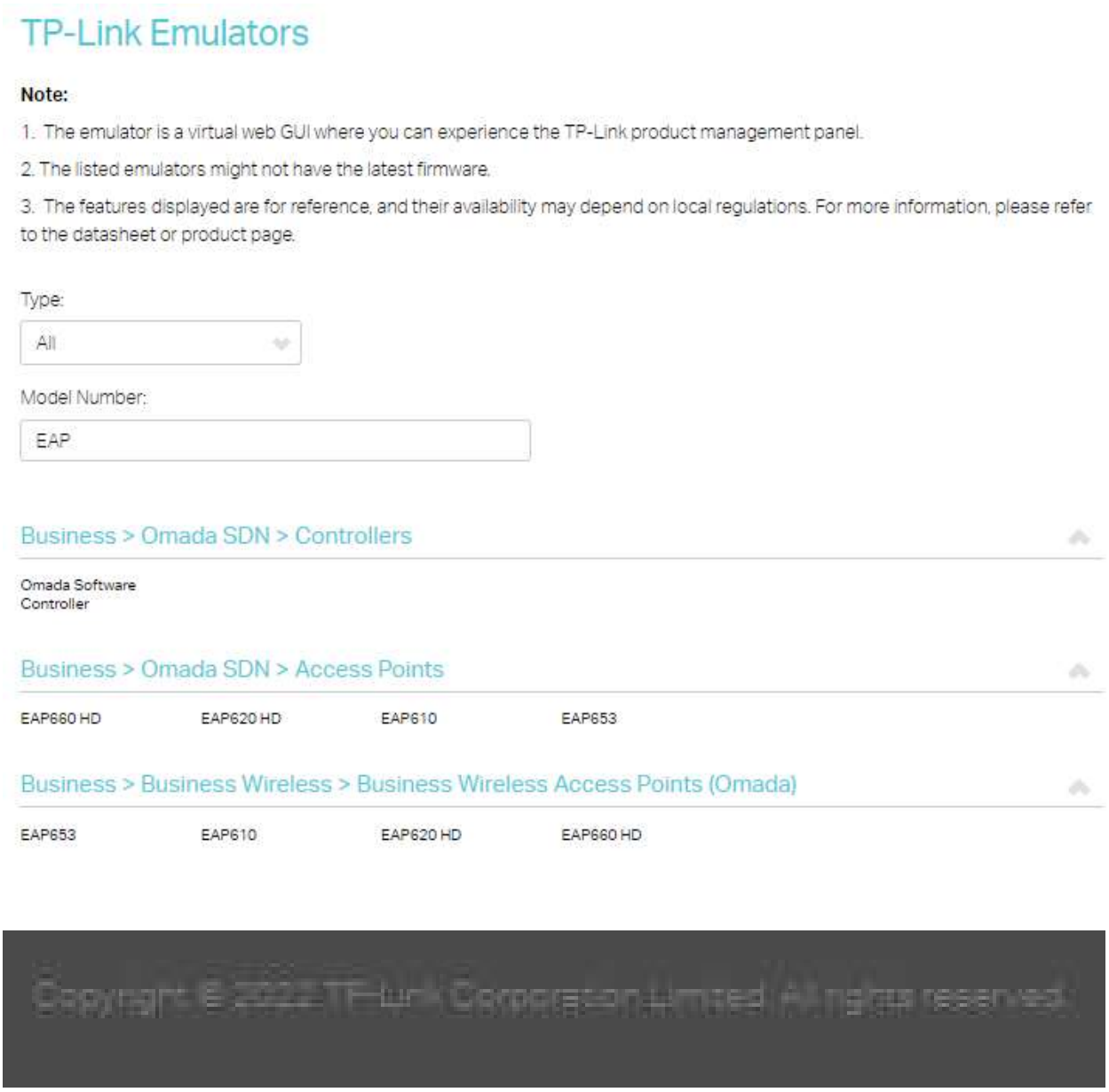
https://www.tp-link.com/us/support/

55. TP-Link provides contact information for users in Texas to access Technical Support for their home and business products.

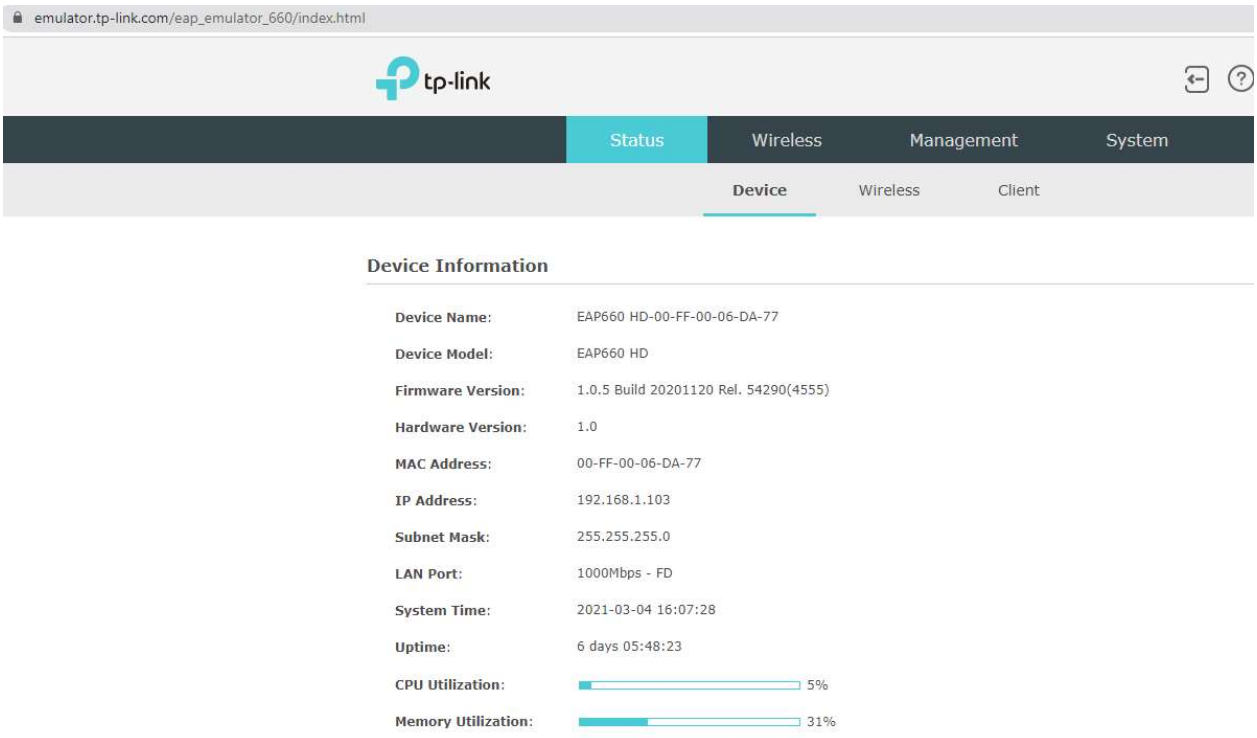


https://www.tp-link.com/us/support/; and https://www.tp-link.com/us/support/contact-technical-support/#LiveChat-Support.

56. TP-Link provides technical support to U.S. customers through access to TP-Link emulators for the Accused Products (e.g.,the TP-Link EAP660) on TP-Link's support page. TP-Link allows users to experience the TP-Link product management panel through these emulators for the Accused Products.



https://www.tp-link.com/us/support/emulator/



https://emulator.tp-link.com/eap_emulator_660/index.html

57. TP-Link provides to customers status information about its systems including on TP-Link's technical support website. *See* https://www.tp-link.com/us/support/cloud-service-status/.

TP-Link Markets and Distributes Mobile Applications to Residents of Texas.

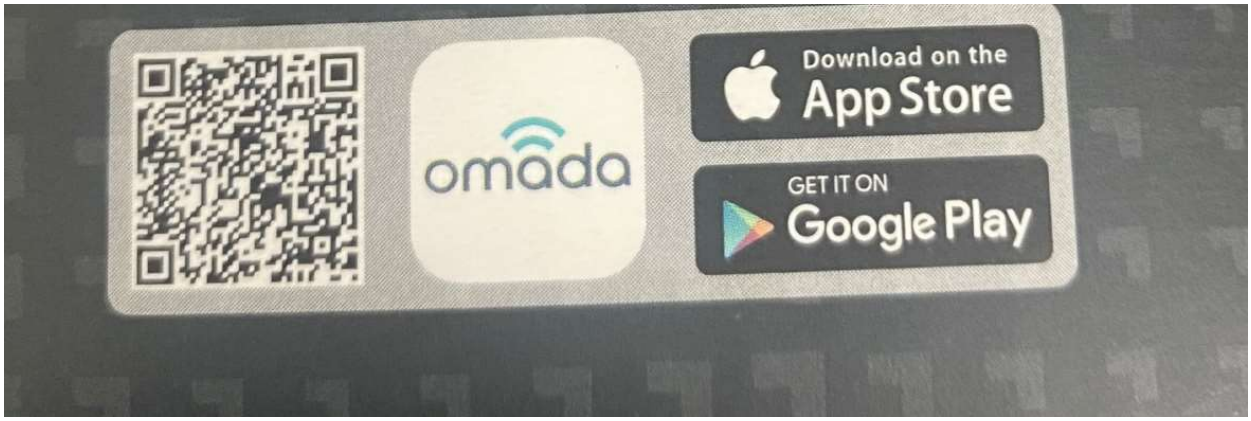
58. TP-Link makes, distributes, develops, and operates application software, such as the TP-Link-branded Deco app, Omado app, Kasa app, Kasa Smart app, Tapo app, tpCamera app, and Vigi app, making them available to residents of Texas and this district for download and use in connection with TP-Link products including cameras, Wi-Fi routers, and controllers.

59. The TP-Link applications are available via digital distribution

platforms operated by Apple and Google.

60. TP-Link directs customers in the United States, in Texas, and in this district to download its applications for use with TP-Link products.

61. TP-Link instructs customers in Texas and in this district to use the TP-Link applications with TP-Link products. TP-Link includes such instructions in the product packaging of its products that are sold in Texas and this district.



62. TP-Link provides instructions to customers in the United States, in Texas, and in this district directing them to connect TP-Link cameras (e.g., Kasa Pan and Tilt) with TP-Link Wi-Fi products (e.g., Deco M9 Plus) via the TP-Link

Kasa App.

How Do I Setup my Kasa Cam?

Configuration Guide Updated 11-28-2022 06:44:27 AM 115507

This Article Applies to:

Please following the instructions step by step in this article to go through the entire setup process, then you can control the Kasa Cam with your Kasa app.

Before we begin:

1. Please download Kasa Smart from App Store or Google Play and install it on your smartphone.

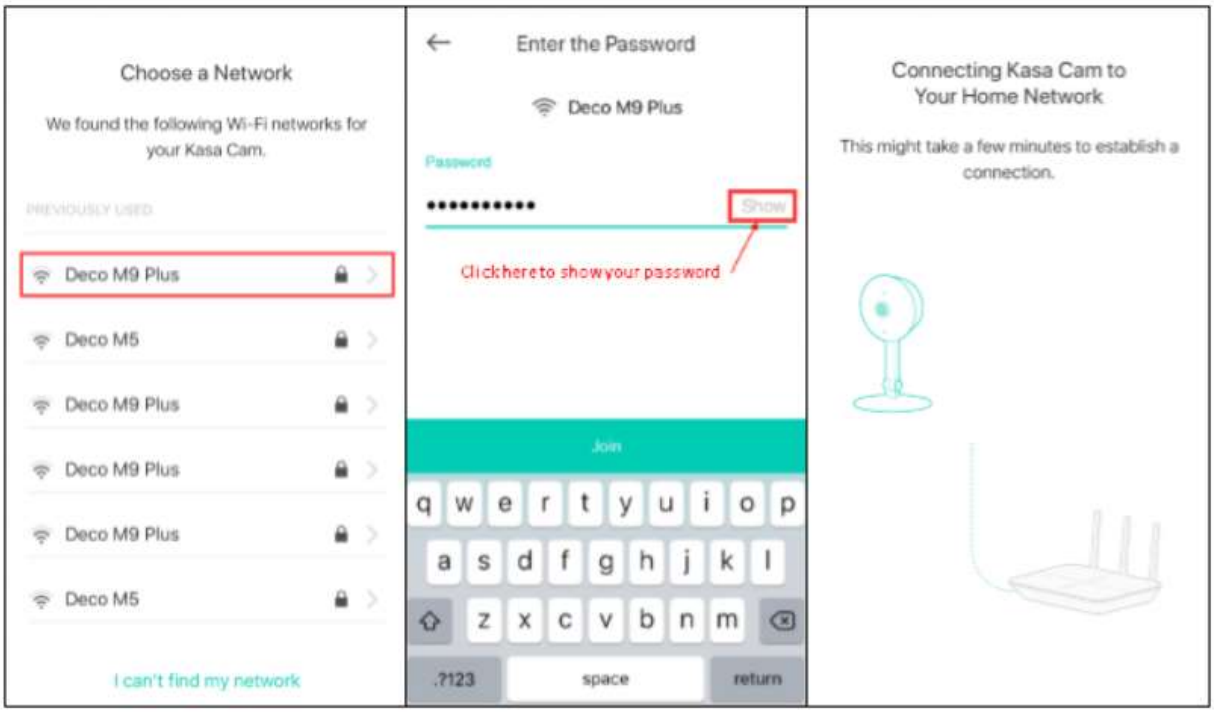
2. Connect your smartphone to your home Wi-Fi network.

3. Plug your Kasa Cam into a power socket.

Here we use KC120 for example

Step 1: Open the Kasa App

Step 5: Choose your home network to connect, enter the password of your home network.



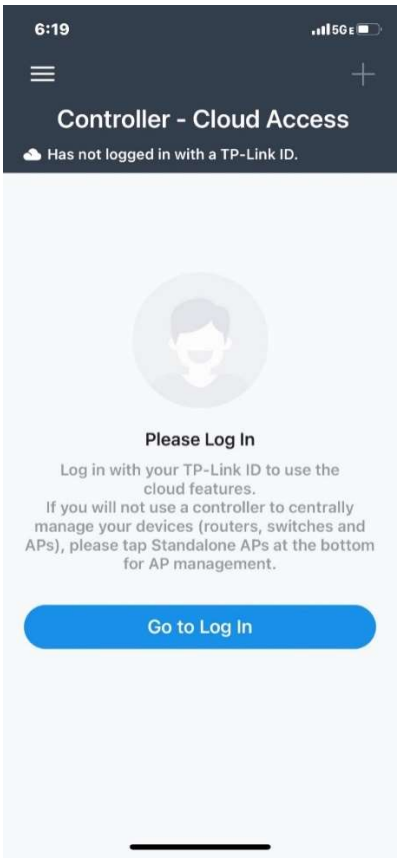
https://www.tp-link.com/us/support/faq/1957/.

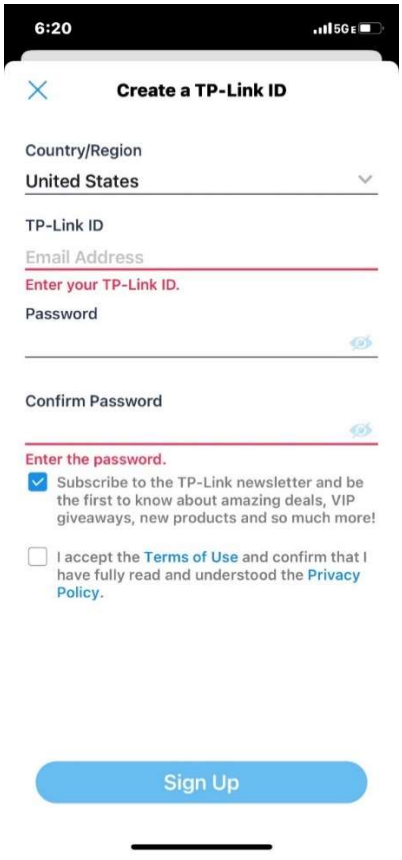
63. TP-Link promotes the use of its camera products with the TP-Link Wi-Fi products in the United States, in Texas, and in this district. *See* https://www.tp-link.com/us/support/faq/1957/.

TP-Link Contracts with Texas Residents and Compiles Data Through the TP-Link Mobile Applications.

64. TP-Link requires end users (including those in Texas and in this district) to enter a contract with TP-Link governing and permitting access and use of the TP-Link mobile applications.

65. TP-Link requires end users to create an account (e.g., Omada Account) through a registration process in TP-Link's app.

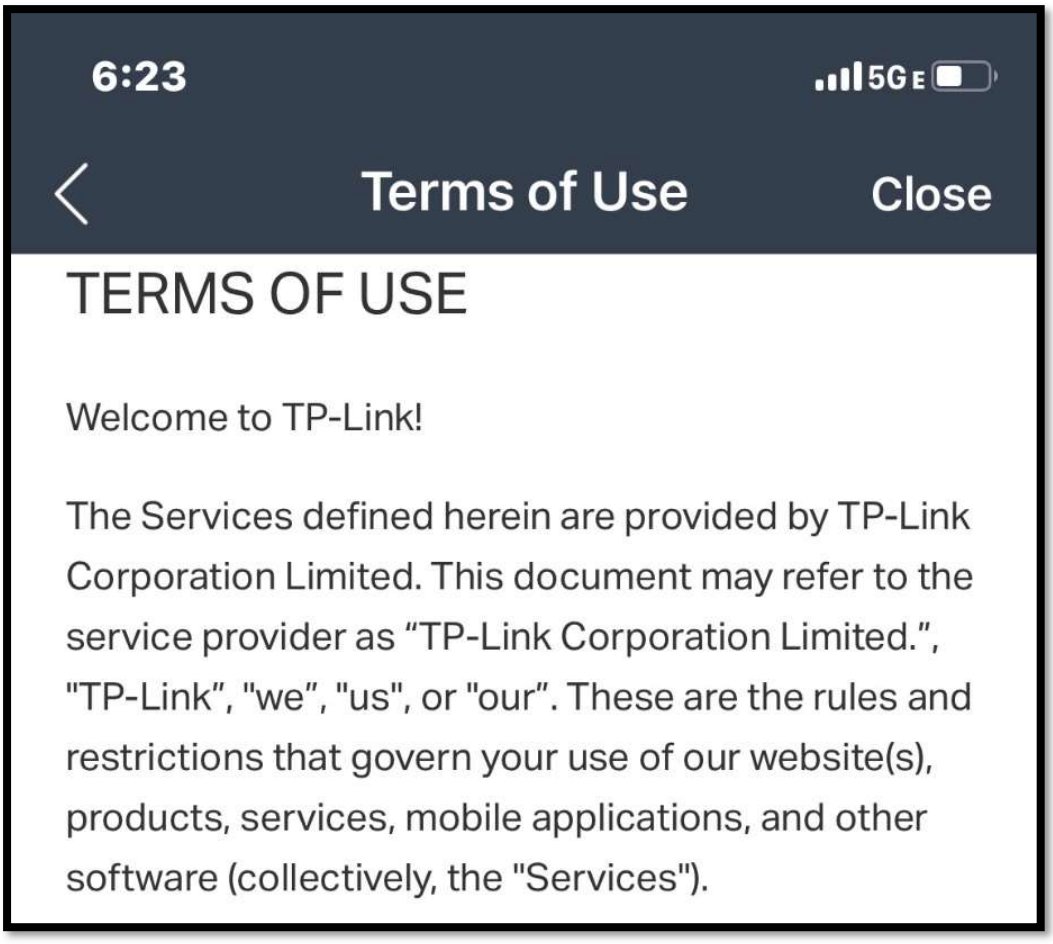


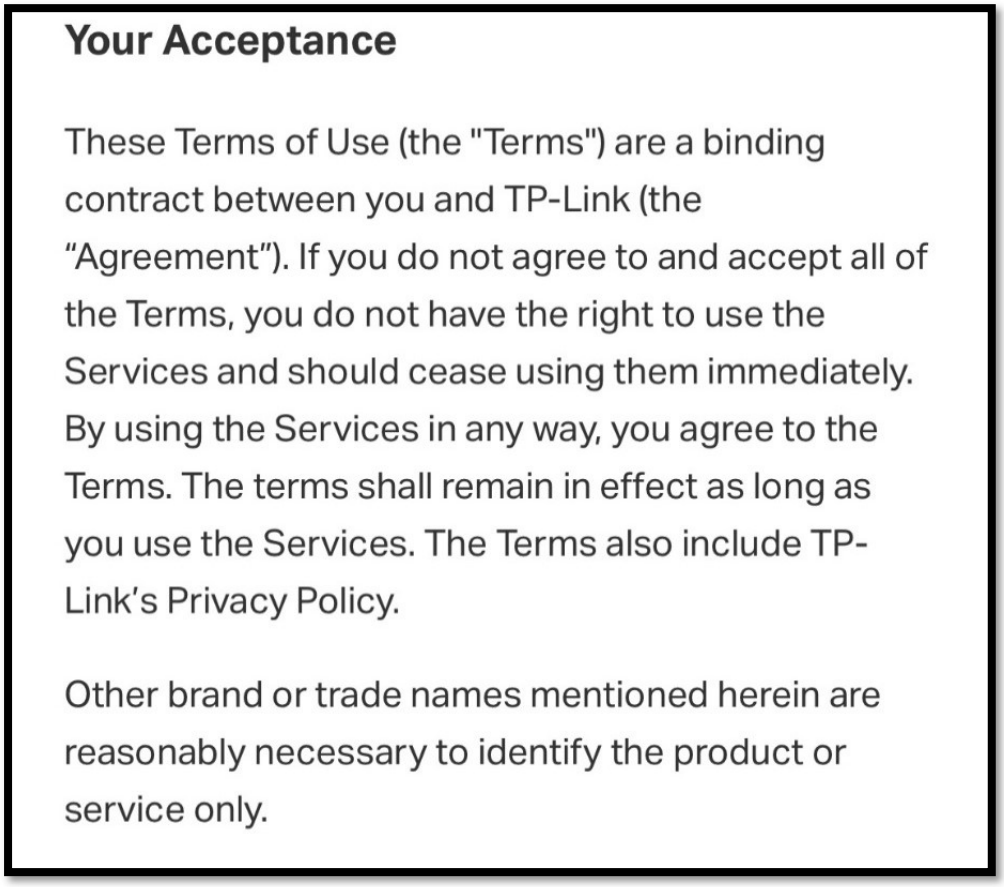


TP-Link Omada App.

66. TP-Link requires customers in the United States, Texas, and in this district, to agree to TP-Link's terms and conditions prior to using the TP-Link apps (e.g., Omada app, Deco app).

67. The TP-Link terms of use specify that they apply to the services provided by TP-Link Corporation Limited and "are a binding contract between [the end user] and TP-Link (the "Agreement")." TP-Link Terms of Use.





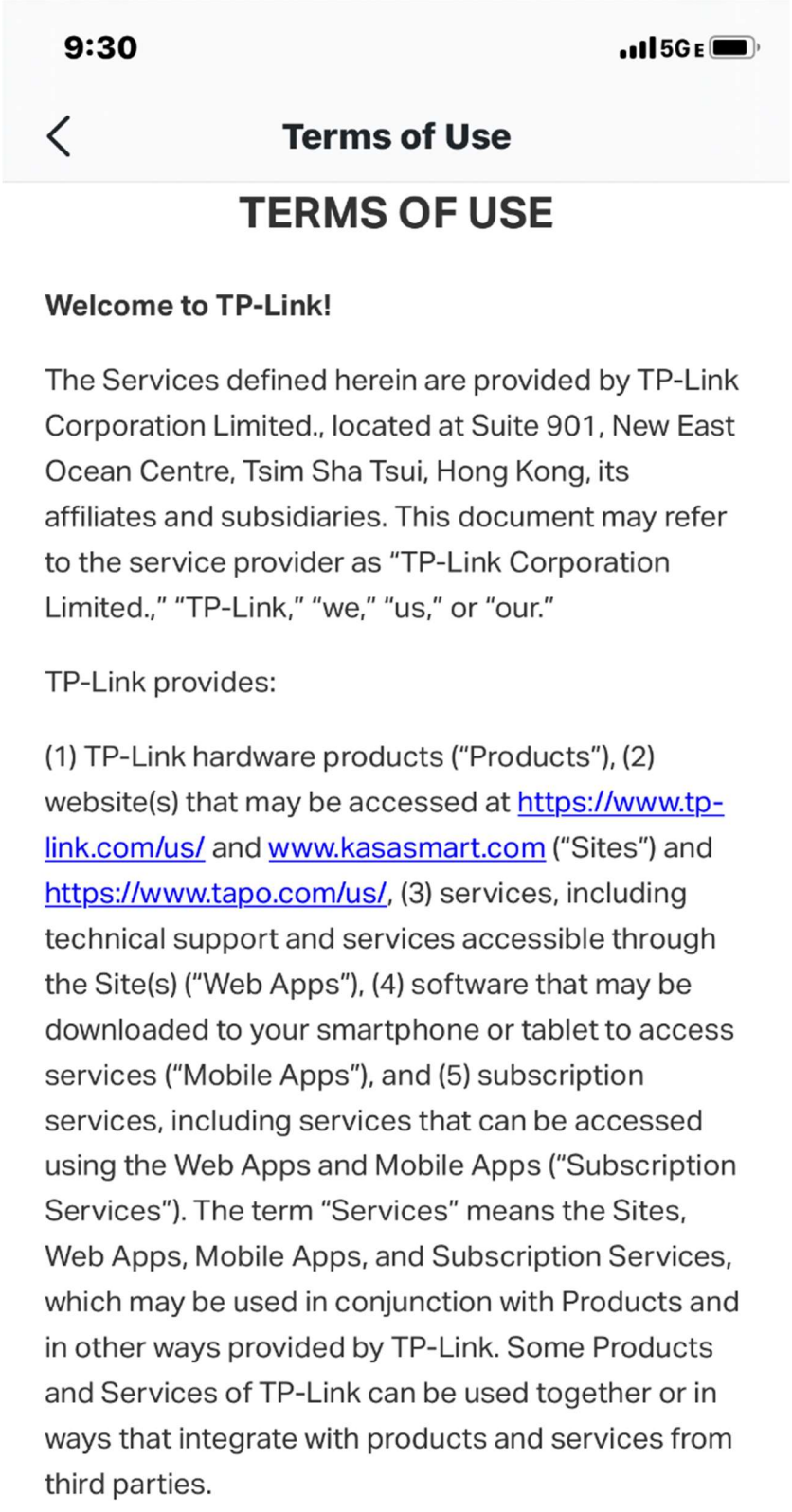
Your Acceptance

These Terms of Use (the "Terms") are a binding contract between you and TP-Link (the "Agreement"). If you do not agree to and accept all of the Terms, you do not have the right to use the Services and should cease using them immediately. By using the Services in any way, you agree to the Terms. The terms shall remain in effect as long as you use the Services. The Terms also include TP-Link's Privacy Policy.

Other brand or trade names mentioned herein are reasonably necessary to identify the product or service only.

TP-Link Terms of Use.

68. TP-Link requires its customers in the United States, in Texas, and in this district to enter a contract with TP-Link, which identifies itself at its Hong Kong address, to use the TP-Link applications (e.g., TP-Link Deco App, Terms of Use).



TP-Link Terms of Use.

TP-Link Configures Products for Operation in the United States.

69. TP-Link configures its products for operation in the United States.

70. Eleven of the thirteen available Wi-Fi channels are permitted for use in the United States. Channels twelve and thirteen are permitted in certain other countries but not in the U.S. Before selling products in the United States, TP-Link certifies to the FCC that the accused products only operate in channels one through eleven. https://fcc.report/FCC-ID/2AXJ4C64/5212348.

TP-Link Corporation Limited

Wi-Fi Channel 12 and 13 Declaration Letter

Date: 2021-04-02

We, the undersigned company

Company Name: TP-Link Corporation Limited
Address: Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon,Hong Kong

Declare that:

Product description: AC1200 MU-MIMO Wi-Fi Router

Type designation: Archer C64

Brand: tp-link

FCC ID: 2AXJ4C64

Only channels 1~11 will be used in USA. Country code selection is disabled.

If you have any questions regarding the authorization, please do not hesitate to contact us,
thank you~

Sincerely,

Abby Liang

Signature: _____
Name: Abby Liang
Tel: 00852-37585503
Email: certification@tp-link.com

https://fcc.report/FCC-ID/2AXJ4C64/5212348.

TP-Link Purposefully Directs Sales Activities to Residents of Texas Through Advertising.

71. TP-Link markets its products to U.S. consumers through its website. *See* www.tp-link/com/us.

72. TP-Link markets its products to consumers in the United States through social media.

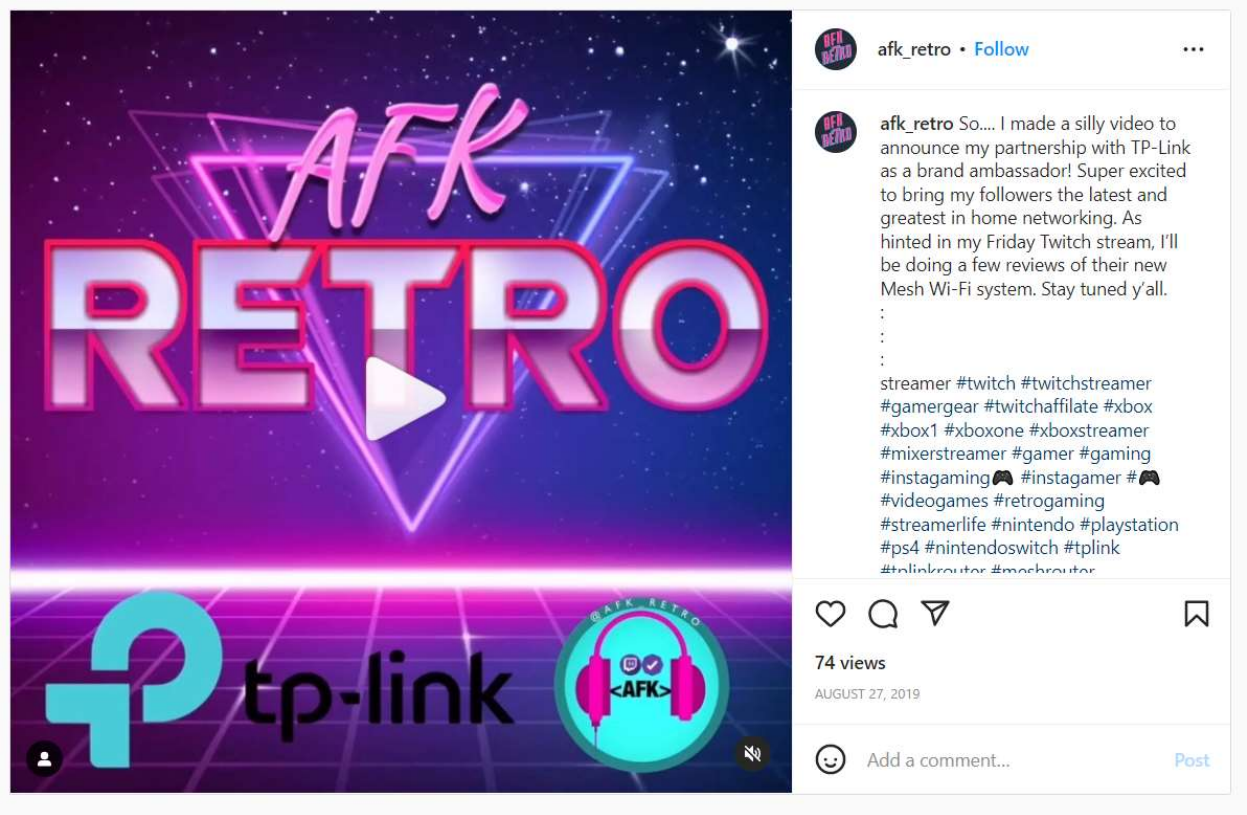
73. TP-Link recruits "TP-Link Brand Ambassadors" as part of its "Power User" program. TP-Link's Brand Ambassadors are consumers and users of TP-Link products recruited in the U.S. based upon their social media presence and their use of TP-Link products. *See* https://www.tp-link.com/us/brandambassador/.

https://www.tp-link.com/us/brandambassador/

74. TP-Link recruits Brand Ambassadors (i.e., "influencers") and "team[s] up" with them to promote and market TP-Link products. *See* https://www.tp-link.com/us/brandambassador/

75. TP-Link Brand Ambassadors are compensated for promoting TP-Link products on social media and participating in marketing campaigns.

76. TP-Link Brand Ambassadors post content on social media (including unboxing videos) to promote TP-Link products.



https://www.instagram.com/p/B1q1G3KHa-9/?hl=en.

tonytechbytes Tony

#ad @tplink.us Fixing My WiFi Dead Spots (Link in Bio) #tplink #meshwifi #wifi #tonytechbytes #slowwifi #cybermonday2021 ...

3.3K Likes, 63 Comments. TikTok video from Tony (@tonytechbytes): "#ad @tplink.us Fixing My...

38.6K views | Lazy Sunday - Official Sound Studio

https://www.tiktok.com/discover/tp-link-official?lang=en

77. TP-Link marketed its products in the United States at the CES convention in 2022. *See* https://www.tp-link.com/us/press/news/19853/.

TP-Link Registered U.S. Trademarks Used to Promote Products in Texas and Throughout the United States.

78. TP-Link has registered trademarks in the United States, including trademarks used with the accused products (e.g., TP-Link Omada). TP-Link is listed as the owner.

TSDR ASSIGN Status TTAB Status *(Use the "Back" button of the Internet Browser to return to TESS)*

TP-LINK

https://tmsearch.uspto.gov/bin/showfield?f=doc&state=4810:aauhru.2.3

TSDR ASSIGN Status TTAB Status *(Use the "Back" button of the Internet Browser to return to TESS)*

tp-link | Omada

Word Mark TP-LINK OMADA

https://tmsearch.uspto.gov/bin/showfield?f=doc&state=4804:e7l2ym.2.2

TSDR ASSIGN Status TTAB Status (Use the "Back" button of the Internet Browser to return to TESS)

Word Mark TP-LINK DECO

https://tmsearch.uspto.gov/bin/showfield?f=doc&state=4803:nj3ypp.2.4

79. To obtain a trademark, TP-Link had to declare that the mark is used in commerce in the United States.

TP-Link's Activities Directed into Texas and this District Give Rise to SPV's Claims.

80. SPV's claim for infringement arise out of or relates to TP-Link's activities in Texas and this district.

81. TP-Link's websites, mobile applications, affiliates, related entities, distributors, and retailers (including retailer physical stores) make up TP-Link's intertwined omnichannel sales strategy for the sale of TP-Link products in the United States, in Texas, and in this district.

82. Through the TP-Link website, mobile applications, and distributor/retailer physical stores, TP-Link intends to serve Texas residents and has increased sales in Texas and this district.

83. TP-Link's marketing and sales strategy is intentional and designed to increase sales of TP-Link products (including products accused of infringement) in

Texas and in this district.

84. TP-Link does not limit distribution of its products or services to exclude Texas residents. Nor has TP-Link changed or sought to change the functionality of its products and applications to operate in a non-infringing way in Texas or this district.

85. TP-Link has taken no action to limit its advertisement or sales in Texas. TP-Link has not refused to sell or ship its products to Texas customers or blocked access to TP-Link applications for Texas customers.

86. TP-Link, alone and in concert with its affiliates, distributors, retailers, and related entities, has purposefully directed its activities at Texas and should reasonably anticipate being named as a defendant in this Court on this basis.

87. This Court has personal jurisdiction over TP-Link, directly and/or through the activities of TP-Link's intermediaries, affiliates, distributors, retailers, importers, and related entities. Through its own conduct and through direction and control of these entities, TP-Link has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over TP-Link would not offend traditional notions of fair play and substantial justice.

TP-Link is Subject to Personal Jurisdiction in this Court Under Federal Rule of Civil Procedure 4(k)(2).

88. In the alternative, the Court has personal jurisdiction over TP-Link under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law; TP-Link is not subject to the jurisdiction of the courts of general jurisdiction of any state; and exercising jurisdiction over TP-Link comports with due process under the U.S. Constitution.

THE SOVEREIGN PEAK VENTURES PATENTS AND HOW TP-LINK INFRINGES THEM

89. SPV owns a portfolio of patents invented by employees of Panasonic Corporation. Since its founding in 1918, Panasonic has been at the forefront of the electronics industry for over a century. Since acquiring the Panasonic portfolio, SPV has promoted adoption of technologies claimed in the Panasonic portfolio and has entered into license agreements with numerous companies.

90. Over the years, Panasonic has innovated in the home appliance, battery, mobile phone, and television industries. Panasonic's invention of the "Paper Battery" in 1979 is widely credited as enabling the compact electronics of today. In 1991, Panasonic released the Mova P, the smallest and lightest mobile phone on the market, which revolutionized the industry by demonstrating the public's demand for a compact, lightweight device. Panasonic also produced the first wide-format plasma display and developed the first digital television for the U.S. market.

91. Panasonic's history of innovation is borne out by its intellectual property. Searching the Patent Office's database for Panasonic as patent assignee yields more than 27,000 matches.

92. Marking its centennial in 2018, Panasonic opened the Panasonic Museum to showcase its history of design philosophy and innovation.

TP-LINK INFRINGES U.S. PATENT NUMBER 7,796,512.

93. The Patent Office issued U.S. Patent No. 7,796,512, titled "Switching Source Device, Switching Destination Device, High Speed Device Switching System, and Signaling Method," on September 14, 2010, after a thorough examination and determination that the subject matter claimed is patentable.

94. TP-Link Accused Products with respect to the '512 patent include TP-Link Deco Mesh devices and business EAPs enabled for 802.11k/r. By way of

example, specific TP-Link Accused products include:

- 802.11ac Whole Home Mesh Wi Fi 6 System Models AX1800 and AX3000;
- 802.11ac Whole Home Mesh Wi Fi System Model AC1200;
- 802.11ac Smart Home Mesh Wi Fi System Model AC2200;
- 802.11ac Tri Band Mesh Wi Fi 6/6E System Models AX3600, AX6600, AXE5400, and AX5700;
- 802.11ac Dual Band Hybrid Mesh Wi Fi Systems: AC1300 and AV600;
- 802.11ac Whole Home Powerline Mesh Wi Fi System AV1000;
- 802.11ac Omada EAPs: EAP670, EAP660 HD, EAP650, EAP620 HD, EAP610, EAP265 HD, EAP245, EAP225, EAP115, EAP110, EAP615 Wall, EAP235 Wall, EAP230 Wall, EAP225 Wall, EAP115 Wall, EAP610 Outdoor, EAP225 Outdoor, and EAP110 Outdoor.

95. The Accused TP-Link APs are switching source devices that assist connected clients with roaming to a switching destination device (a destination AP).

96. The Accused TP-Link APs support 802.11k/r:

AC2200 Smart Home Mesh Wi-Fi System – Deco M9 Plus

Model Number	TP-Link Deco
Wireless Backhaul	Tri-Band (2.4G+5G_1+5G_2)[1]
Mesh Protocol Supported	IEEE 802.11k/v/r
True Seamless Roaming	√
Adaptive Path Selection (APS)	√
IoT Mesh	√[2]
Band Steering	√
AP Steering	√
Self-Healing	√

https://static.tp-link.com/upload/product-overview/2022/202203/20220307/EAP%20Datasheet.pdf.

97. TP-Link Accused APs supporting 802.11k/r operate as switching source devices for moving a session with connected clients to switching destination devices or APs.

4.3.11.10 Neighbor report

The neighbor report request is sent to an AP, which returns a neighbor report containing information about known neighbor APs that are candidates for a service set transition. Neighbor reports contain information from dot11RMNeighborReportTable concerning neighbor APs. This request/report pair enables a STA to gain information about the neighbors of the associated AP to be used as potential roaming candidates.

98. TP-Link Accused APs include a service discovery section for obtaining information used to compile a neighbor report:

11.11.10 Usage of the neighbor report

11.11.10.1 General

A neighbor report is sent by an AP and it contains information on neighboring APs that are members of ESSs requested in the neighbor report request. A neighbor report might not be exhaustive either by choice, or due to the fact that there might be neighbor APs not known to the AP. The neighbor report contents are derived from the NeighborListSet parameter of the MLME-NEIGHBORREPRESP.request primitive. The mechanism by which the contents of this table are determined is outside the scope of this standard, but it may include information from measurement reports received from the STAs within the BSS, information obtained via a management interface, or the DS.

The BSSID Information field can be used to help determine neighbor service set transition candidates. It is 4 octets in length and contains the subfields as shown in Figure 9-296.

B0 B1	B2	B3	B4 B9	B10	B11	B12	B13	B14 B31
AP Reachability	Security	Key Scope	Capabilities	Mobility Domain	High Throughput	Very High Throughput	FTM	Reserved
Bits: 2	1	1	6	1	1	1	1	18

Figure 9-296—BSSID Information field

The AP Reachability field indicates whether the AP identified by this BSSID is reachable by the STA that requested the neighbor report. For example, the AP identified by this BSSID is reachable for the exchange of preauthentication frames as described in 12.6.10.2. The values are shown in Table 9-150.

B4	B5	B6	B7	B8	B9
Spectrum Management	QoS	APSD	Radio Measurement	Delayed Block Ack	Immediate Block Ack
Bits: 1	1	1	1	1	1

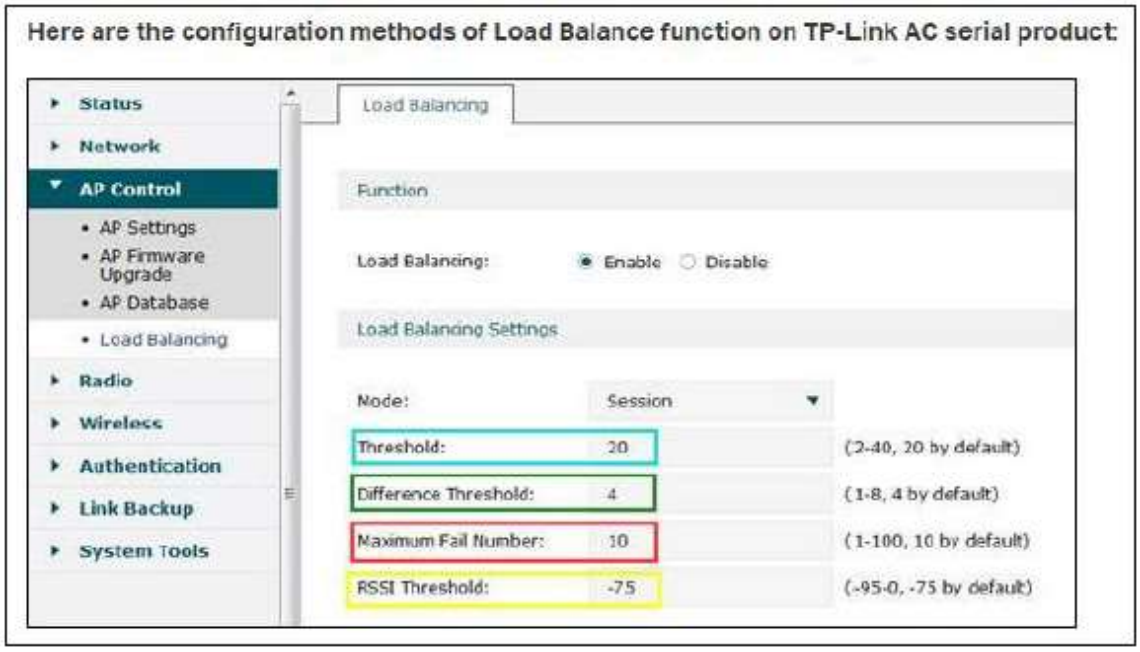
Figure 9-297—Capabilities subfield

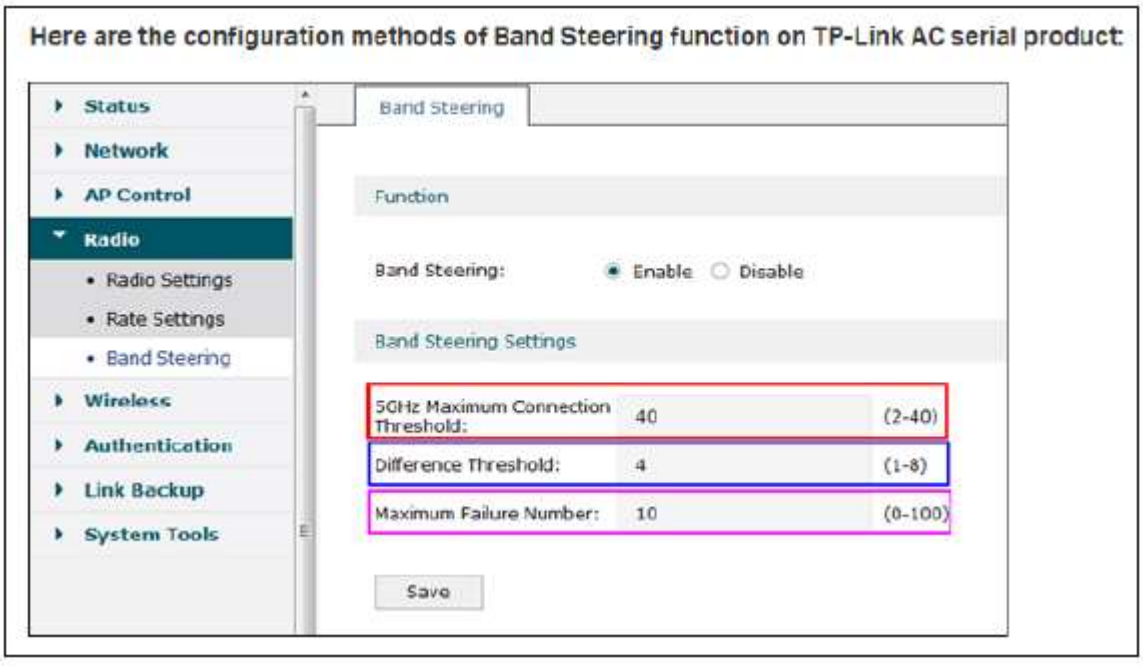
The Mobility Domain bit is set to 1 to indicate that the AP represented by this BSSID is including an MDE in its Beacon frames and that the contents of that MDE are identical to the MDE advertised by the AP sending the report.

The High Throughput bit is set to 1 to indicate that the AP represented by this BSSID is an HT AP including the HT Capabilities element in its Beacons, and that the contents of that HT Capabilities element are identical to the HT Capabilities element advertised by the AP sending the report.

The Very High Throughput bit is set to 1 to indicate that the AP represented by this BSSID is a VHT AP and that the VHT Capabilities element, if included as a subelement in the report, is identical in content to the VHT Capabilities element included in the AP's Beacon.

99. Accused TP-Link APs include a service discovery section for obtaining information about neighboring communication devices from measurement reports or background scans. For example, TP-Link APs perform load balancing and band steering operations among clients and other APs:





https://www.tp-link.com/us/support/faq/1336/; and https://www.tp-

link.com/us/support/faq/1337/.

100. TP-Link Accused APs instruct their respective service discovery sections to inquire whether a service can be provided by requesting beacon reports from connected clients at arbitrary times:

11.11.9 Specific measurement usage

11.11.9.1 Beacon report

If a STA accepts a Beacon request it shall respond with a Radio Measurement Report frame containing Beacon reports for all observed BSSs matching the BSSID and SSID in the Beacon request, at the level of detail requested in the Reporting Detail. If the Reporting Detail is 1 and the optional Request subelement is

101. TP-Link Accused APs determine switching destination candidate APs using information obtained by the service discovery sections. The determination may be made based upon the BSSID of a known AP or information relating to settings and capabilities of an AP.

The BSSID is the BSSID of the BSS being reported. The subsequent fields in the Neighbor Report element pertain to this BSS.

The BSSID Information field can be used to help determine neighbor service set transition candidates. It is 4 octets in length and contains the subfields as shown in Figure 9-296.

B0 B1	B2	B3	B4 B9	B10	B11	B12	B13	B14 B31
AP Reachability	Security	Key Scope	Capabilities	Mobility Domain	High Throughput	Very High Throughput	FTM	Reserved
Bits: 2	1	1	6	1	1	1	1	18

Figure 9-296—BSSID Information field

102. The Accused TP-Link APs generate a switching destination candidate device list (e.g., a neighbor list) describing the switching destination candidate APs:

The following MLME primitives support the signaling of neighbor report responses.

6.3.33.2 MLME-NEIGHBORREPRESP.request

Name	Type	Valid range	Description
NeighborListSet	Set of Neighbor List elements each as defined in the Neighbor Report element format	As defined in 9.4.2.37	A set of Neighbor List elements, each representing a neighboring AP being reported as defined in the Neighbor Report element format.
VendorSpecificInfo	A set of elements	As defined in 9.4.2.26	Zero or more elements.

103. The Neighbor Report element for each neighbor contains the AP BSSID, which the Accused TP-Link APs use to establish a Fast Transition session with that AP:

Element ID	Length	BSSID	BSSID Information	Operating Class	Channel Number	PHY Type	Optional Subelements
1	1	6	4	1	1	1	variable

Figure 9-295—Neighbor Report element format

9.6.9.2 FT Request frame

The FT Request frame is sent by the STA to its associated AP to initiate an over-the-DS fast BSS transition.

Figure 9-688 shows the format of the FT Request frame Action field.

	Category	FT Action	STA Address	Target AP Address	FT Request frame body
Octets:	1	1	6	6	variable

Figure 9-688—FT Request frame Action field format

The Category field is defined in 9.4.1.11.

The FT Action field is defined in 9.6.9.1.

The STA Address field is set to the fast BSS transition originator's (FTO's) MAC address.

The Target AP Address field is set to the BSSID value of the target AP.

104. In normal operation of exemplary TP-Link Accused APs, the Source

AP establishes a session, either over the air or over the distribution system, with a destination candidate device or target AP.

distribution system (DS): A system used to interconnect a set of basic service sets (BSSs) and integrated local area networks (LANs) to create an extended service set (ESS).

13.10.2 Remote request broker (RRB)

The RRB resides in the SME on the APs and acts as a forwarding agent (at the current AP) and termination point (at the target AP) for protocol messages over the DS.

The RRB allows APs that are part of the same mobility domain to exchange information over the DS. APs that advertise the same MDID shall be reachable over the DS and support the over-the-DS communication.

As a termination point, when the RRB at the target AP receives a request frame from the current AP, it interacts with the MAC and other parts of the SME to process the request and respond with a Remote Response frame, through the RRB on the current AP, back to the requesting FTO.

As a forwarding agent, when the RRB at the current AP receives a request from an FTO directed to another AP in the same mobility domain, the current AP forwards the request to that target AP. The RRB on the

105. TP-Link Accused APs include an input section for receiving a switching destination candidate device list (e.g., the Neighbor Report) request from connected users' devices:

11.11.10.3 Responding to a neighbor report request

If dot11RMNeighborReportActivated is true, an AP receiving a neighbor report request shall respond with a Neighbor Report Response frame containing zero or more Neighbor Report elements. If an SSID element is

106. TP-Link Accused APs include an output section for presenting the Neighbor Report to a connected client in response to a neighbor report request:

4.3.11.10 Neighbor report

The neighbor report request is sent to an AP, which returns a neighbor report containing information about known neighbor APs that are candidates for a service set transition. Neighbor reports contain information from dot11RMNeighborReportTable concerning neighbor APs. This request/report pair enables a STA to gain information about the neighbors of the associated AP to be used as potential roaming candidates.

11.11.10 Usage of the neighbor report

11.11.10.1 General

A neighbor report is sent by an AP and it contains information on neighboring APs that are members of ESSs requested in the neighbor report request. A neighbor report might not be exhaustive either by choice, or due to the fact that there might be neighbor APs not known to the AP. The neighbor report contents are derived from the NeighborListSet parameter of the MLME-NEIGHBORREPRESP.request primitive. The mechanism by which the contents of this table are determined is outside the scope of this standard, but it may include information from measurement reports received from the STAs within the BSS, information obtained via a management interface, or the DS.

107. In normal operation of the Accused TP-Link APs, when an AP receives a switching request (e.g., an FT Action Request) from a user device, the TP-Link AP sends a RemoteRequest to the Target AP:

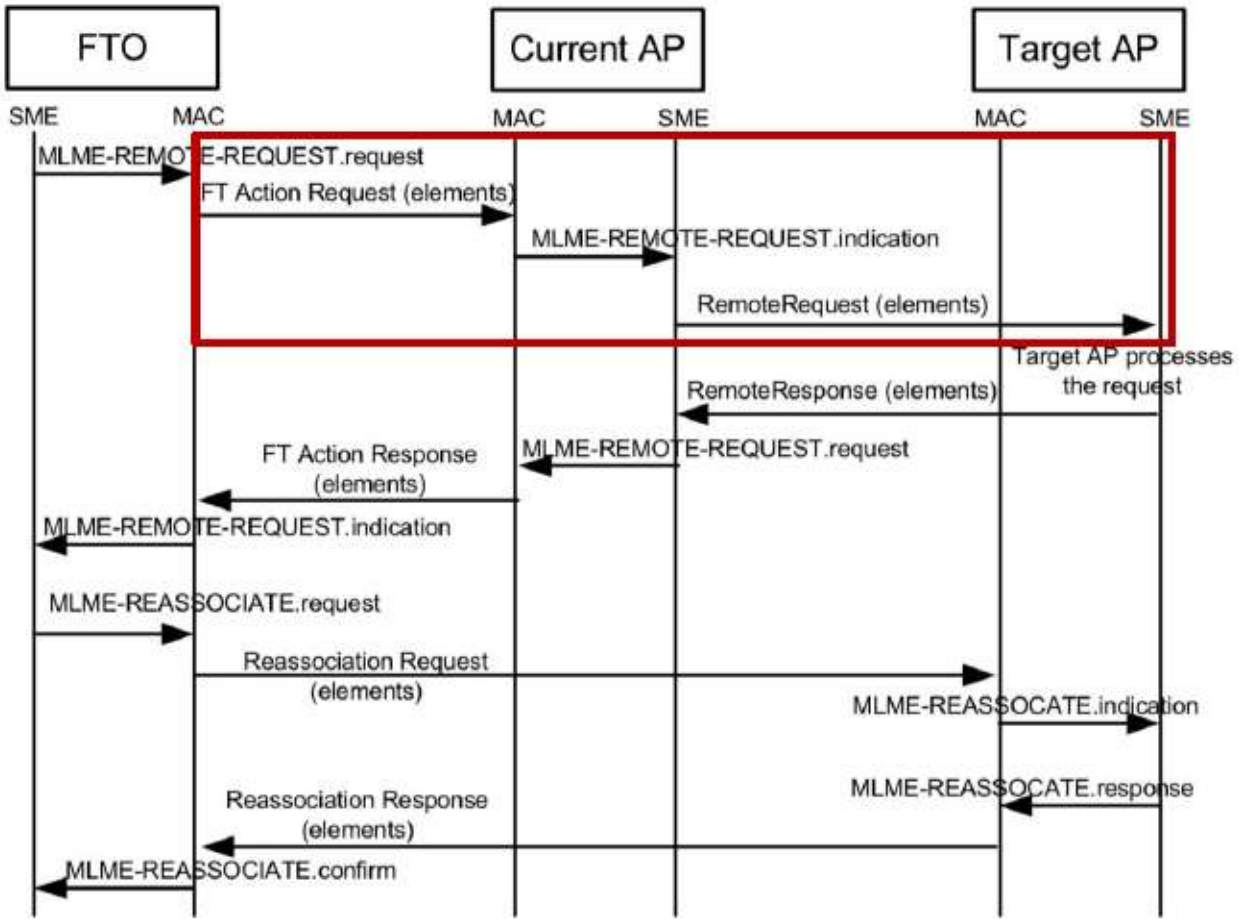


Figure 13-6—MLME interfaces for over-the-DS FT protocol messages

108. The RemoteRequest message contains a switching instruction including, for example, instructions for the robust security network (RSN) association:

robust security network association (RSNA): The type of association used by a pair of stations (STAs) if the procedure to establish authentication or association between them includes the 4-way handshake or FT protocol. Note that existence of an RSNA between two STAs does not of itself provide robust security. Robust security is provided when all STAs in the network use RSNAs.

13.8 FT authentication sequence

13.8.1 Overview

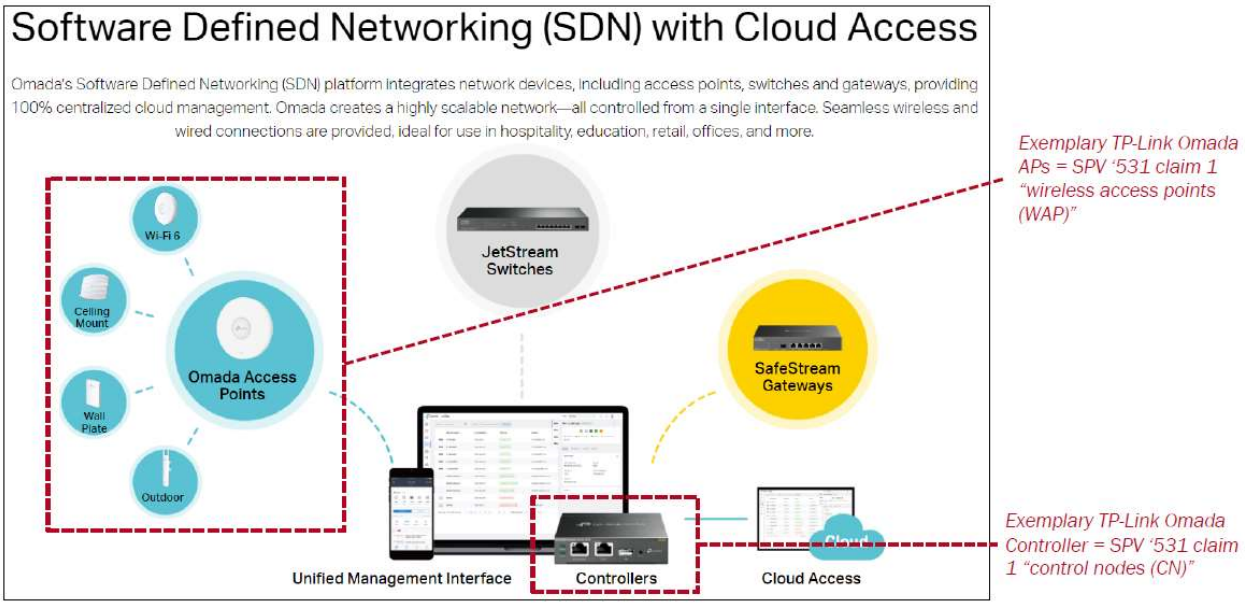
The FT authentication sequence comprises four sets of FT elements. Each set of FT elements is referred to in 13.8 as a *message*. These messages are included in the FT Protocol frames or FT Resource Request Protocol frames to initiate a fast BSS transition. The FT authentication sequence is always initiated by the FTO and responded to by the target AP.

In an RSN, the first two messages in the sequence allow the FTO and target AP to provide association instance identifiers, SNonce and ANonce, respectively. SNonce and ANonce are chosen randomly or pseudorandomly and are used to generate a fresh PTK. The first two messages also enable the target AP to provision the PMK-R1 and the FTO and target AP to compute the PTK. The third and fourth messages demonstrate liveness of the peer, authenticate the elements, and enable an authenticated resource request.

TP-LINK INFRINGES U.S. PATENT NUMBER 8,045,531.

109. The Patent Office issued U.S. Patent No. 8,045,531, titled "System and method for negotiation of WLAN entity," on October 25, 2011, after a thorough examination and determination that the subject matter claimed is patentable.

110. TP-Link Accused Products with respect to the '531 patent include the TP-Link Omada WiFi system comprising, by way of example, TP-Link Omada OC200 and OC300 controller devices that interface with TP-Link Omada APs to provide WLAN service:



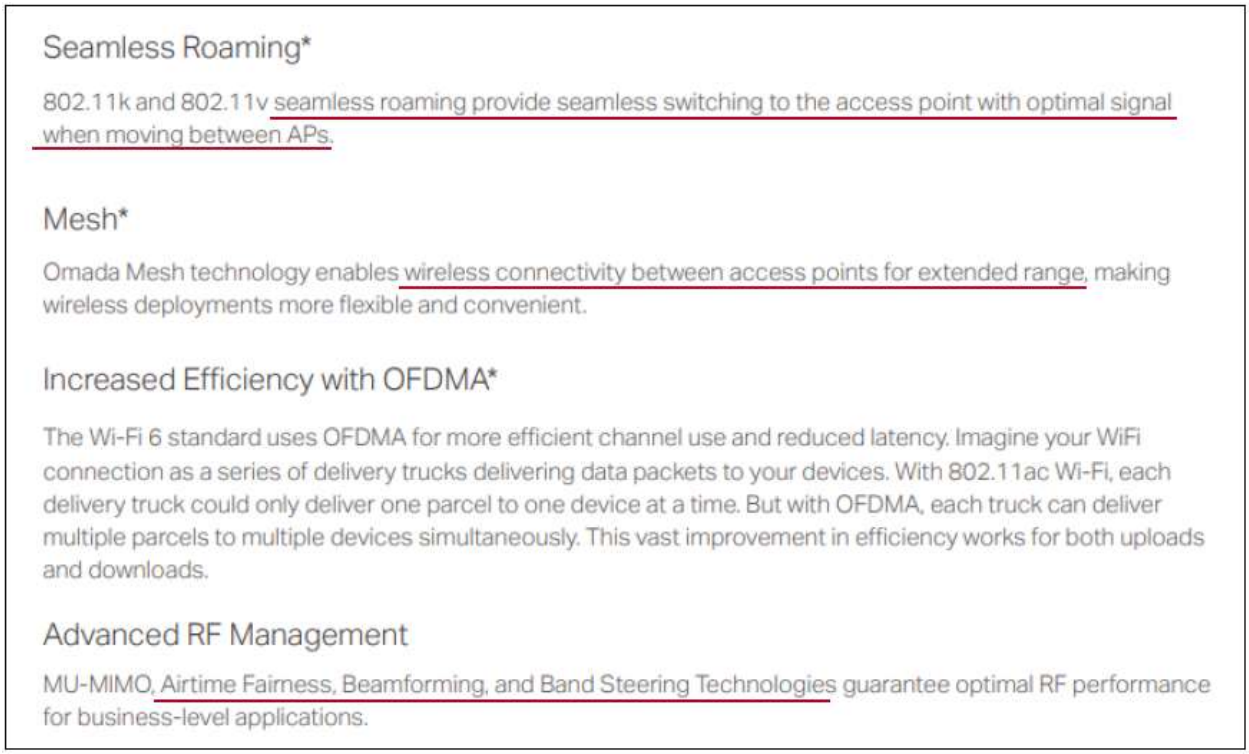
111. Accused TP-Link WiFi Systems comprise one or more Omada APs (WAPs) managed by an Omada Controller including, without limitation, Omada APs identified at https://www.tp link.com/us/business networking/all omada/#omada-acces-points such as TP-Link Access Points Models EAP660 HD, EAP620 HD, EAP610, EAP265 HD, EAP245, EAP225, EAP115, EAP110, EAP615 Wall, EAP235 Wall, EAP230 Wall, EAP225 Wall, EAP115 Wall, EAP225 Outdoor, and EAP110 Outdoor.

Software Defined Networking (SDN) with Cloud Access

Omada Software Defined Networking (SDN) platform integrates network devices, including access points, switches and gateways, providing 100% centralized cloud management. Omada creates a highly scalable network——all controlled from a single interface. Seamless wireless and wired connections are provided, ideal for use in hospitality, education, retail, offices, and more.

See, e.g., https://static.tp-link.com/upload/product-overview/2022/202204/20220418/Controller%20Datasheet.pdf.

112. In the Accused TP-Link Systems, WLAN functionality is distributed among the Omada controller devices and the Omada APs. For example, Omada APs are configured by an Omada controller to implement (process) certain client-facing WLAN functions including, for example, Airtime Fairness, Band Steering, and Seamless Roaming and Omada Mesh functions that are a subset of functionality defined for the WLAN.



Seamless Roaming*

802.11k and 802.11v seamless roaming provide seamless switching to the access point with optimal signal when moving between APs.

Mesh*

Omada Mesh technology enables wireless connectivity between access points for extended range, making wireless deployments more flexible and convenient.

Increased Efficiency with OFDMA*

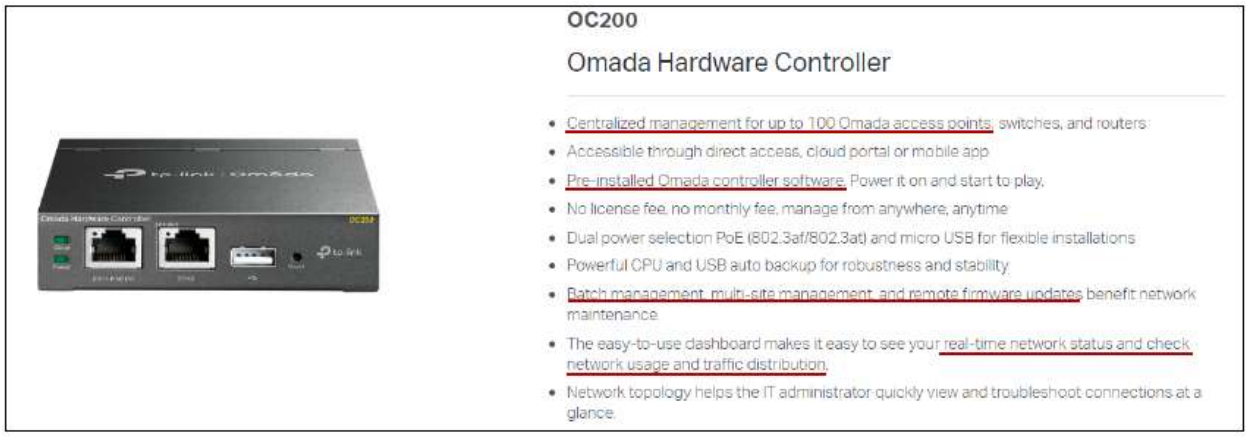
The Wi-Fi 6 standard uses OFDMA for more efficient channel use and reduced latency. Imagine your WiFi connection as a series of delivery trucks delivering data packets to your devices. With 802.11ac Wi-Fi, each delivery truck could only deliver one parcel to one device at a time. But with OFDMA, each truck can deliver multiple parcels to multiple devices simultaneously. This vast improvement in efficiency works for both uploads and downloads.

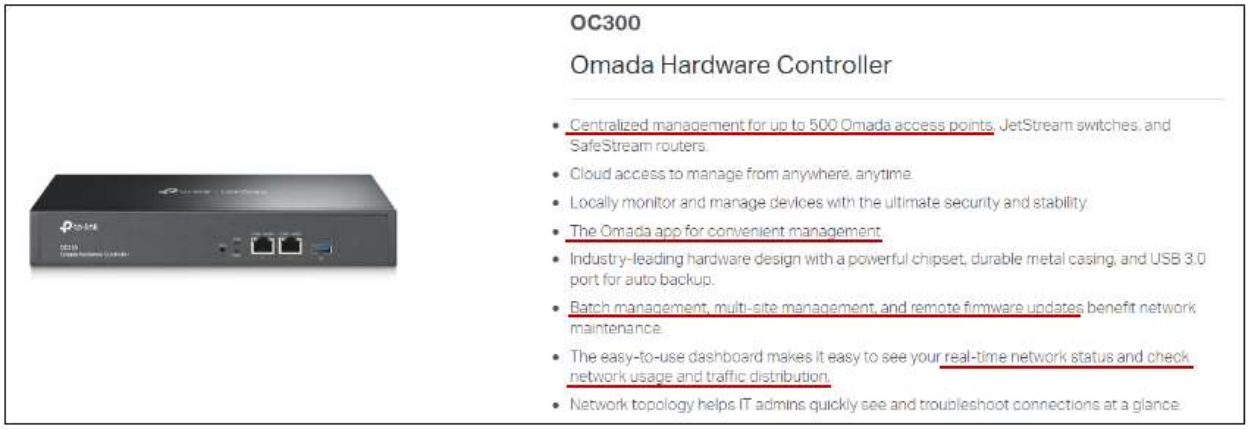
Advanced RF Management

MU-MIMO, Airtime Fairness, Beamforming, and Band Steering Technologies guarantee optimal RF performance for business-level applications.

https://static.tp-link.com/upload/product-overview/2022/202203/20220307/EAP%20Datasheet.pdf.

113. TP-Link Accused Systems comprise one or more control nodes (e.g., Omada controller devices, OC200 and OC300) with pre-installed Omada controller software.

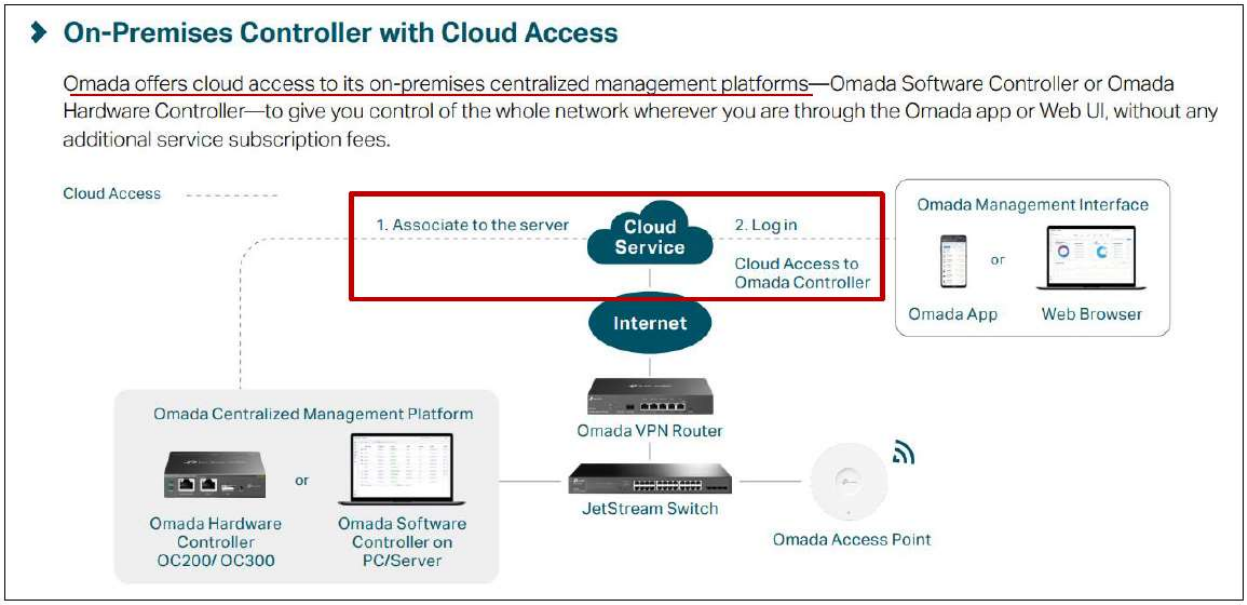


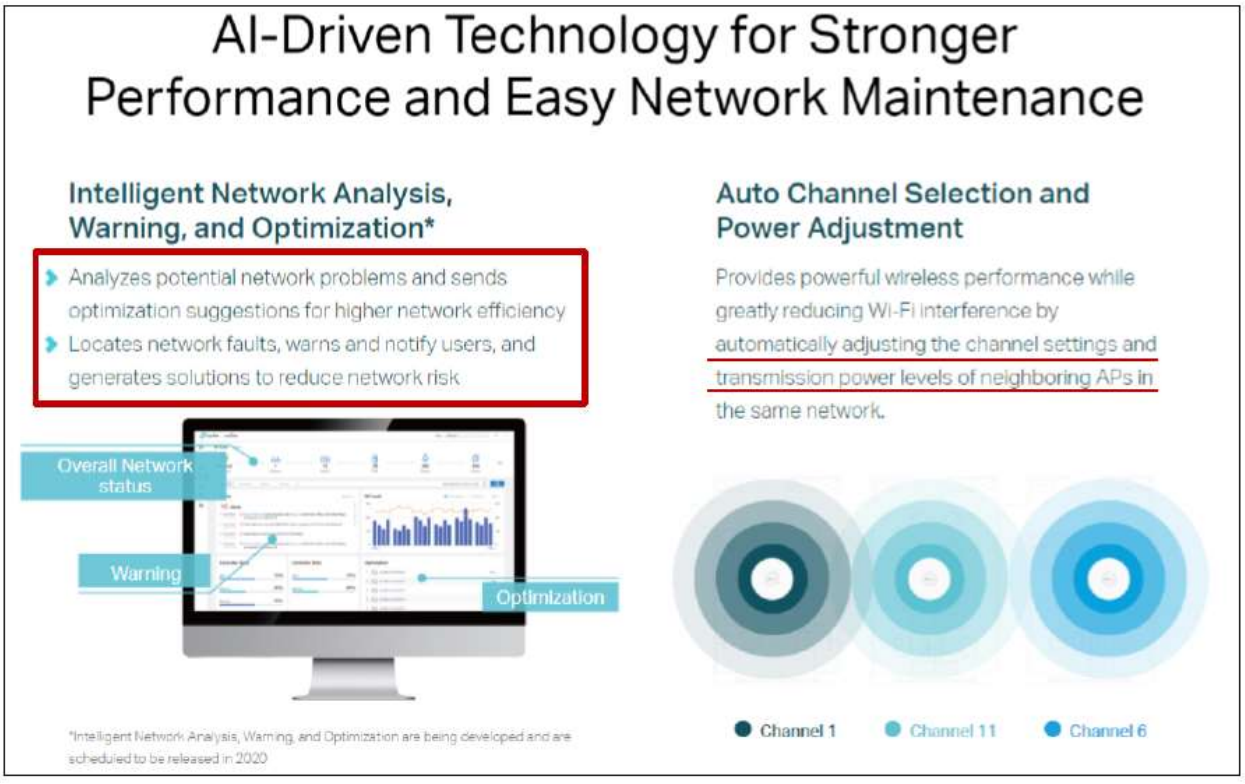


https://www.tp-link.com/us/business-networking/omada-sdn-controller/oc200/; and https://www.tp-link.com/us/business-networking/omada-sdn-controller/oc300/.

114. In the TP-Link Accused Systems, WLAN functionality is distributed among the Omada controller devices (531 CN) and the Omada APs. For example, Omada controller devices provide certain network-facing WLAN functions that are a subset of functionalities defined for the WLAN. Functions include, without limitation, providing access to network management through a cloud service, gathering and reporting network statistics and insights, adjusting channel settings and transmission power of the APs, and configuring and managing a management

VLAN):





https://www.tp-link.com/us/omada-sdn/

115. The Accused TP-Link Systems provide for configuring and managing a management VLAN:

How to configure Management VLAN in Omada SDN Controller (4.4.4 or above)?

Q&A of functional explanation or specification parameters Updated 09-16-2021 06:30:25 AM 57349

This Article Applies to:

The management VLAN is a VLAN created to separate the management network from the data network. By default, the management VLAN is the LAN network in a network centrally managed by Omada SDN Controller.

You can change the management VLAN to improve network security. With a separated management VLAN, it is much harder for unauthorized users to modify the configurations or monitor the network.

This article takes two scenarios as examples to introduce how to configure Management VLAN:

- Network with an Omada managed router as the gateway
- Network with a non-Omada managed router as the gateway

https://www.tp-link.com/us/support/faq/2814/

116. In normal operation of the TP-Link Accused Systems. Omada APs convey their capabilities to an Omada controller that utilizes this information to configure the network and establish a secure session. Discovery/response signaling occurs in part via a WAP negotiation unit:

2 Interactions During Adoption

During adoption, the interaction between the EAP and controller can be divided into three steps: Discovering, Establishing and Configuring, and Maintaining.

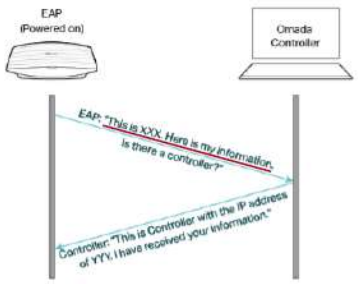
2.1 Discovering

When the EAP is powered on, it sends a message to port 29810 to broadcast its information. Once the controller receives the message, it displays the information of the EAP in the pending list and responds to the EAP with a unicast message.

The interactions are different based on different network topologies.

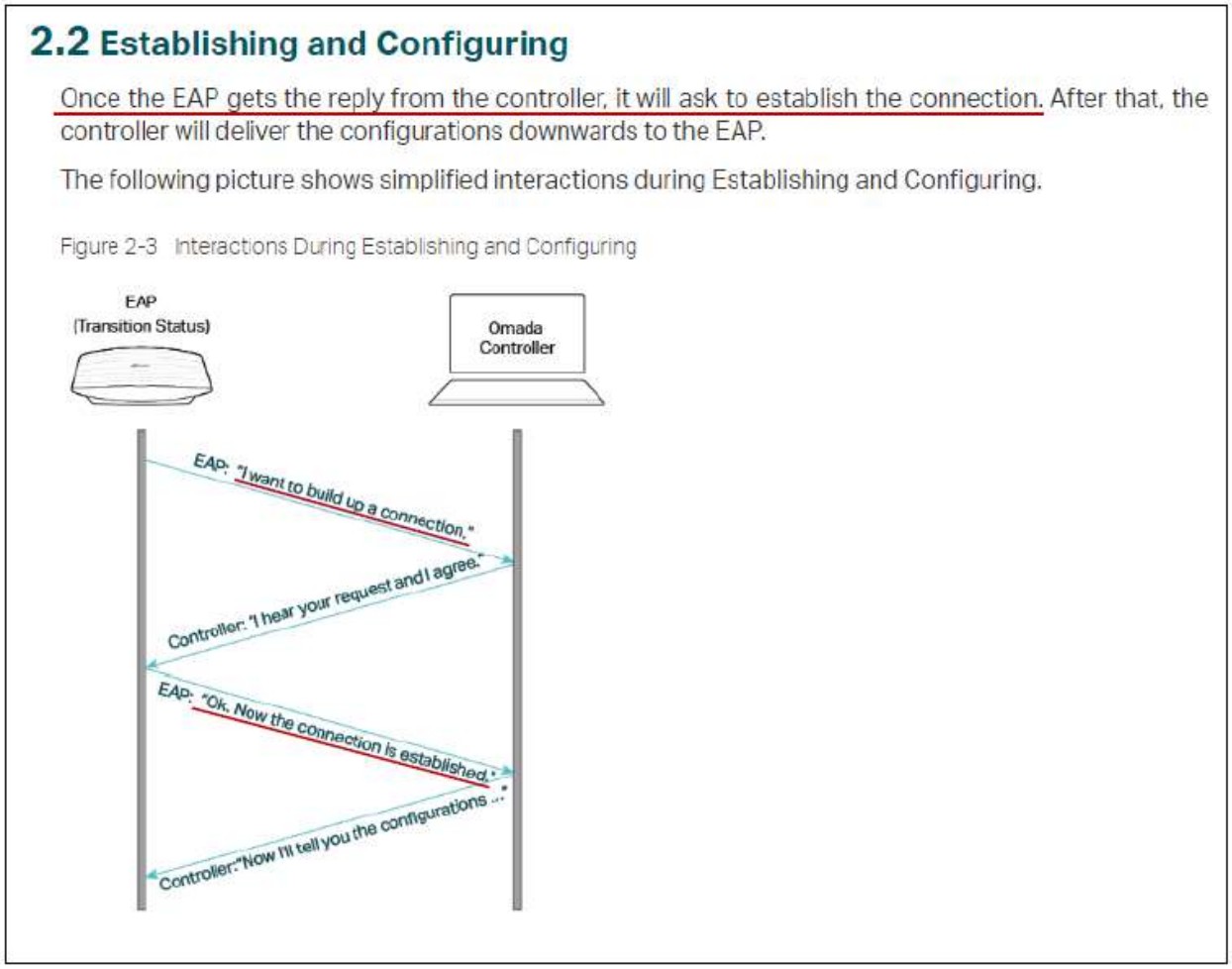
If the EAP is on the same subnet with the controller, the controller can receive the message directly (as shown in Figure 2-1).

Figure 2-1 Interactions During Discovering (the EAP is on the Same Subnet with the Controller)



If not, the EAP can get the IP address of the controller from EAP Discover Utility and inform the controller of its information via a unicast UDP message (as shown in Figure 2-2).

https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#discovering_2_1



https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#establishing_and_configuring_2_2

117. A Omada AP's negotiation unit dynamically negotiates with the CN for a secure connection and function split arrangement in transition statuses Provisioning and Configuring.

118. The CN responds to discovery and connection request messages from the APs and delivers configurations to the APs during adoption.

1.3 Transition Statuses

Transition statuses appear briefly during the adoption, which means that the adoption goes on wheels. They are: Provisioning, Configuring, and Adopting.

Table 1-3 Transition Statuses

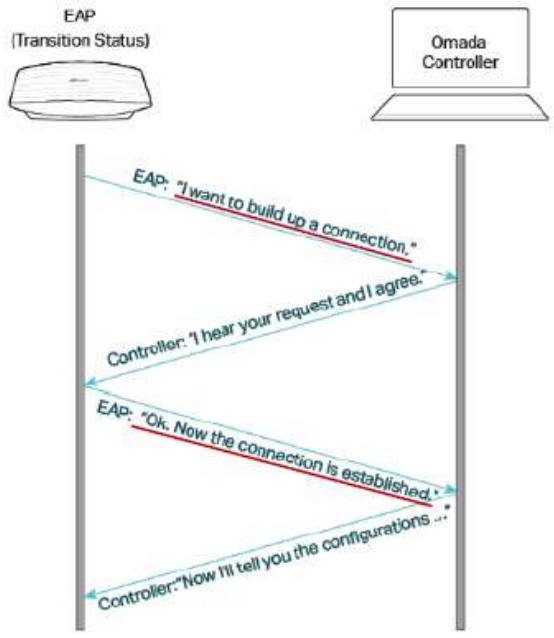
Status	Explanation
Provisioning	Provisioning is the first transition status when adopting an EAP with a wired connection. In the Provisioning status, the controller is trying to establish the connection with the EAP.
Configuring	Configuring is the second transition status when adopting an EAP with a wired connection. In the Configuring status, the controller issues configuration commands to it.
Adopting	Adopting is the transition status when adopting an EAP with a wireless connection. In the Adopting status, the controller is trying to establish the connection with the EAP and issues configuration commands to it.

2.2 Establishing and Configuring

Once the EAP gets the reply from the controller, it will ask to establish the connection. After that, the controller will deliver the configurations downwards to the EAP.

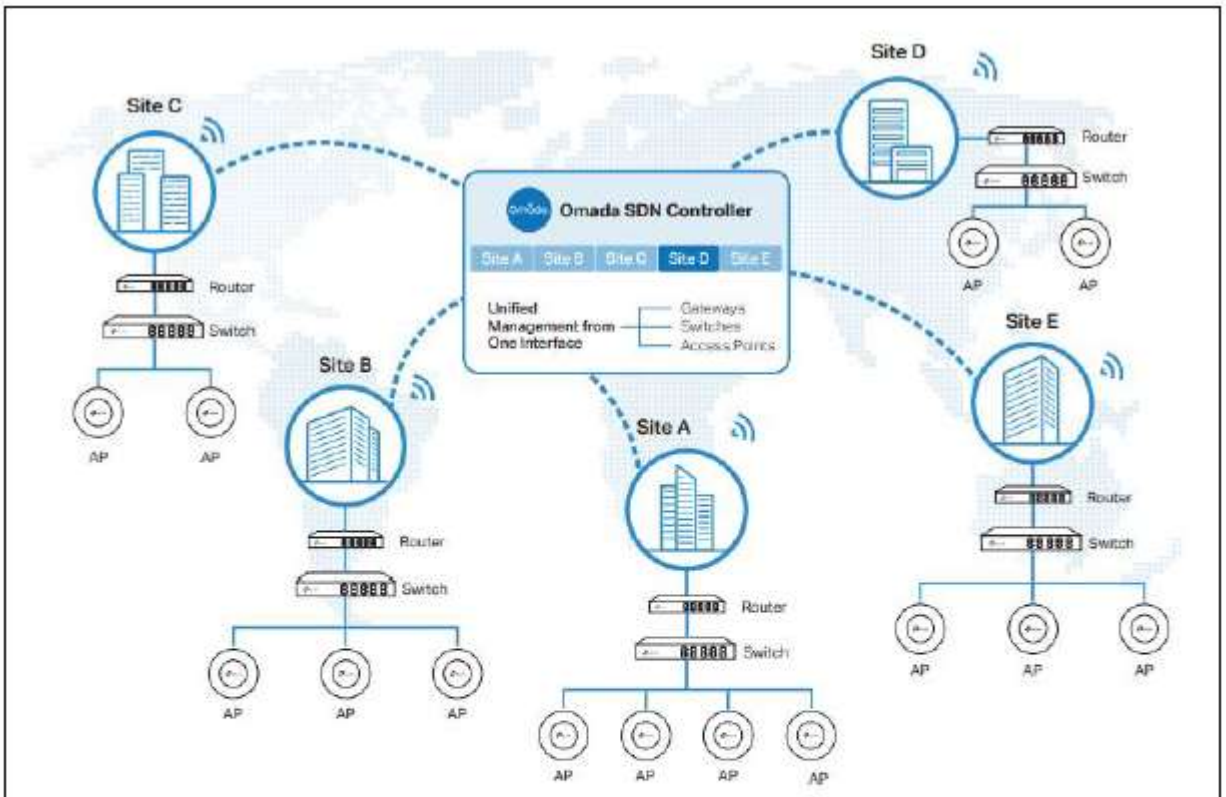
The following picture shows simplified interactions during Establishing and Configuring.

Figure 2-3 Interactions During Establishing and Configuring



https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#transition_statuses_1_3; and https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#establishing_and_configuring_2_2.

119. TP-Link CNs provide complimentary functionality for the APs by, for example, managing AP provisioning, configuration, and operation. Network-wide



The interconnected elements that work together to deliver a unified enterprise network include: Omada SDN Controller, gateways, switches, access points, and client devices. Beginning with a base of client devices, each element adds functionality and complexity as the network is developing, interconnecting with the elements above and below it to create a comprehensive, secure wired and wireless solution.

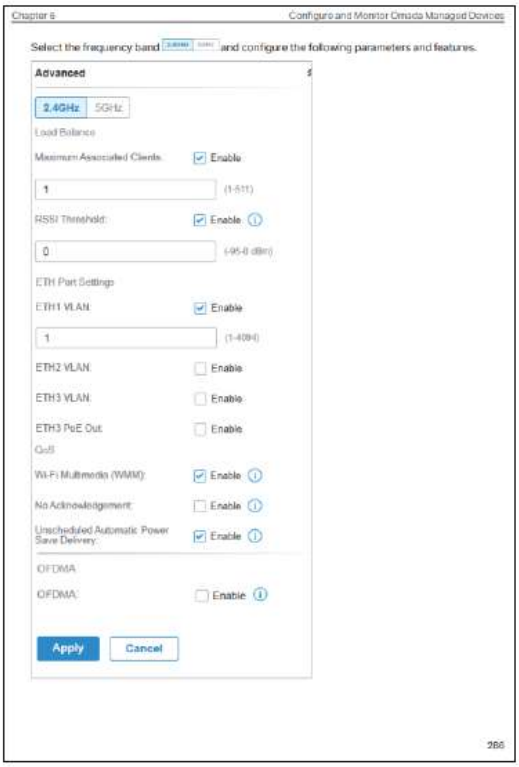
Omada SDN Controller is a command center and management platform at the heart of the Omada network. With a single platform, the network administrators configure and manage enterprise networks comprised of routers, switches, and wireless access points in batches. This unleashes new levels of management to avoid complex and costly overprovisioning.

management functionality and AP-specific operational functionality (e.g. running a specific config, specific firmware, etc) forms complete WLAN functionality. https://static.tp-link.com/manual/2021/202107/20210714/1910013060-Omada%20SDN%20Controller%20User%20Guide.pdf

120. TP-Link CNs also provide complimentary functionality for APs by, for example, managing the use Load Balancing and QoS on APs to form a complete functionality defined for the WLAN.

- **Advanced**

  In Advanced, configure Load Balance and QoS to make better use of network resources. Load Balance can control the client number associated to the EAP, while QoS can optimize the performance when handling differentiated wireless traffics, including traditional IP data, VoIP (Voice-over Internet Protocol), and other types of audio, video, streaming media.



Id.

121. Additional TP-Link Accused Products with respect to the '531 patent include the TP-Link Systems featuring TP-Link APs and TP-Link access controllers (ACs including, for example, TP-Link AC50 and AC500 wireless controllers) that support configuration using the CAPWAP protocol to provide service in a WLAN:

AC50 Wireless Controller

AC500 Wireless Controller

Key Features of the Auranet CAP Series Indoor Business Wi-Fi Solution :

- Powerful Wireless Controller for centralized management and real-time monitoring
- Wireless Controller supports Automatic Channel Assignment and Transmit Power Control
- Supports PoE for flexible deployment without the need of external power supply
- Simple wall or ceiling-mounted design for seamless installation
- Captive Portal authentication for secure guest Wi-Fi access
- WPA/WPA2-enterprise, 802.1X with RADIUS secure authentication
- Uses the industry-standard CAPWAP protocol for full interoperability with business networks
- Multi-SSID divides multiple wireless network for different users
- Quality of Service prioritizes time-sensitive traffic

https://www.tp-link.com/in/press/news/17332/

122. TP-Link APs support configuration using the CAPWAP protocol:

AC300/AC1200/AC1750 Wireless Dual Band Gigabit Ceiling Mount Access Point (CAP300/CAP1200/CAP1750)

300Mbps Wireless N Outdoor Access Point (CAP300-Outdoor)

Id.

123. TP-Link APs and ACs support configuration using the CAPWAP protocol to provide service in a WLAN. TP-Link ACs manage one or more TP-Link APs.

This document describes the CAPWAP protocol, a standard, interoperable protocol that enables an Access Controller (AC) to manage a collection of Wireless Termination Points (WTPs). The CAPWAP protocol is defined to be independent of Layer 2 (L2) technology, and meets the objectives in "Objectives for Control and Provisioning of Wireless Access Points (CAPWAP)" [RFC4564].

CAPWAP assumes a network configuration consisting of multiple WTPs communicating via the Internet Protocol (IP) to an AC. WTPs are viewed as remote radio frequency (RF) interfaces controlled by the AC. The CAPWAP protocol supports two modes of operation: Split and Local MAC (medium access control). In Split MAC mode, all L2 wireless data and management frames are encapsulated via the CAPWAP protocol and exchanged between the AC and the WTP. As shown in Figure 1, the wireless frames received from a mobile device, which is referred to in this specification as a Station (STA), are directly encapsulated by the WTP and forwarded to the AC.

https://tools.ietf.org/html/rfc5415

124. In Accused TP-Link Systems, WLAN functionality is distributed among the ACs and APs in the network. TP-Link ACs manage one or more TP-Link APs.

> Provisioning WTPs with security credentials and managing which WTPs are authorized to provide service are traditionally handled by proprietary solutions. Allowing these functions to be performed from a centralized AC in an interoperable fashion increases manageability and allows network operators to more tightly control their wireless network infrastructure.
>
> **1.1. Goals**
>
> The goals for the CAPWAP protocol are listed below:
>
> 1. To centralize the authentication and policy enforcement functions for a wireless network. The AC may also provide centralized bridging, forwarding, and encryption of user traffic. Centralization of these functions will enable reduced cost and higher efficiency by applying the capabilities of network processing silicon to the wireless network, as in wired LANs.
>
> 2. To enable shifting of the higher-level protocol processing from the WTP. This leaves the time-critical applications of wireless control and access in the WTP, making efficient use of the computing power available in WTPs, which are subject to severe cost pressure.

Id.

125. Through the discovery process, TP-Link APs convey their capabilities to an AC, which utilizes this information to configure the network and establish a secure DTLS session.

> The CAPWAP Protocol begins with a Discovery phase. The WTPs send a Discovery Request message, causing any Access Controller (AC) receiving the message to respond with a Discovery Response message. From the Discovery Response messages received, a WTP selects an AC with which to establish a secure DTLS session. In order to establish the secure DTLS connection, the WTP will need some amount of pre-provisioning, which is specified in Section 12.5. CAPWAP protocol messages will be fragmented to the maximum length discovered to be supported by the network.
>
> Once the WTP and the AC have completed DTLS session establishment, a configuration exchange occurs in which both devices agree on version information. During this exchange, the WTP may receive provisioning settings. The WTP is then enabled for operation.

8.1.1. Configuration Flexibility

The CAPWAP protocol provides the flexibility to configure and manage WTPs of varying design and functional characteristics. When a WTP first discovers an AC, it provides primary functional information

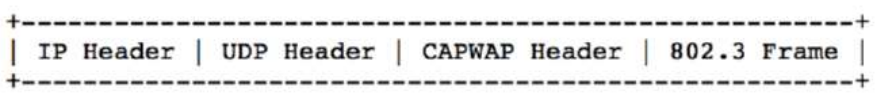
relating to its type of MAC and to the nature of frames to be exchanged. The AC configures the WTP appropriately. The AC also establishes corresponding internal state for the WTP.

Id.

126. For example, the TP-Link System network may be set up with one of two modes of encapsulation: 802.3 or native wireless.

4.4.2. Data Payload

A CAPWAP protocol Data Payload packet encapsulates a forwarded wireless frame. The CAPWAP protocol defines two different modes of encapsulation: IEEE 802.3 and native wireless. IEEE 802.3 encapsulation requires that for 802.11 frames, the 802.11 *Integration* function be performed in the WTP. An IEEE 802.3-encapsulated user payload frame has the following format:



The CAPWAP protocol also defines the native wireless encapsulation mode. The format of the encapsulated CAPWAP Data frame is subject to the rules defined by the specific wireless technology binding. Each wireless technology binding MUST contain a section entitled "Payload Encapsulation", which defines the format of the wireless payload that is encapsulated within CAPWAP Data packets.

For 802.3 payload frames, the 802.3 frame is encapsulated (excluding the IEEE 802.3 Preamble, Start Frame Delimiter (SFD), and Frame Check Sequence (FCS) fields). If the encapsulated frame would exceed the transport layer's MTU, the sender is responsible for the fragmentation of the frame, as specified in Section 3.4. The CAPWAP protocol can support IEEE 802.3 frames whose length is defined in the IEEE 802.3as specification [FRAME-EXT].

CAPWAP assumes a network configuration consisting of multiple WTPs communicating via the Internet Protocol (IP) to an AC. WTPs are viewed as remote radio frequency (RF) interfaces controlled by the AC. The CAPWAP protocol supports two modes of operation: Split and Local MAC (medium access control). In Split MAC mode, all L2 wireless data and management frames are encapsulated via the CAPWAP protocol and exchanged between the AC and the WTP. As shown in Figure 1, the wireless frames received from a mobile device, which is referred to in this specification as a Station (STA), are directly encapsulated by the WTP and forwarded to the AC.

The Local MAC mode of operation allows for the data frames to be either locally bridged or tunneled as 802.3 frames. The latter implies that the WTP performs the 802.11 Integration function. In either case, the L2 wireless management frames are processed locally

Id.

127. The Accused TP-Link ACs provide complimentary functionality for APs by, for example, performing the 802.11 integration function if split MAC mode is utilized.

8.3. Configuration Status Response

The Configuration Status Response message is sent by an AC and provides a mechanism for the AC to override a WTP's requested configuration.

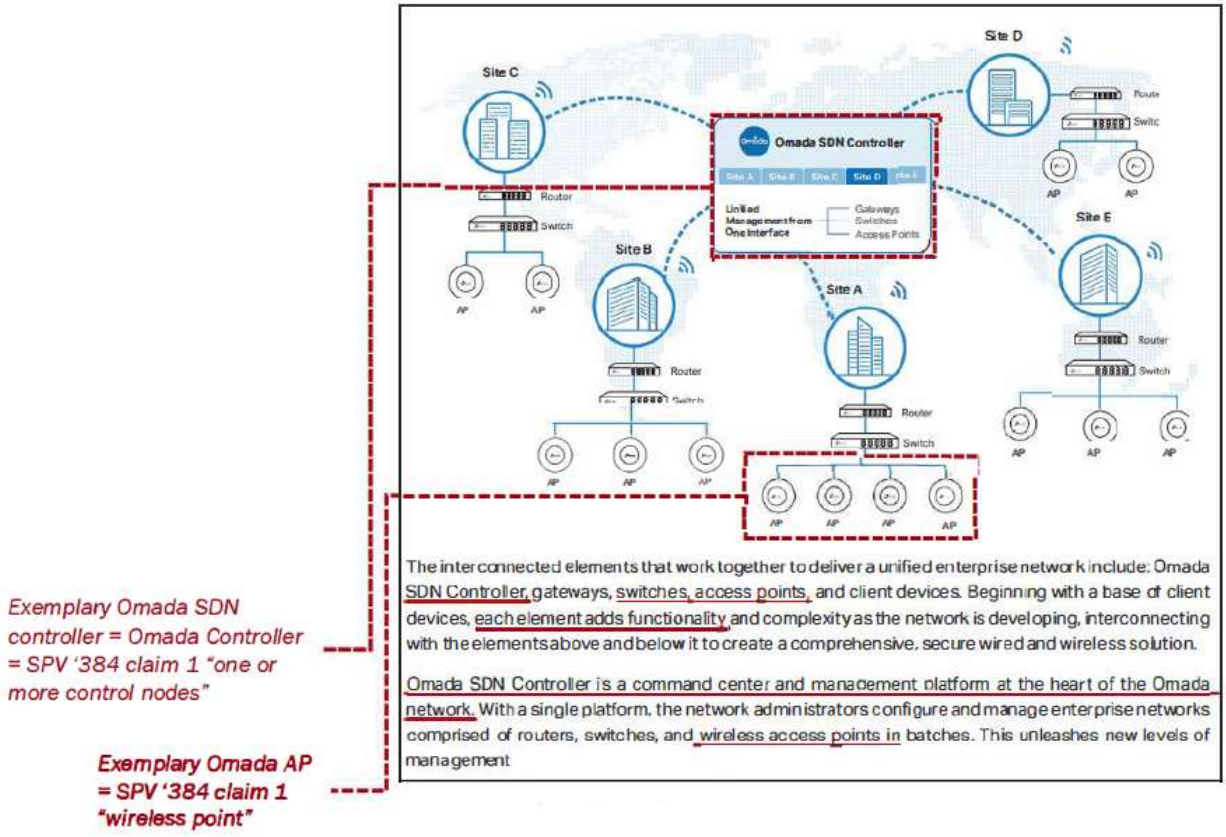
Id.

TP-LINK INFRINGES U.S. PATENT NUMBER 8,270,384.

128. The Patent Office issued U.S. Patent No. 8,270,384, titled "Wireless Point that Provides Functions for a Wireless Local Area Network to be Separated Between the Wireless Point and One or More Control Nodes, and Method for Providing Service in a Wireless Local Area Network Having Functions Separated Between a Wireless Point and One or More Control Nodes," on September 18,

2012, after a thorough examination and determination that the subject matter claimed is patentable.

129. TP-Link Accused Products with respect to the '384 patent include the TP-Link Omada WiFI system comprising, by way of example, TP-Link Omada OC200 and OC300 controller devices that interface with TP-Link Omada APs to provide WLAN service:

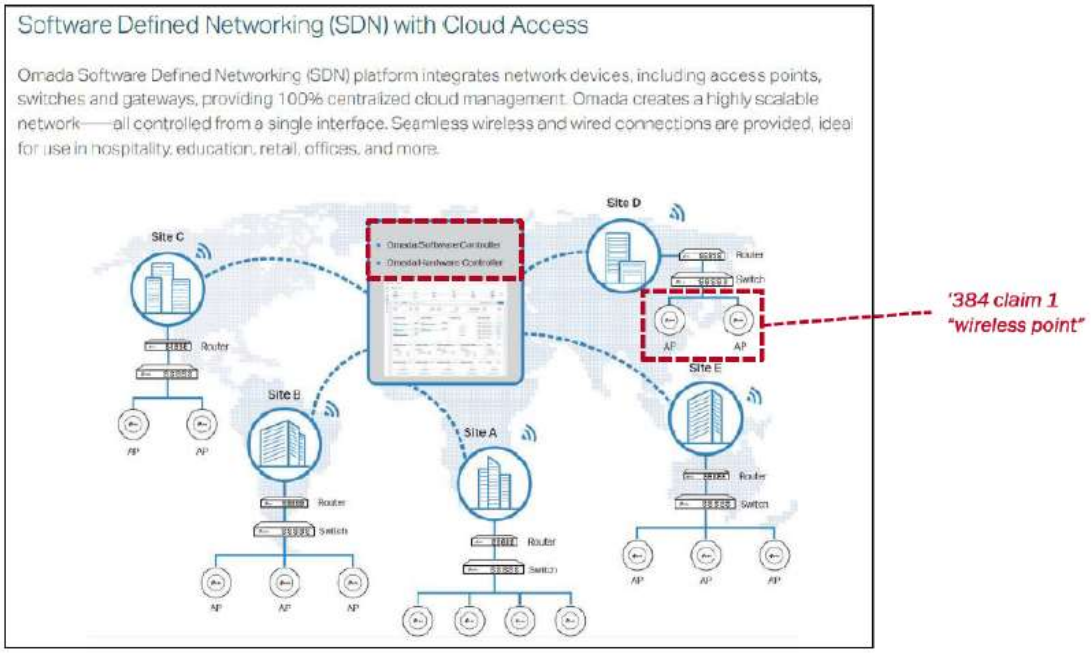


https://static.tp-link.com/manual/2021/202107/20210714/1910013060-Omada%20SDN%20Controller%20User%20Guide.pdf.

130. Accused TP-Link WiFi Systems include an Omada Software Defined

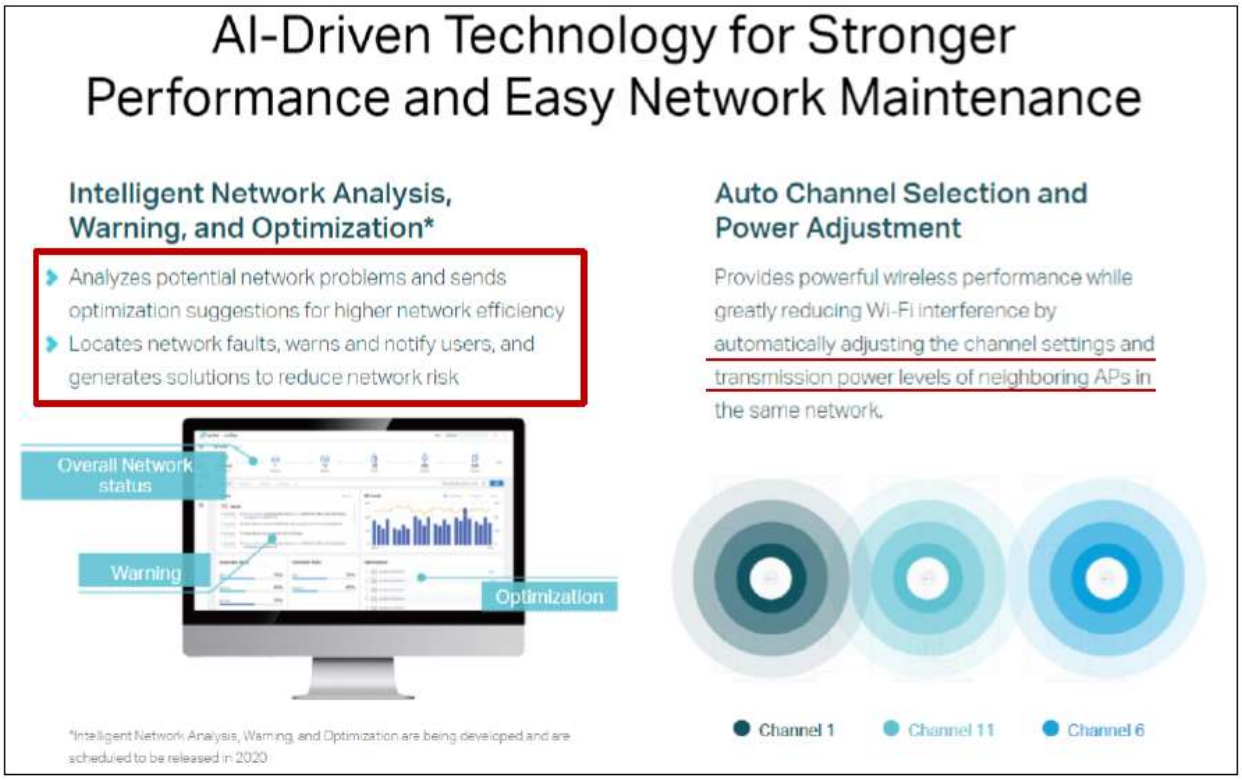
Networking (SDN) and comprise one or more Omada APs (WAPs) managed by an Omada Controller including, without limitation, Omada APs identified at https://www.tp-link.com/us/business-networking/all-omada/#omada-acces-points such as TP-Link Access Points Models EAP660 HD, EAP620 HD, EAP610, EAP265 HD, EAP245, EAP225, EAP115, EAP110, EAP615 Wall, EAP235 Wall, EAP230 Wall, EAP225 Wall, EAP115 Wall, EAP225 Outdoor, and EAP110 Outdoor.

131. The Accused TP-Link Accused Systems include a separation between the AP functions and control node functions. For example, control nodes perform network-facing functions while APs perform client-facing functions. Additionally, control nodes perform network wide WLAN management functions while APs perform AP-specific operational functions.

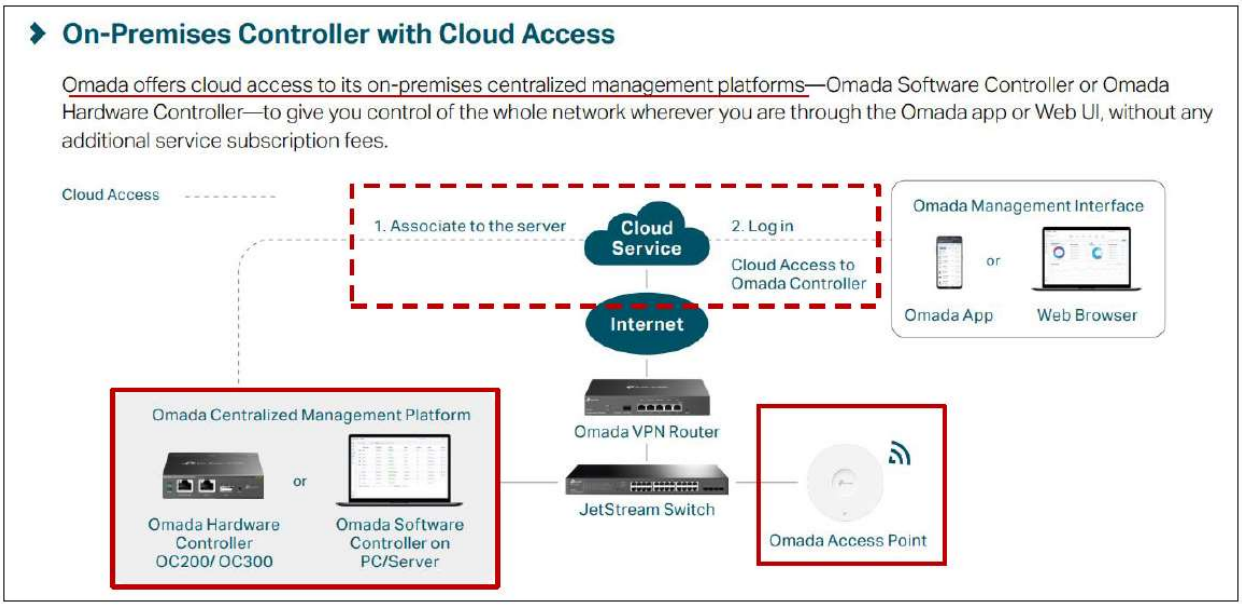


https://static.tp-link.com/upload/product-overview/2022/202204/20220418/Controller%20Datasheet.pdf

132. Omada controller devices running Omada controller software (each a control node) provide network wide management functionality, and the APs provide separate AP-specific operational functionality. Accordingly, the APs additionally "provide[] for functions for a wireless local area network to be separated between said wireless point and one or more control nodes."



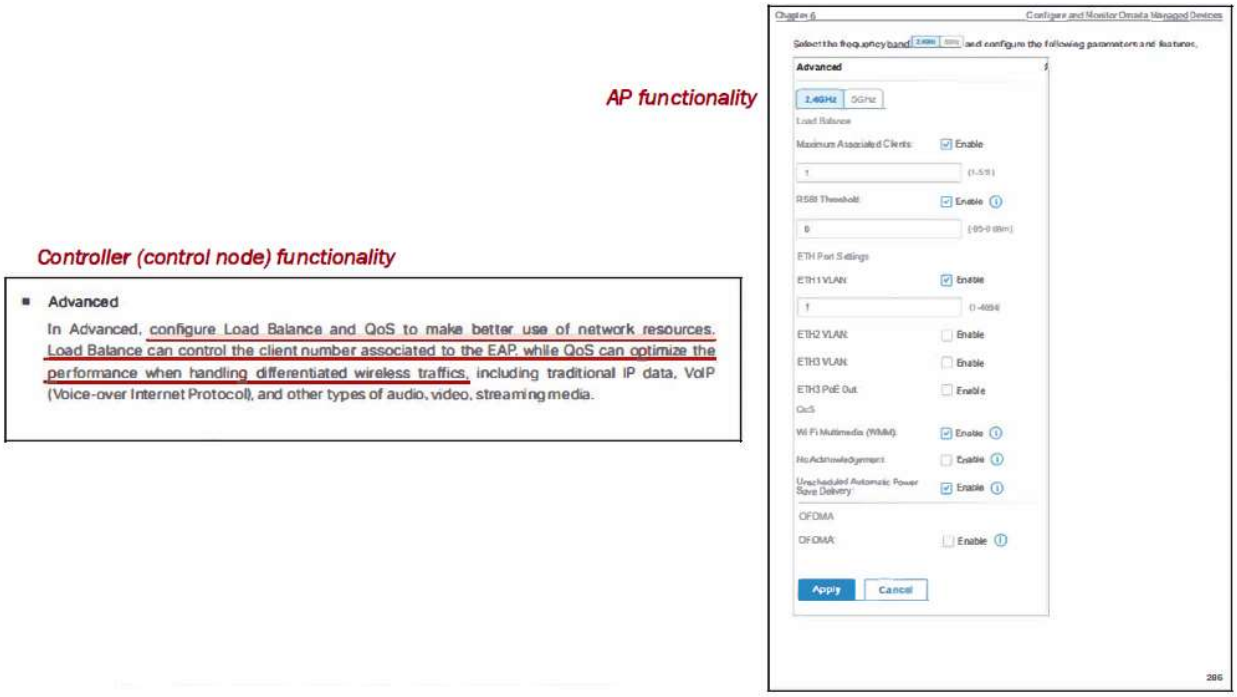
https://www.tp-link.com/us/omada-sdn/.



See also https://www.tp-link.com/us/business-networking/omada-sdn-controller/omada-cloud-based-controller/; and https://www.tp-link.com/us/business-networking/omada-sdn-controller/omada-software-

controller/.

133. The Omada controllers also provide complimentary functionality for the APs. One example such functionality is managing the use of *e.g.* Load Balancing and QoS on the APs-this network wide management functionality forming a complete WLAN functionality with the AP-specific operational functionality (*e.g.* running 802.llk/r, Airtime fairness, band steering).



https://static.tp-link.com/manual/2021/202107/20210714/1910013060-Omada%20SDN%20Controller%20User%20Guide.pdf

134. In an Accused Omada WiFi system, the discovery unit of an Omada AP sends (via broadcast) a discovery request message to Omada controller devices (said one or more control nodes) on the AP's network through port 29810. The discovery request messages are sent during the Omada AP discovery and adoption

signaling process.

2 Interactions During Adoption

During adoption, the interaction between the EAP and controller can be divided into three steps: Discovering, Establishing and Configuring, and Maintaining.

2.1 Discovering

When the EAP is powered on, it sends a message to port 29810 to broadcast its information. Once the controller receives the message, it displays the information of the EAP in the pending list and responds to the EAP with a unicast message.

The interactions are different based on different network topologies.

If the EAP is on the same subnet with the controller, the controller can receive the message directly (as shown in Figure 2-1).

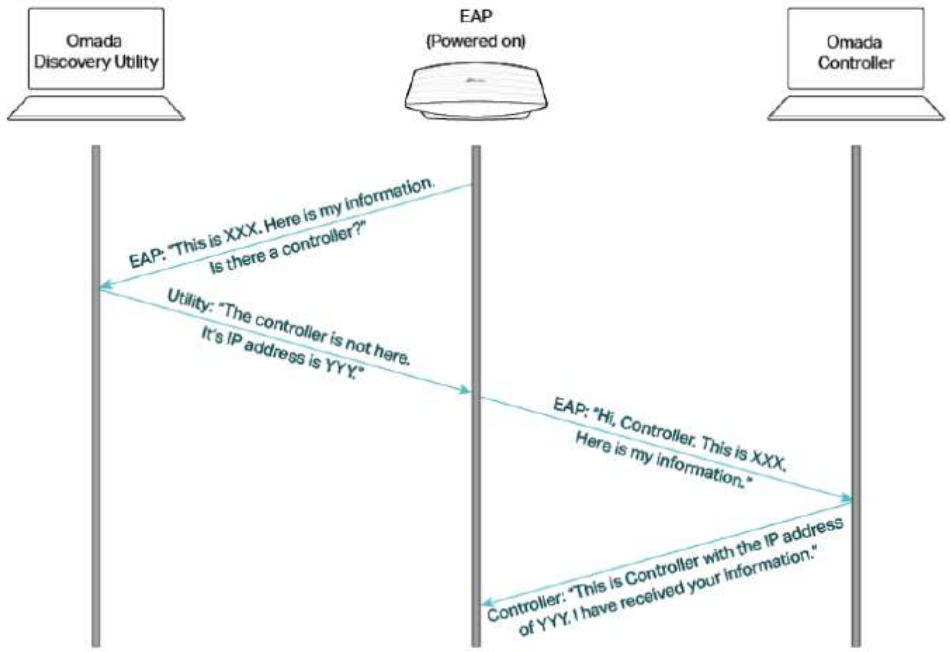
Figure 2-1 Interactions During Discovering (the EAP is on the Same Subnet with the Controller)

If not, the EAP can get the IP address of the controller from EAP Discover Utility and inform the controller of its information via a unicast UDP message (as shown in Figure 2-2).

https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#discovering_2_1

If not, the EAP can get the IP address of the controller from EAP Discover Utility and inform the controller of its information via a unicast UDP message (as shown in Figure 2-2).

Figure 2-2 Interactions During Discovering (the EAP is on a Different Subnet with the Controller)

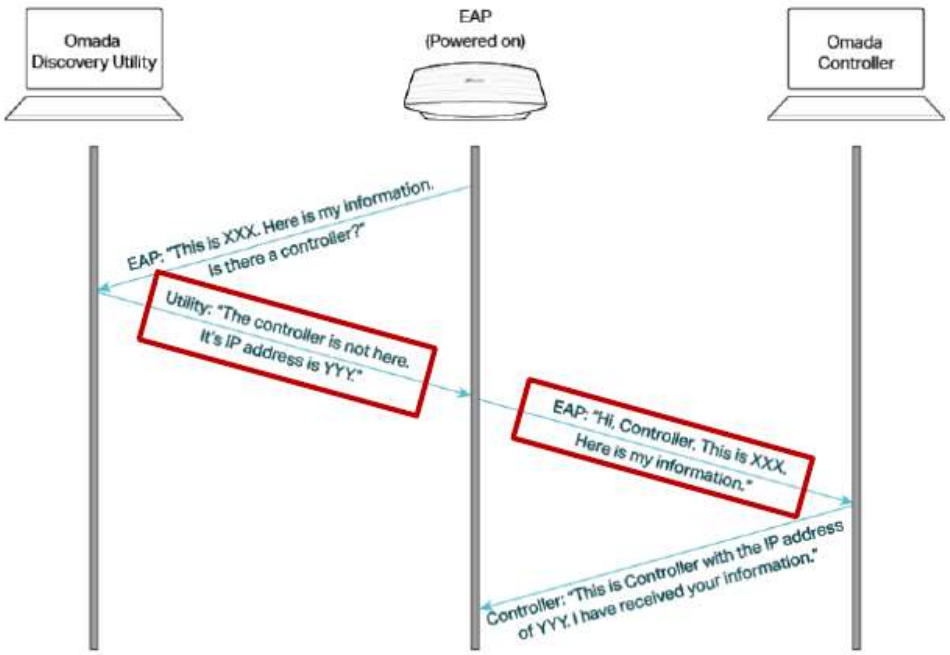


Id.

135. The Accused Omada APs select an Omada controller (one control node) based on a received discovery response message from the controller, or from the Omada Discovery Utility on the AP's layer 2 network. For example, during the Omada AP adoption process, the AP selects the Omada controller (control node) based on a discovery response message received from the Omada Discovery Utility, informing the AP of a candidate Omada controller and the IP address of the controller.

If not, the EAP can get the IP address of the controller from EAP Discover Utility and inform the controller of its information via a unicast UDP message (as shown in Figure 2-2).

Figure 2-2 Interactions During Discovering (the EAP is on a Different Subnet with the Controller)



Id.

136. The discovery response message sent by the control node includes security related information that is used by the Omada AP (wireless point) during the adoption process (*i.e.* to "select one control node"). The discovery response message sent by the control node includes information identifying the control node model to determine compatibility by the Omada AP. The discovery response message includes the IP address for establishing a connection between the AP and the control node upon selection by the AP.

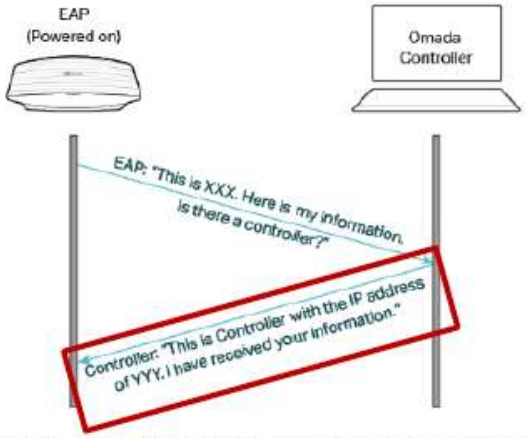
2.1 Discovering

When the EAP is powered on, it sends a message to port 29810 to broadcast its information. Once the controller receives the message, it displays the information of the EAP in the pending list and responds to the EAP with a unicast message.

The interactions are different based on different network topologies.

If the EAP is on the same subnet with the controller, the controller can receive the message directly (as shown in Figure 2-1).

Figure 2-1 Interactions During Discovering (the EAP is on the Same Subnet with the Controller)



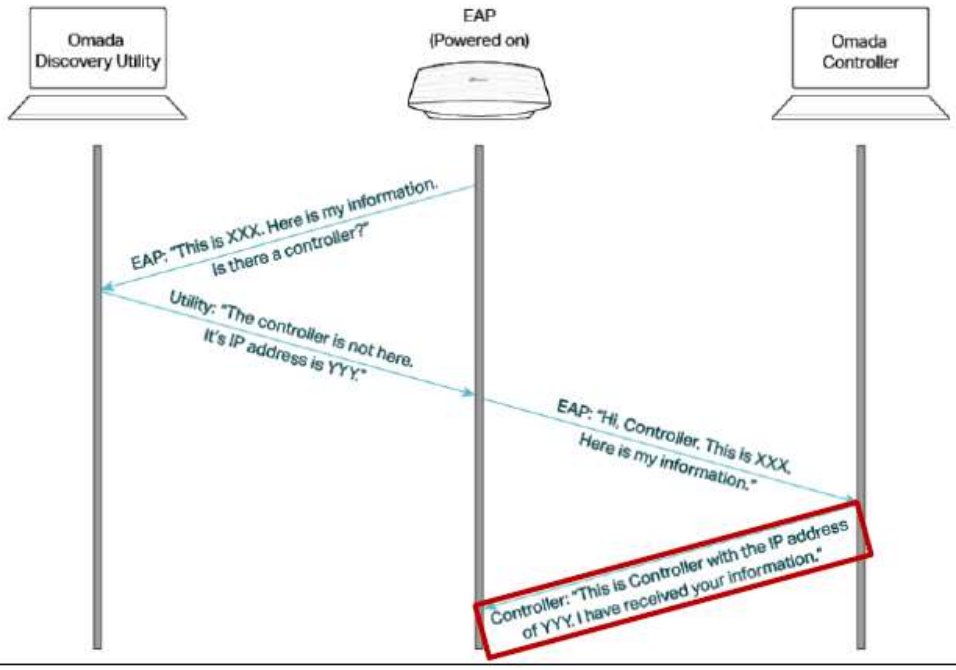
If not, the EAP can get the IP address of the controller from EAP Discover Utility and inform the controller of its information via a unicast UDP message (as shown in Figure 2-2).

Id.

137. If the Omada AP receives a discovery response message from the Omada Discovery Utility identifying an Omada controller on a different subnet, the Omada AP will receive an additional discovery response message from the Omada controller identified by the Omada discovery utility. Additionally, the discovery response message received from an Omada controller on a different subnet from the Omada AP includes similar information about functions offered by the controller as the example where the controller is on the same subnet as the AP.

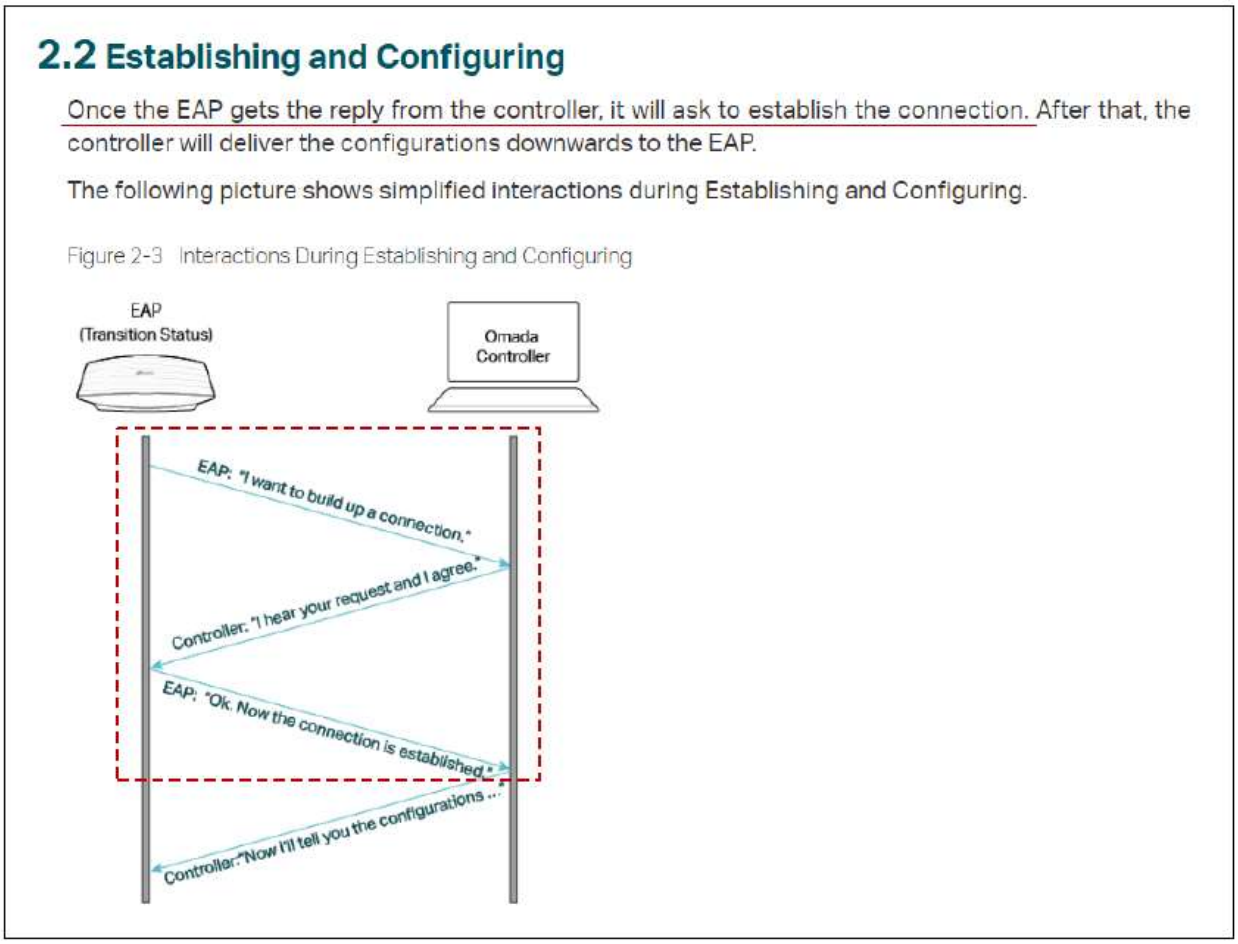
If not, the EAP can get the IP address of the controller from EAP Discover Utility and inform the controller of its information via a unicast UDP message (as shown in Figure 2-2).

Figure 2-2 Interactions During Discovering (the EAP is on a Different Subnet with the Controller)



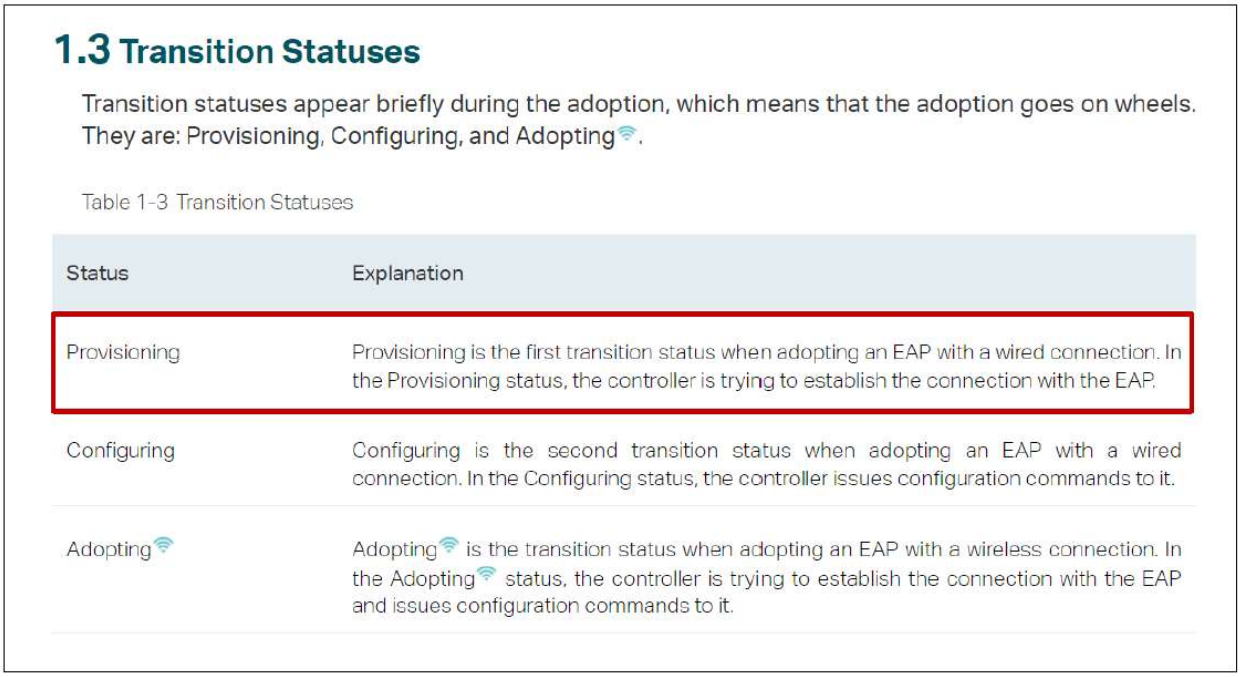
Id.

138. During the adoption process the Omada AP establishes a secure session with the chosen control node.



https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#establishing_and_configuring_2_2

139. The session establishing unit establishes the secure session while the AP status is "Provisioning."



1.3 Transition Statuses

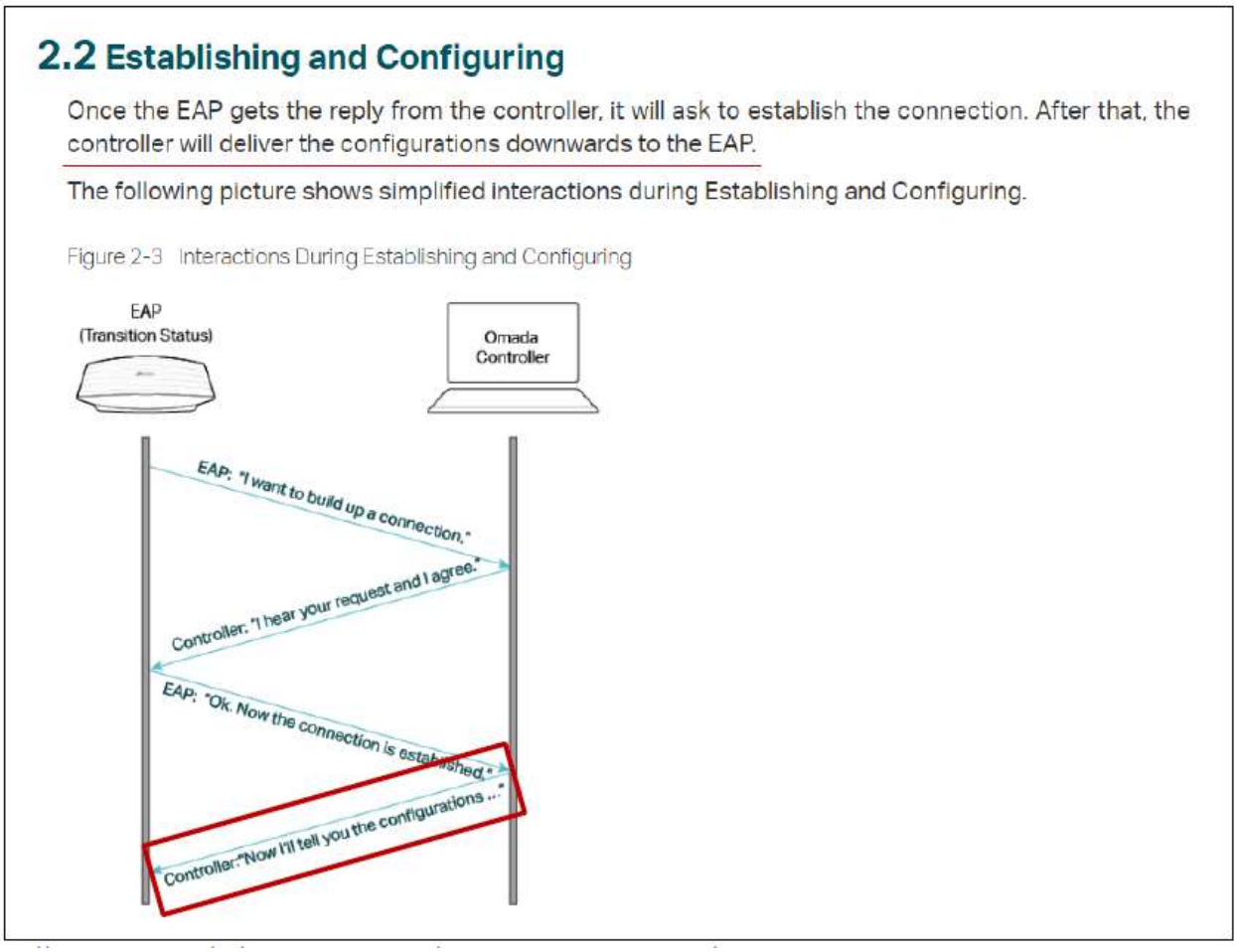
Transition statuses appear briefly during the adoption, which means that the adoption goes on wheels. They are: Provisioning, Configuring, and Adopting.

Table 1-3 Transition Statuses

Status	Explanation
Provisioning	Provisioning is the first transition status when adopting an EAP with a wired connection. In the Provisioning status, the controller is trying to establish the connection with the EAP.
Configuring	Configuring is the second transition status when adopting an EAP with a wired connection. In the Configuring status, the controller issues configuration commands to it.
Adopting	Adopting is the transition status when adopting an EAP with a wireless connection. In the Adopting status, the controller is trying to establish the connection with the EAP and issues configuration commands to it.

https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#transition_statuses_1_3

140. After the secure session is established, a negotiation unit exchanges information with the Omada controller about the functions to be separated between the controller and the AP.



https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#establishing_and_configuring_2_2

141. The negotiation unit exchanges information about the functions to be separated while the AP status is "configuring."

1.3 Transition Statuses

Transition statuses appear briefly during the adoption, which means that the adoption goes on wheels. They are: Provisioning, Configuring, and Adopting.

Table 1-3 Transition Statuses

Status	Explanation
Provisioning	Provisioning is the first transition status when adopting an EAP with a wired connection. In the Provisioning status, the controller is trying to establish the connection with the EAP.
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https://www.tp-link.com/us/configuration-guides/introduction-of-eap-adoption/?configurationId=22336#transition_statuses_1_3

142. Additional TP-Link Accused Products with respect to the '384 patent include the TP-Link Systems featuring TP-Link APs (including, for example, CAP300/CAP1200/CAP1750 APs and 300 Mbps Wireless N Outdoor AP CAP300-Outdoor) that support configuration using the CAPWAP protocol to provide service in a WLAN.

143. TP-Link APs support configuration using the CAPWAP protocol:

AC300/AC1200/AC1750 Wireless Dual Band Gigabit Ceiling Mount Access Point (CAP300/CAP1200/CAP1750)

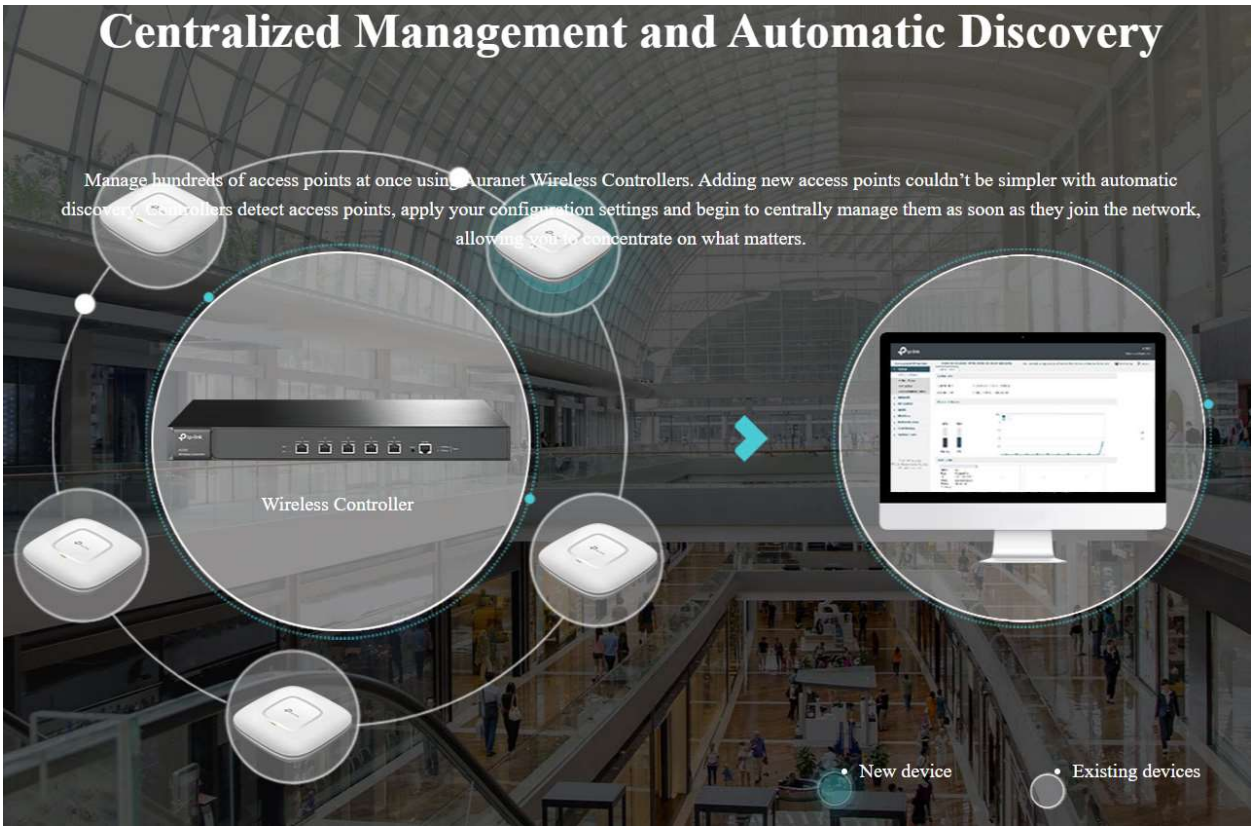
300Mbps Wireless N Outdoor Access Point (CAP300-Outdoor)

See also https://www.tp-link.com/res/images/vi/cap/index.html; https://www.tp-link.com/us/business-networking/desktop-access-point/cap300/; and https://www.tp-link.com/us/business-networking/desktop-access-point/cap1750/.

Key Features of the Auranet CAP Series Indoor Business Wi-Fi Solution :

- Powerful Wireless Controller for centralized management and real-time monitoring
- Wireless Controller supports Automatic Channel Assignment and Transmit Power Control
- Supports PoE for flexible deployment without the need of external power supply
- Simple wall or ceiling-mounted design for seamless installation
- Captive Portal authentication for secure guest Wi-Fi access
- WPA/WPA2-enterprise, 802.1X with RADIUS secure authentication
- Uses the industry-standard CAPWAP protocol for full interoperability with business networks
- Multi-SSID divides multiple wireless network for different users
- Quality of Service prioritizes time-sensitive traffic

https://www.tp-link.com/in/press/news/17332/



https://www.tp-link.com/res/images/vi/cap/index.html

Model	CAP1750	CAP1200	CAP300	CAP300-Outdoor
Product Description	AC1750 Wireless Dual Band Gigabit Access Point	AC1200 Wireless Dual Band Gigabit Access Point	300Mbps Wireless N Access Point	300Mbps Wireless N Outdoor Access Point

https://www.tp-link.com/res/images/vi/cap/index.html

144. TP Link APs and ACs support configuration, using the CAPWAP protocol, to separate WLAN functions between them.

This document describes the CAPWAP protocol, a standard, interoperable protocol that enables an Access Controller (AC) to manage a collection of Wireless Termination Points (WTPs). The CAPWAP protocol is defined to be independent of Layer 2 (L2) technology, and meets the objectives in "Objectives for Control and Provisioning of Wireless Access Points (CAPWAP)" [RFC4564].

1.1. Goals

The goals for the CAPWAP protocol are listed below:

1. To centralize the authentication and policy enforcement functions for a wireless network. The AC may also provide centralized bridging, forwarding, and encryption of user traffic. Centralization of these functions will enable reduced cost and higher efficiency by applying the capabilities of network processing silicon to the wireless network, as in wired LANs.

2. To enable shifting of the higher-level protocol processing from the WTP. This leaves the time-critical applications of wireless control and access in the WTP, making efficient use of the computing power available in WTPs, which are subject to severe cost pressure.

https://tools.ietf.org/html/rfc5415.

145. TP Link APs send discovery requests to the one or more ACs in the network.

The CAPWAP Protocol begins with a Discovery phase. The WTPs send a Discovery Request message, causing any Access Controller (AC) receiving the message to respond with a Discovery Response message. From the Discovery Response messages received, a WTP selects an AC with which to establish a secure DTLS session. In order to establish the secure DTLS connection, the WTP will need some amount of pre-provisioning, which is specified in Section 12.5. CAPWAP protocol messages will be fragmented to the maximum length discovered to be supported by the network.

Discovery Thread: The AC's Discovery thread is responsible for receiving, and responding to, Discovery Request messages. The state machine transitions in Figure 4 are represented by numerals. Note that the Discovery thread does not maintain any per-WTP-specific context information, and a single state context exists. It is necessary for the AC to protect itself against various attacks that exist with non-authenticated frames. See Section 12 for more information.

Id.

146. TP Link APs select an AC based on the discovery response message received, through which the AC advertises its services.

Upon receiving a Discovery Request message, the AC will respond with a Discovery Response message sent to the address in the source address of the received Discovery Request message. Once a Discovery Response has been received, if the WTP decides to establish a session with the responding AC, it SHOULD perform an MTU discovery, using the process described in Section 3.5.

5.2. Discovery Response Message

The Discovery Response message provides a mechanism for an AC to advertise its services to requesting WTPs.

When a WTP receives a Discovery Response message, it MUST wait for an interval not less than DiscoveryInterval for receipt of additional Discovery Response messages. After the DiscoveryInterval elapses, the WTP enters the DTLS-Init state and selects one of the ACs that sent a Discovery Response message and send a DTLS Handshake to that AC.

Id.

147. The AP establishes a secure DTLS session with the chosen AC.

The CAPWAP Protocol begins with a Discovery phase. The WTPs send a Discovery Request message, causing any Access Controller (AC) receiving the message to respond with a Discovery Response message. From the Discovery Response messages received, a WTP selects an AC with which to establish a secure DTLS session. In order to establish the secure DTLS connection, the WTP will need some amount of pre-provisioning, which is specified in Section 12.5. CAPWAP protocol messages will be fragmented to the maximum length discovered to be supported by the network.

Once the WTP and the AC have completed DTLS session establishment, a configuration exchange occurs in which both devices agree on version information. During this exchange, the WTP may receive provisioning settings. The WTP is then enabled for operation.

Id.

148. The TP Link APs contain a negotiation unit that sends functional information to the AC.

8.1.1. Configuration Flexibility

The CAPWAP protocol provides the flexibility to configure and manage WTPs of varying design and functional characteristics. When a WTP first discovers an AC, it provides primary functional information

relating to its type of MAC and to the nature of frames to be exchanged. The AC configures the WTP appropriately. The AC also establishes corresponding internal state for the WTP.

Id.

149. TP Link APs contain a negotiation unit that sends functional information to the AC. For example, functions may be split using two modes of operation: Split MAC and Local MAC.

CAPWAP assumes a network configuration consisting of multiple WTPs communicating via the Internet Protocol (IP) to an AC. WTPs are viewed as remote radio frequency (RF) interfaces controlled by the AC. The CAPWAP protocol supports two modes of operation: Split and Local MAC (medium access control). In Split MAC mode, all L2 wireless data and management frames are encapsulated via the CAPWAP protocol and exchanged between the AC and the WTP. As shown in Figure 1, the wireless frames received from a mobile device, which is referred to in this specification as a Station (STA), are directly encapsulated by the WTP and forwarded to the AC.

The Local MAC mode of operation allows for the data frames to be either locally bridged or tunneled as 802.3 frames. The latter implies that the WTP performs the 802.11 Integration function. In either case, the L2 wireless management frames are processed locally

Id.

150. As another example, functions may also be split using two modes of encapsulation, including 802.3 and Native wireless.

4.4.2. Data Payload

A CAPWAP protocol Data Payload packet encapsulates a forwarded wireless frame. The CAPWAP protocol defines two different modes of encapsulation: IEEE 802.3 and native wireless. IEEE 802.3 encapsulation requires that for 802.11 frames, the 802.11 *Integration* function be performed in the WTP. An IEEE 802.3-encapsulated user payload frame has the following format:

```
+-----------------------------------------------------+
| IP Header | UDP Header | CAPWAP Header | 802.3 Frame |
+-----------------------------------------------------+
```

The CAPWAP protocol also defines the native wireless encapsulation mode. The format of the encapsulated CAPWAP Data frame is subject to the rules defined by the specific wireless technology binding. Each wireless technology binding MUST contain a section entitled "Payload Encapsulation", which defines the format of the wireless payload that is encapsulated within CAPWAP Data packets.

For 802.3 payload frames, the 802.3 frame is encapsulated (excluding the IEEE 802.3 Preamble, Start Frame Delimiter (SFD), and Frame Check Sequence (FCS) fields). If the encapsulated frame would exceed the transport layer's MTU, the sender is responsible for the fragmentation of the frame, as specified in Section 3.4. The CAPWAP protocol can support IEEE 802.3 frames whose length is defined in the IEEE 802.3as specification [FRAME-EXT].

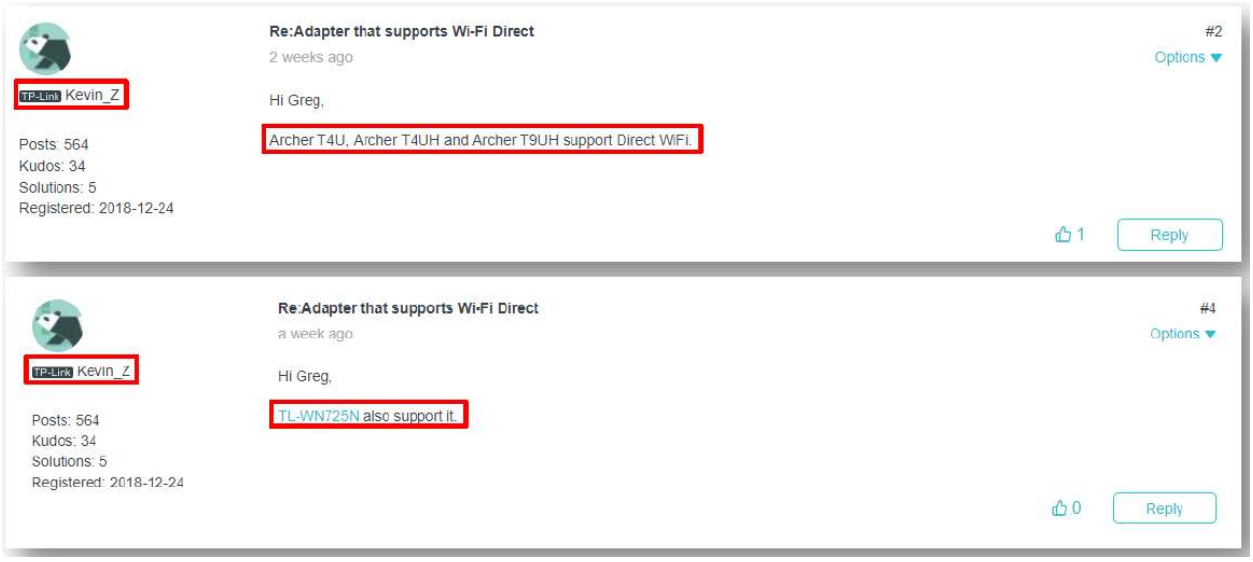
Id.

TP-LINK INFRINGES U.S. PATENT NUMBER 8,902,871.

151. The Patent Office issued U.S. Patent No. 8,902,871, titled "Wireless Base Station and Wireless Communication Terminal and Wireless Communication System Base Station Apparatus, Mobile Apparatus, and Communication Method," on December 2, 2014, after a thorough examination and determination that the subject matter claimed is patentable.

152. TP-Link Accused Products with respect to the '871 patent include the

TP-Link Wi-Fi adaptors that support Wi-Fi Direct. The Accused Products include at least the Archer T4U, Archer T5UH, Archer T9UH, and TL-WN752N Wi-Fi adaptors that support Wi-Fi Direct:



https://community.tp-link.com/en/home/forum/topic/155889.

153. The Accused Products supports Wi-Fi Direct. In Wi-Fi Direct, one Wi-Fi peer acts as a "communication terminal" and another Wi-Fi Direct peer acts

as a "base station."

1.4 Definitions

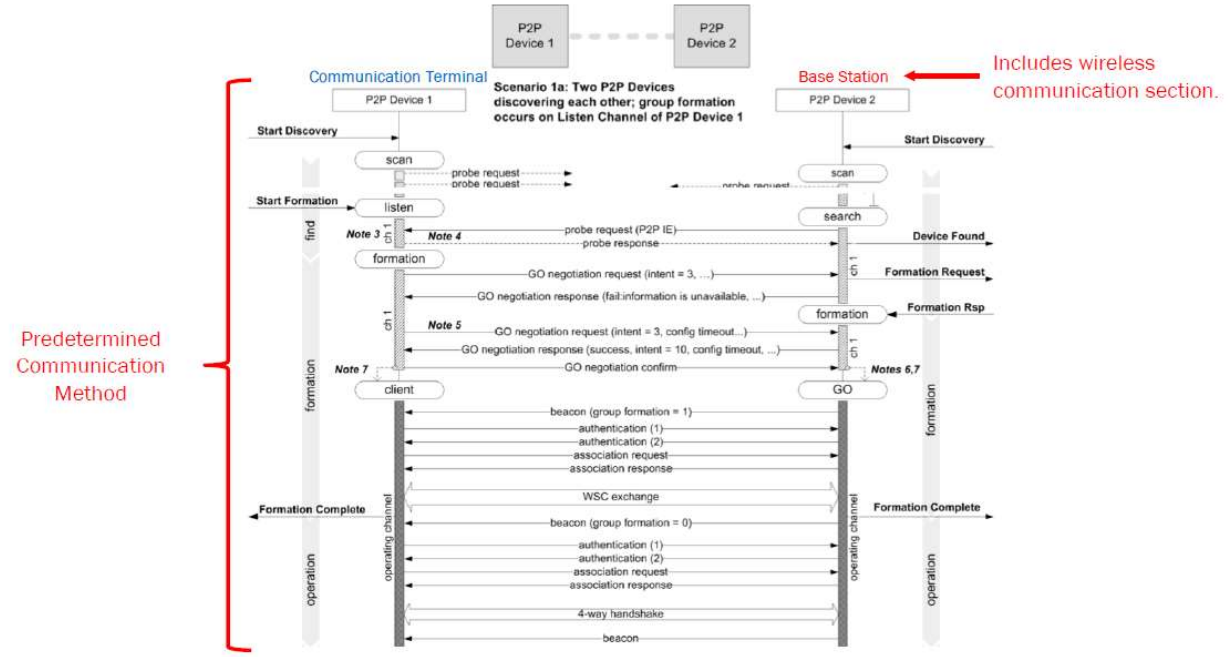
Wi-Fi Direct Peer → **P2P Device**: Wi-Fi P2P device that is capable of acting as both a P2P Group Owner and a P2P Client.

Communication Terminal → **P2P Client**: A P2P Device that is connected to a P2P Group Owner.

Base Station → **P2P Group Owner**: An "AP-like" entity, when not operating within DMG, or PCP, when operating within DMG, that may provide and use connectivity between Clients.

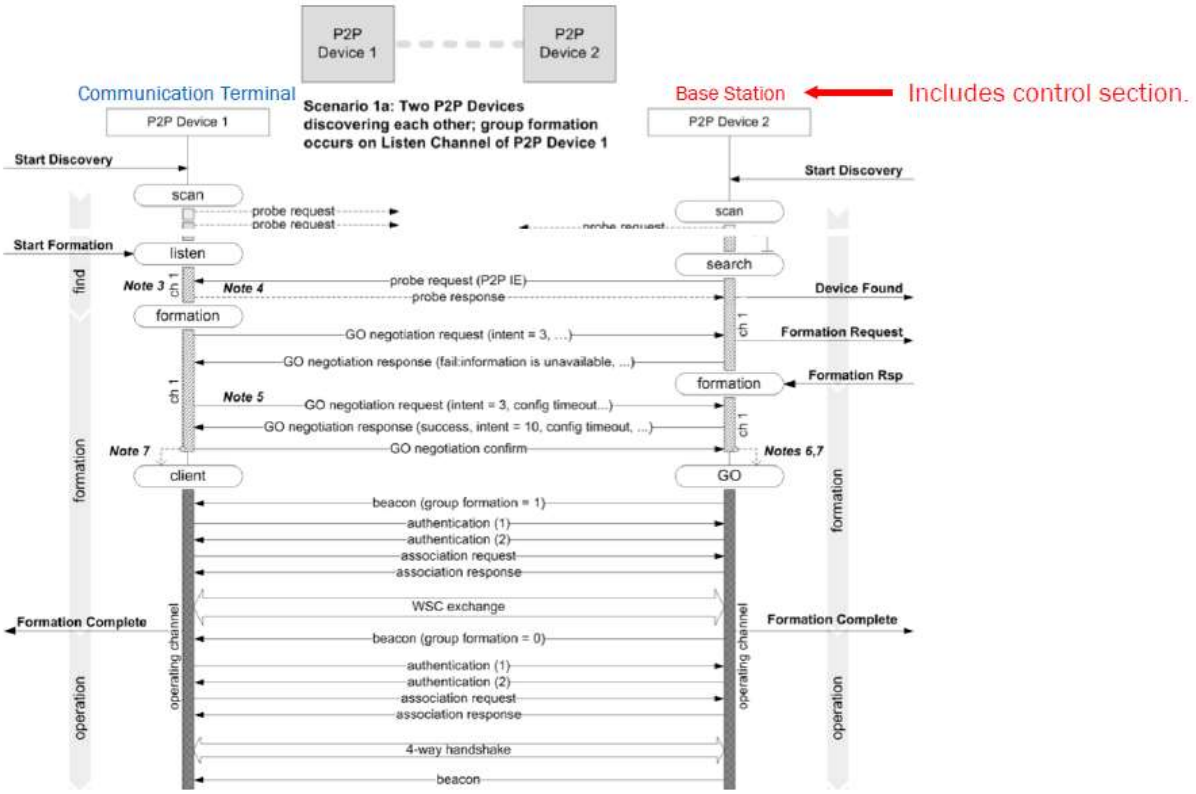
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 14-17]

154. W-Fi Direct connects a wireless base station (one Wi-Fi Direct peer device) to a wireless communication terminal (another Wi-Fi Direct peer device).



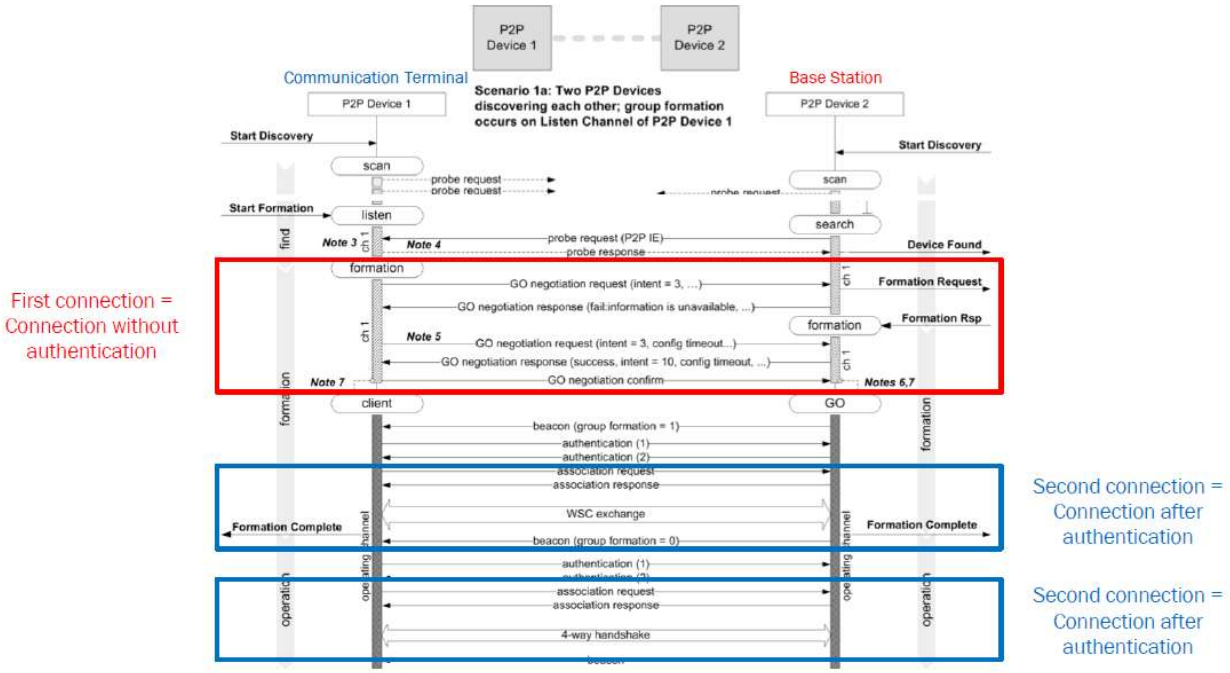
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

155. A Wi-Fi Direct peer device has a control section (e.g., Wi-Fi module processor) that controls the wireless communication section.



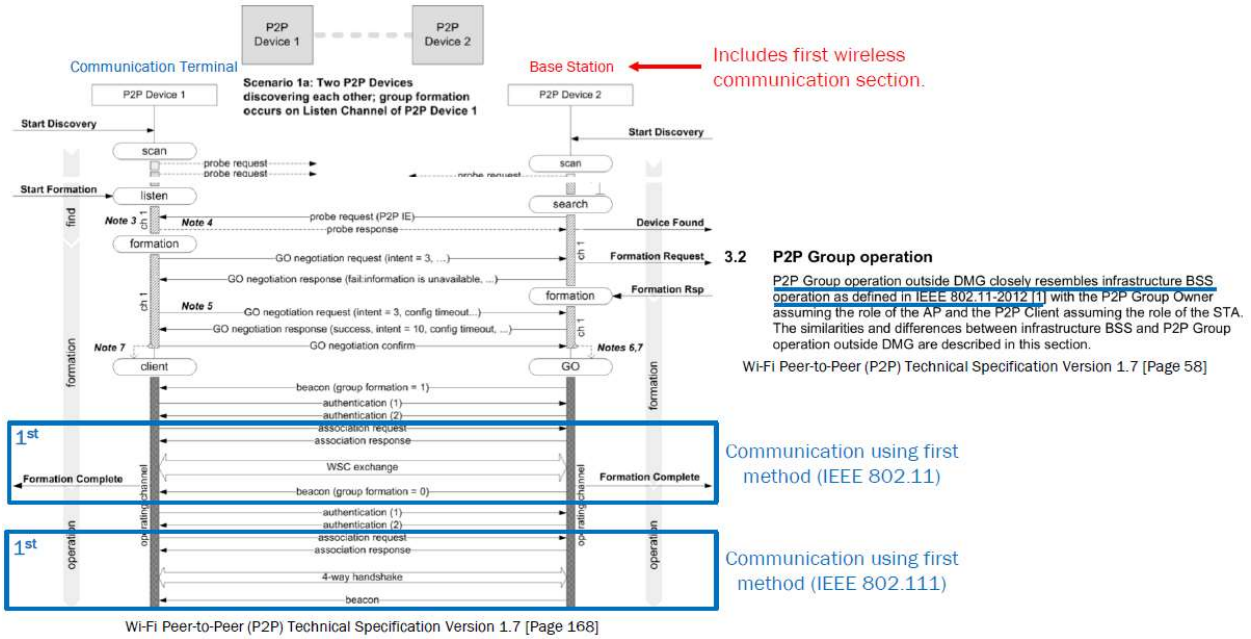
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

156. A Wi-Fi Direct peer device can establish a connection with another Wi-Fi Direct peer device using a connection that does not require authentication or a connection that does not require authentication.



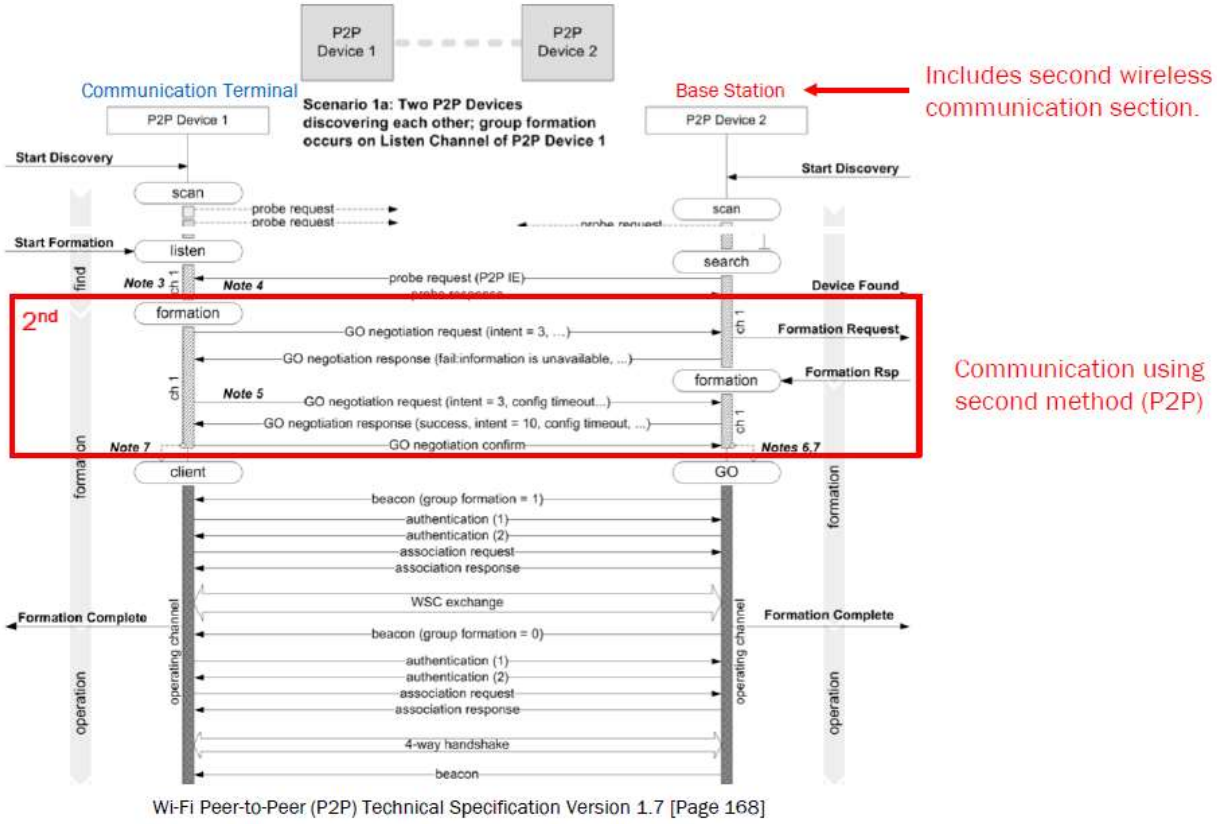
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

157. A Wi-Fi Direct peer device has a first wireless communication section (*e.g.,* IEEE 802.11 portion of Wi-Fi module) that communicates with another Wi-Fi Direct peer device using a first method (*e.g.,* IEEE 802.11).



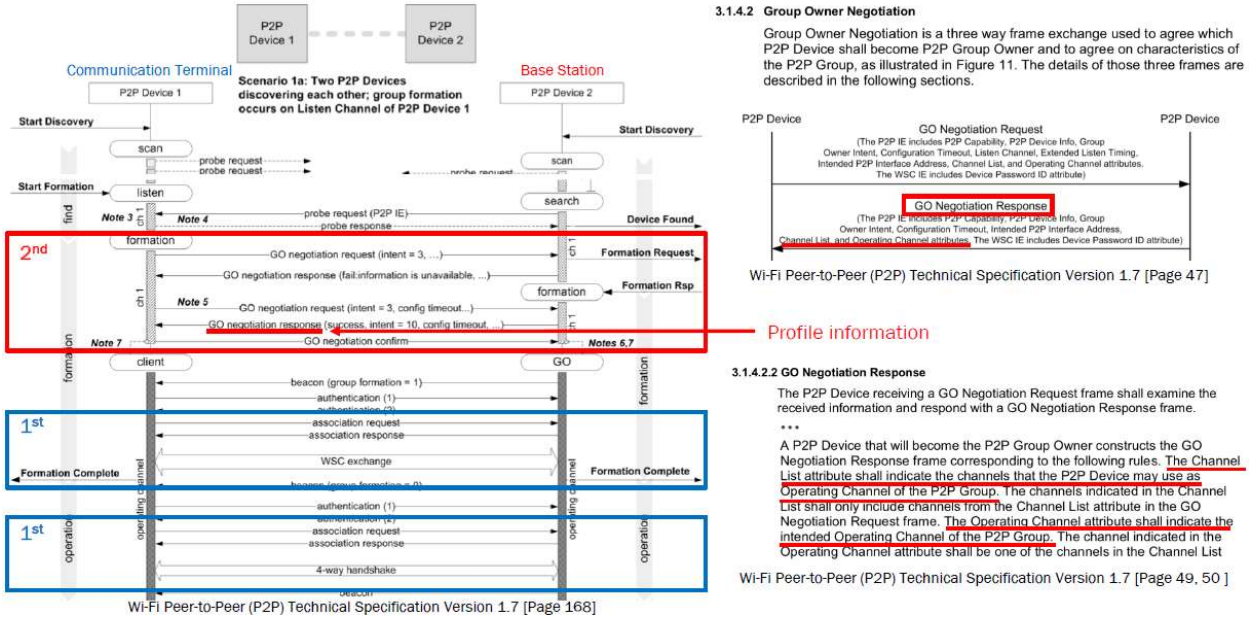
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

158. A Wi-Fi Direct peer device has a second wireless communication section (e.g., P2P portion of Wi-Fi module) that communicates with another Wi-Fi Direct peer device using a second wireless communication method (*e.g.,* P2P protocol described in the "Wi-Fi Peer-to-Peer (P2P) Technical Specification").



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

159. A Wi-Fi Direct peer device receives from another Wi-Fi Direct peer device, via the first method (*e.g.,* P2P) profile information (*e.g.,* operating channel attributes) necessary for the devices to communicate via the second method (*e.g.,* IEEE 802.11).



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 47]

Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 49, 50]

TP-LINK INFRINGES U.S. PATENT NUMBER 9,357,441.

160. The Patent Office issued U.S. Patent No. 9,357,441, titled "Wireless Base Station and Wireless Communication Terminal and Wireless Communication System Base Station Apparatus, Mobile Apparatus, and Communication Method," on May 31, 2016, after a thorough examination and determination that the subject matter claimed is patentable.

161. TP-Link Accused Products with respect to the '441 patent include the TP-Link Wi-Fi adaptors that support Wi-Fi Direct. The Accused Products include at least the Archer T4U, Archer T5UH, Archer T9UH, and TL-WN752N Wi-Fi adaptors that support Wi-Fi Direct:

https://community.tp-link.com/en/home/forum/topic/155889.

162. The Accused Products supports Wi-Fi Direct. In Wi-Fi Direct, one Wi-Fi peer acts as a "communication terminal" and another Wi-Fi Direct peer acts as a "base station."

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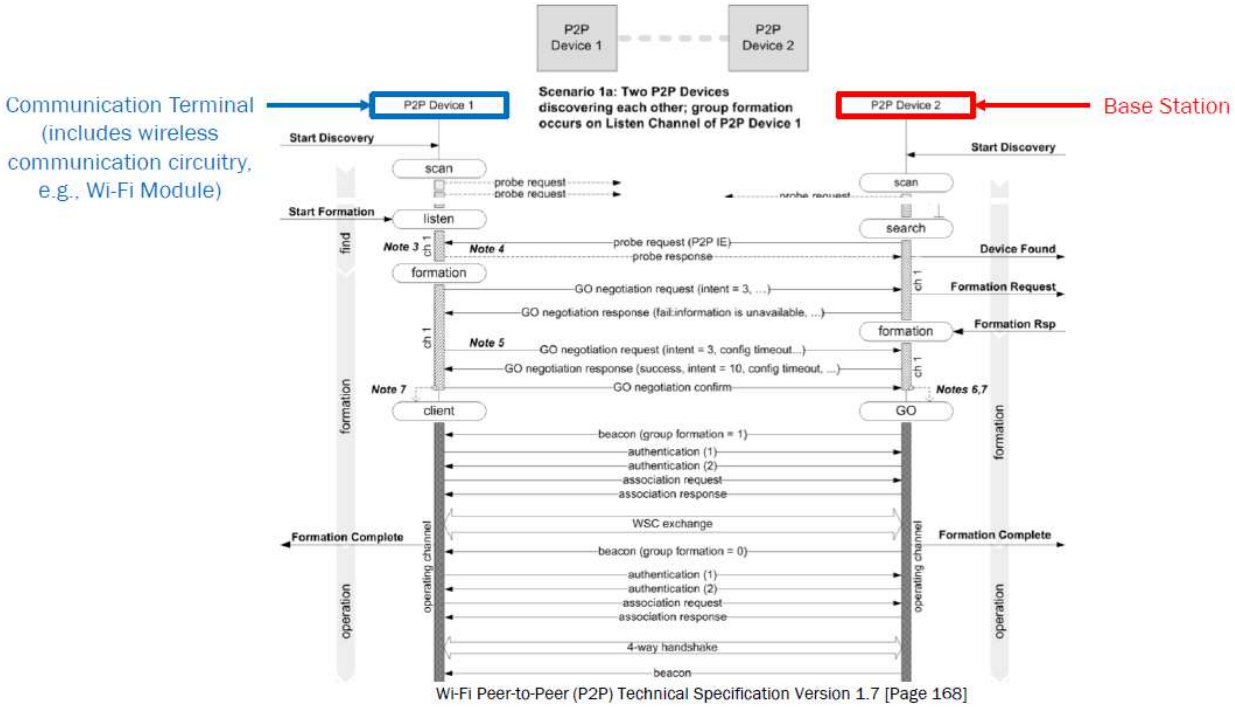
Wi-Fi Direct Peer → **P2P Device**: Wi-Fi P2P device that is capable of acting as both a P2P Group Owner and a P2P Client.

Communication Terminal → **P2P Client**: A P2P Device that is connected to a P2P Group Owner.

Base Station → **P2P Group Owner**: An "AP-like" entity, when not operating within DMG, or PCP, when operating within DMG, that may provide and use connectivity between Clients.

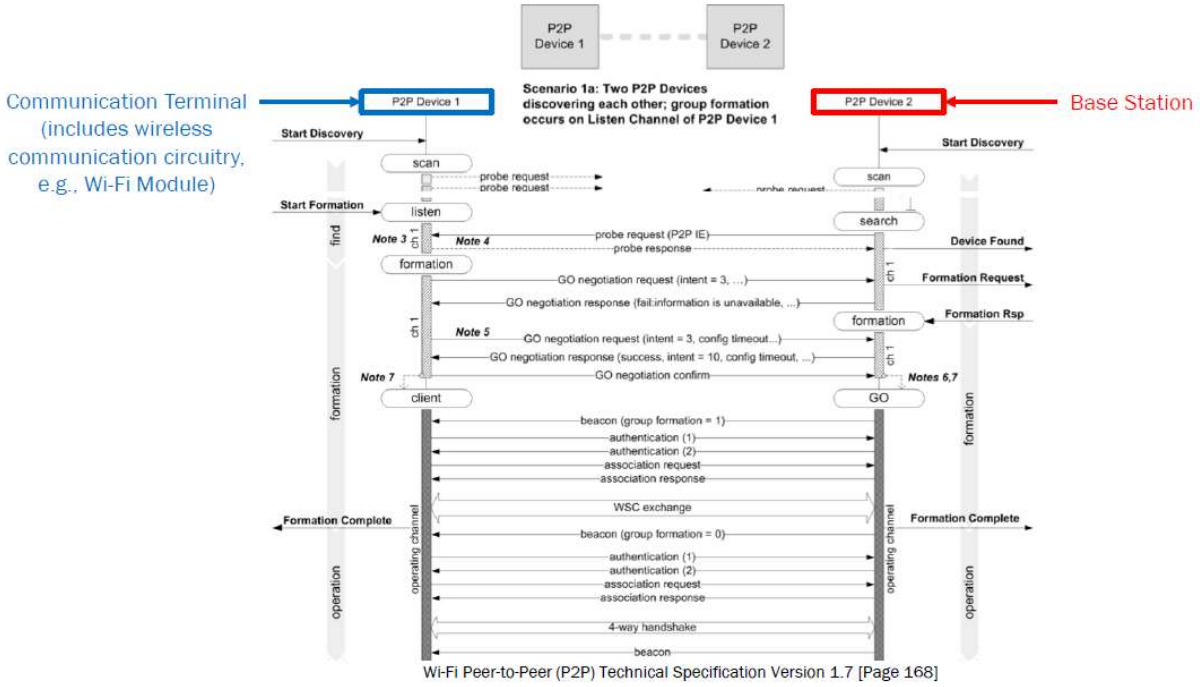
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 14-17].

163. A Wi-Fi Direct peer has wireless communication circuitry (e.g., Wi-Fi module) that communicates with another Wi-Fi Direct peer.

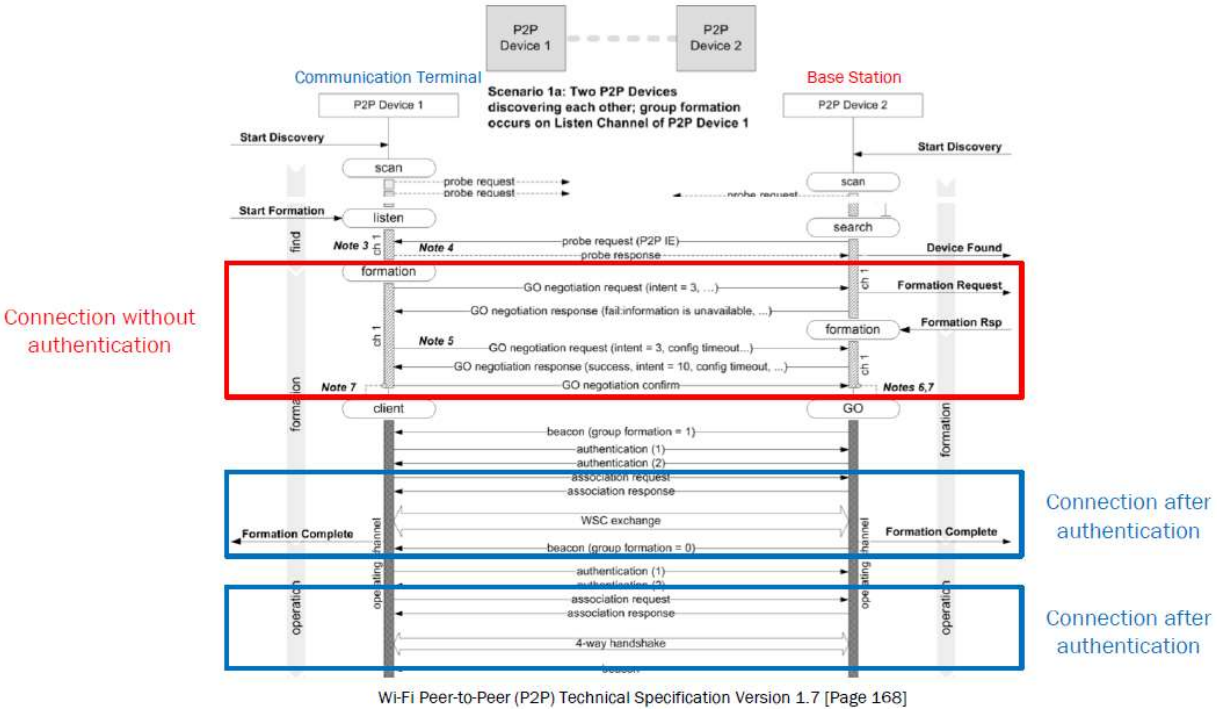


Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

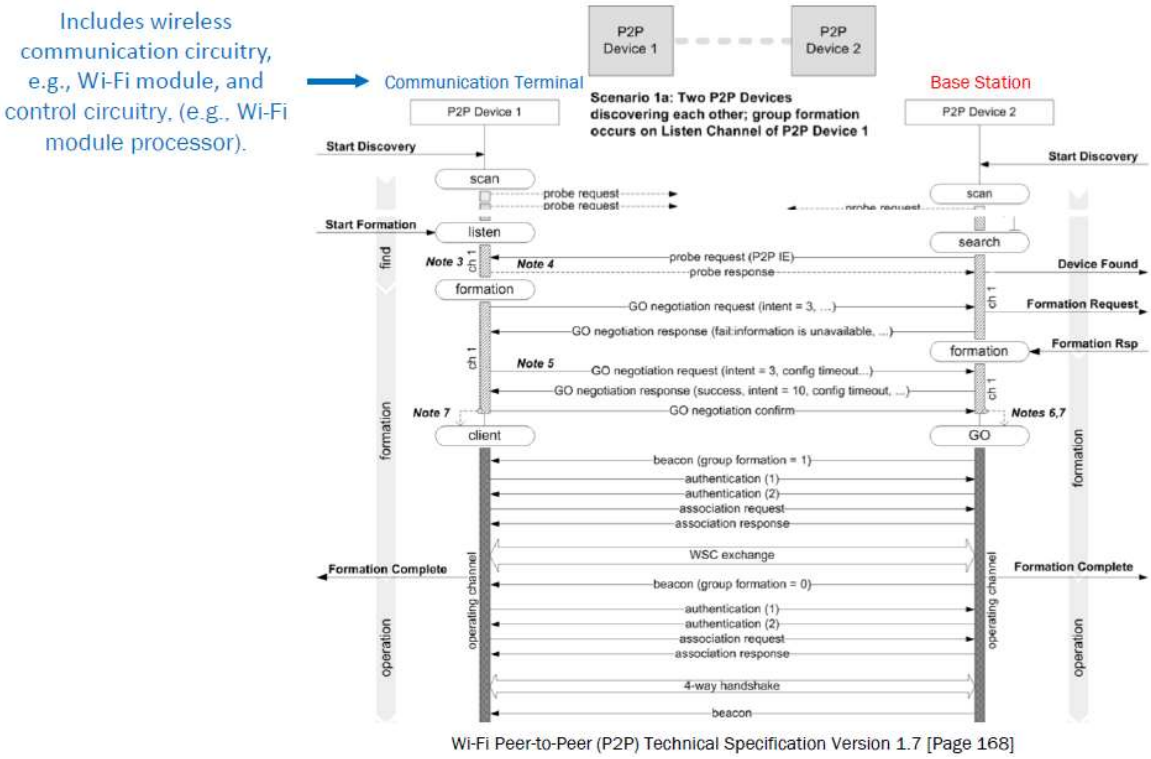
164. A Wi-Fi Direct peer has wireless communication circuitry (*e.g.*, Wi-Fi module) that communicates with another Wi-Fi Direct peer.



165. A Wi-Fi Direct peer device can establish a connection with another Wi-Fi Direct peer device using a connection that does not require authentication or a connection that does not require authentication.

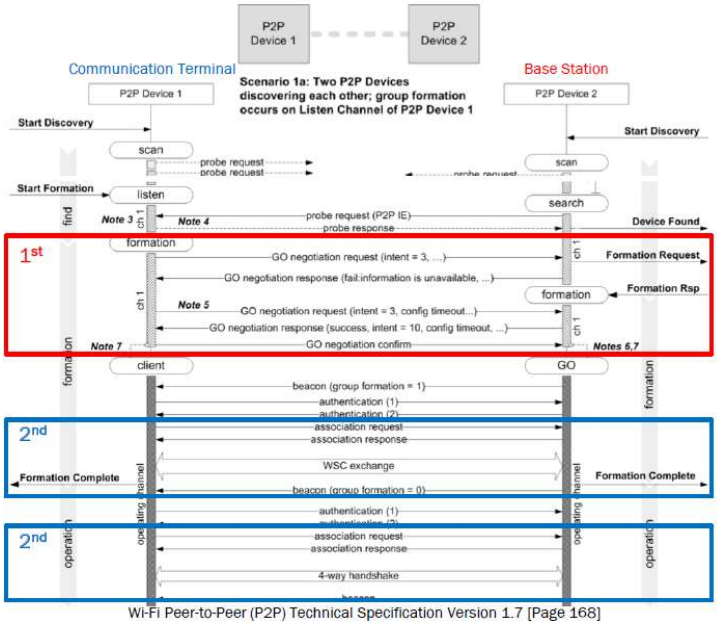


166. A Wi-Fi Direct peer device has control circuitry (*e.g.,* Wi-Fi module processor) that controls the wireless communication circuitry.



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

167. A Wi-Fi Direct peer device receives from another Wi-Fi Direct peer device, via the first method (*e.g.,* P2P) communication channel information (*e.g.,* channel list and operating channel attributes) necessary for the devices to communicate via the second method (*e.g.,* IEEE 802.11).

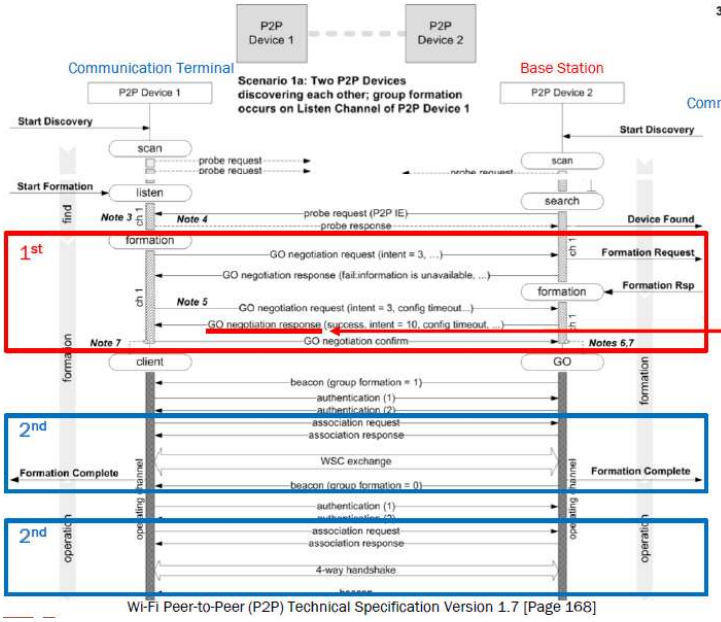


Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

3.2 P2P Group operation

P2P Group operation outside DMG closely resembles infrastructure BSS operation as defined in IEEE 802.11-2012 [1] with the P2P Group Owner assuming the role of the AP and the P2P Client assuming the role of the STA. The similarities and differences between infrastructure BSS and P2P Group operation outside DMG are described in this section.

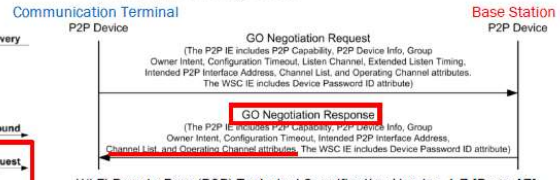
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 58]



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

3.1.4.2 Group Owner Negotiation

Group Owner Negotiation is a three way frame exchange used to agree which P2P Device shall become P2P Group Owner and to agree on characteristics of the P2P Group, as illustrated in Figure 11. The details of those three frames are described in the following sections.



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 47]

3.1.4.2.2 GO Negotiation Response

The P2P Device receiving a GO Negotiation Request frame shall examine the received information and respond with a GO Negotiation Response frame.

* * *

A P2P Device that will become the P2P Group Owner constructs the GO Negotiation Response frame corresponding to the following rules. The Channel List attribute shall indicate the channels that the P2P Device may use as Operating Channel of the P2P Group. The channels indicated in the Channel List shall only include channels from the Channel List attribute in the GO Negotiation Request frame. The Operating Channel attribute shall indicate the intended Operating Channel of the P2P Group. The channel indicated in the Operating Channel attribute shall be one of the channels in the Channel List

Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 49, 50]

TP-LINK INFRINGES U.S. PATENT NUMBER 10,039,144.

168. The Patent Office issued U.S. Patent No. 10,039,144, titled "Wireless Base Station and Wireless Communication Terminal and Wireless Communication System Base Station Apparatus, Mobile Apparatus, and Communication Method," on January 31, 2018, after a thorough examination and determination that the

subject matter claimed is patentable.

169. TP-Link Accused Products with respect to the '144 patent include the TP-Link Wi-Fi adaptors that support Wi-Fi Direct. The Accused Products include at least the Archer T4U, Archer T5UH, Archer T9UH, and TL-WN752N Wi-Fi adaptors that support Wi-Fi Direct:

https://community.tp-link.com/en/home/forum/topic/155889.

170. The Accused Products supports Wi-Fi Direct. In Wi-Fi Direct, one Wi-Fi peer acts as a "communication terminal" and another Wi-Fi Direct peer acts as a "base station."

1.4 Definitions

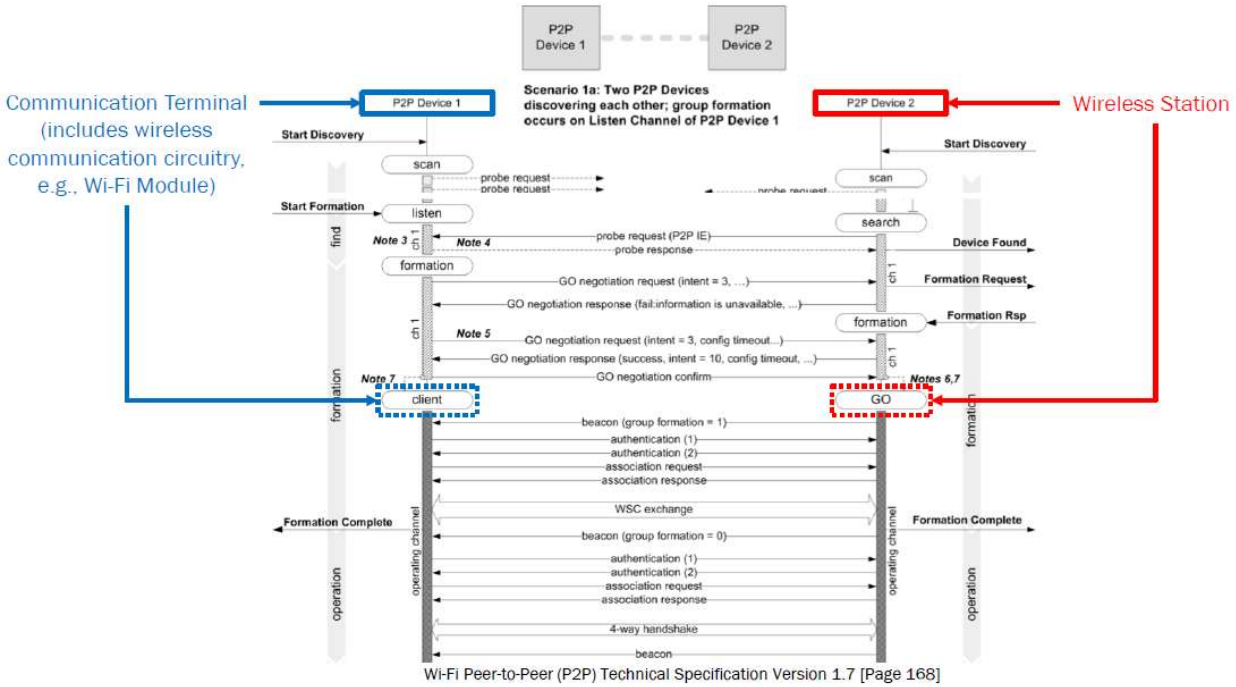
Wi-Fi Direct Peer → **P2P Device**: Wi-Fi P2P device that is capable of acting as both a P2P Group Owner and a P2P Client.

Communication Terminal → **P2P Client**: A P2P Device that is connected to a P2P Group Owner.

Base Station → **P2P Group Owner**: An "AP-like" entity, when not operating within DMG, or PCP, when operating within DMG, that may provide and use connectivity between Clients.

Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 14-17].

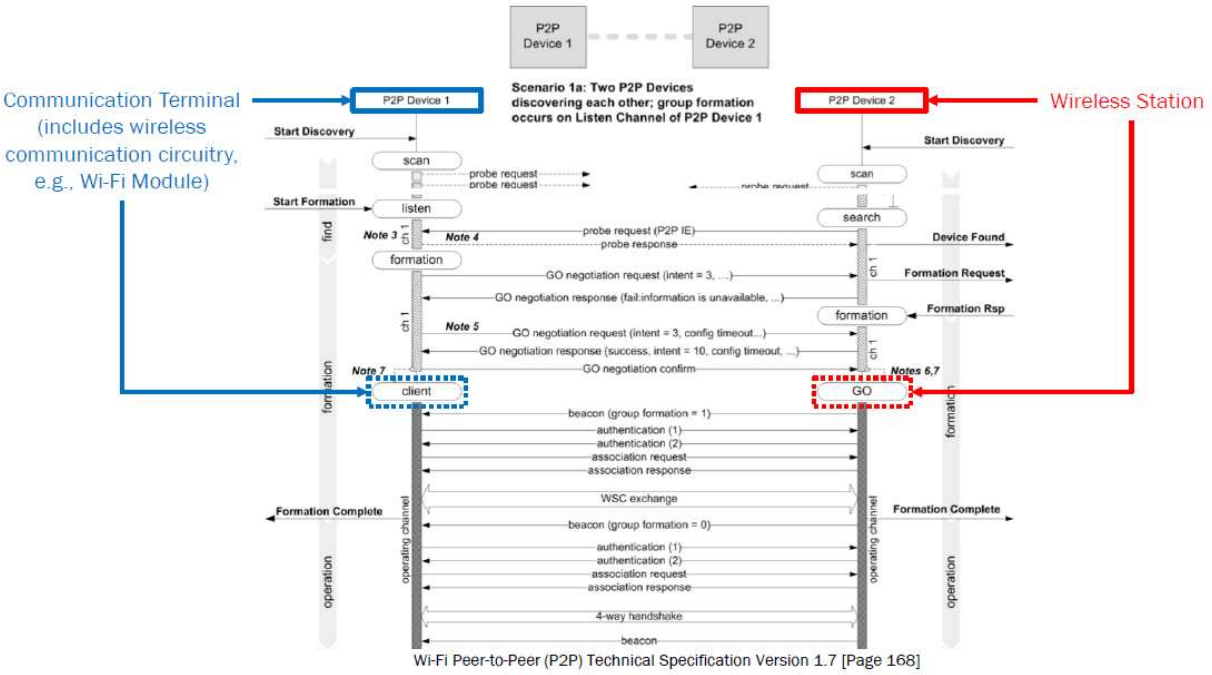
171. A Wi-Fi Direct peer has wireless communication circuitry (e.g., Wi-Fi module) that communicates with another Wi-Fi Direct peer.



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

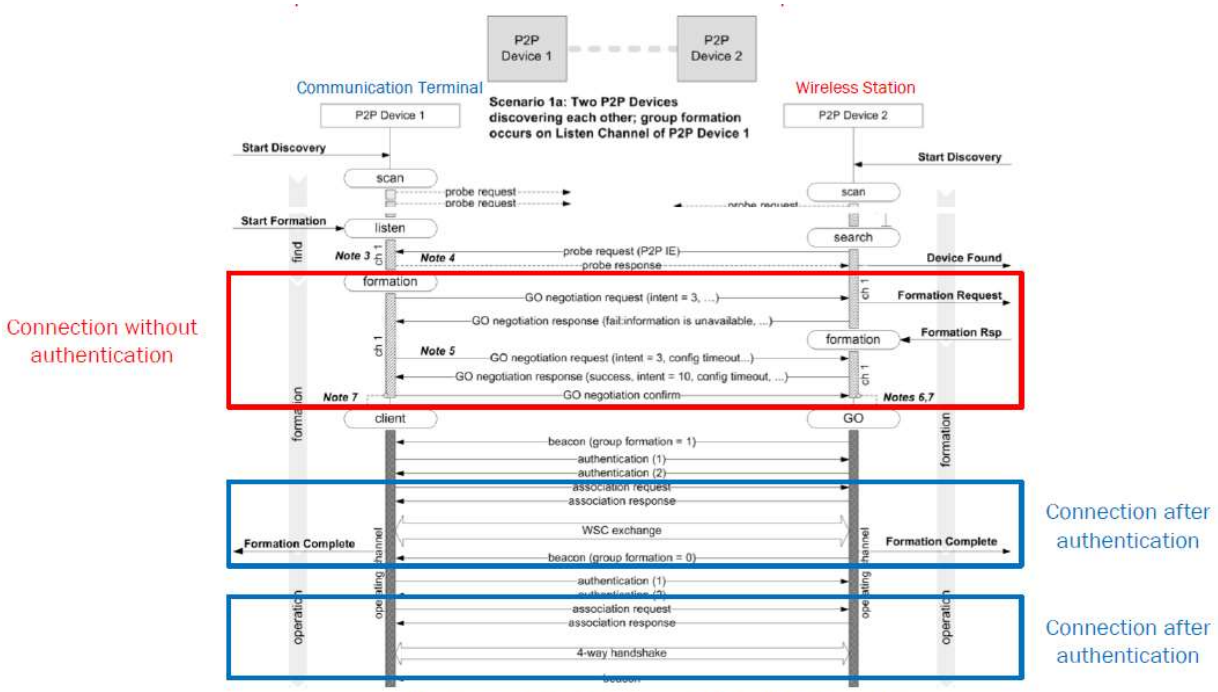
172. A Wi-Fi Direct peer has wireless communication circuitry (*e.g.*, Wi-Fi

module) that communicates with another Wi-Fi Direct peer.



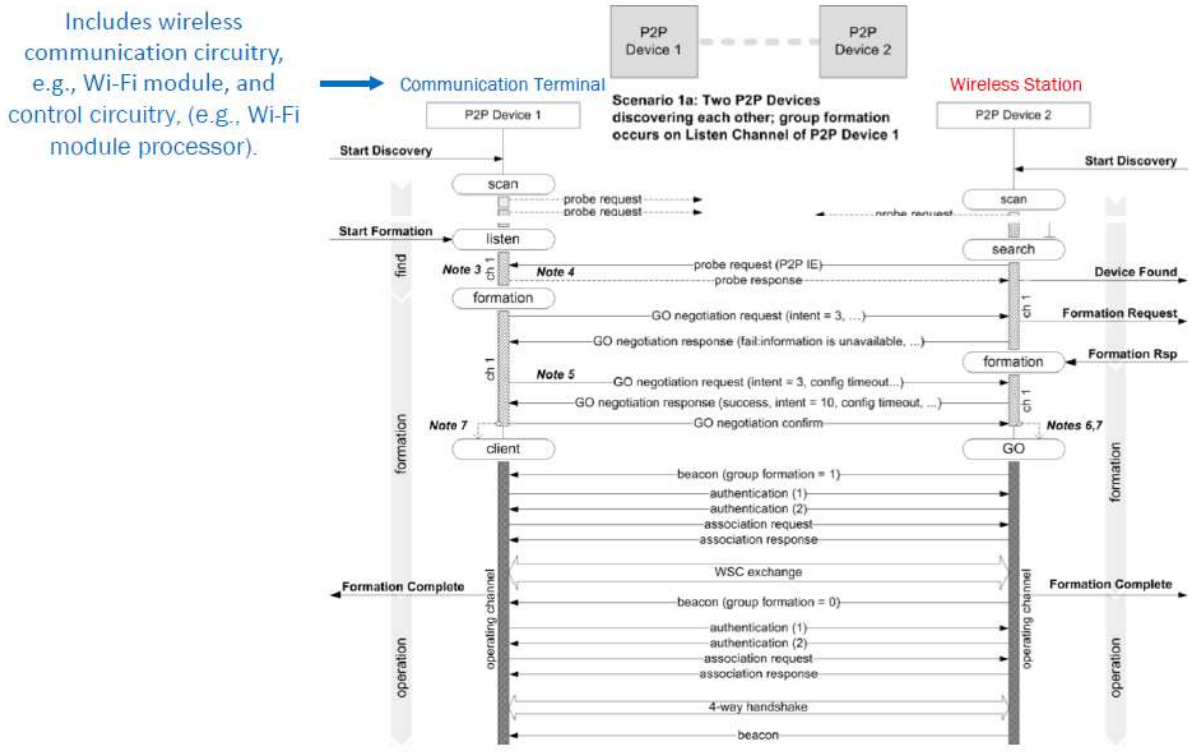
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

173. A Wi-Fi Direct peer device can establish a connection with another Wi-Fi Direct peer device using a connection that does not require authentication or a connection that does not require authentication.



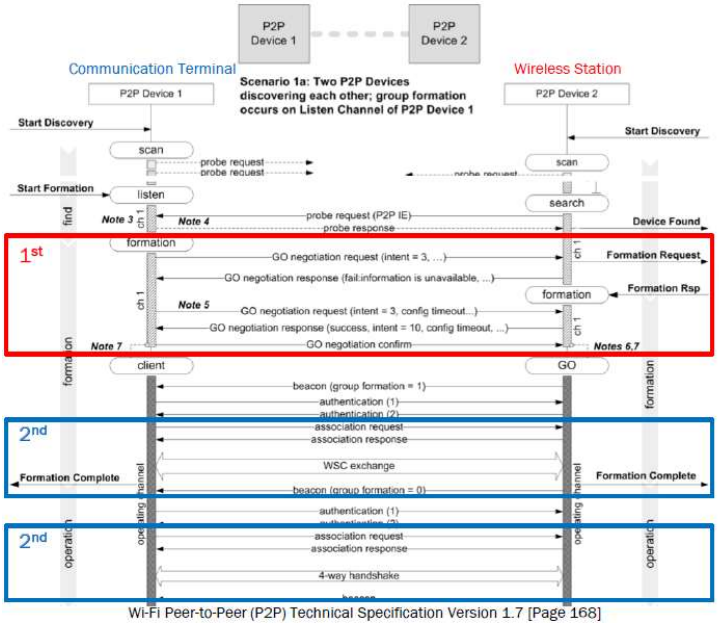
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

174. A Wi-Fi Direct peer device has control circuitry (*e.g.,* Wi-Fi module processor) that controls the wireless communication circuitry.



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

175. A Wi-Fi Direct peer device receives from another Wi-Fi Direct peer device, via the first method (*e.g.,* P2P) profile information (*e.g.,* channel list and operating channel attributes) necessary for the devices to communicate via the second method (*e.g.,* IEEE 802.11).



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

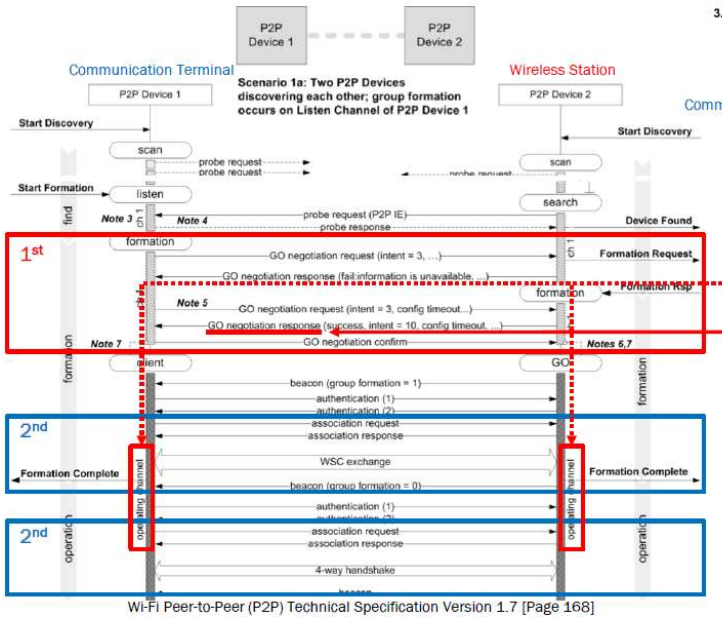
Communication using first method (P2P)

Communication using second method (IEEE 802.11)

3.2 P2P Group operation

P2P Group operation outside DMG closely resembles infrastructure BSS operation as defined in IEEE 802.11-2012 [1] with the P2P Group Owner assuming the role of the AP and the P2P Client assuming the role of the STA. The similarities and differences between infrastructure BSS and P2P Group operation outside DMG are described in this section.

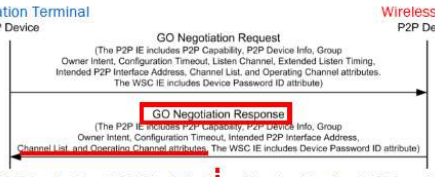
Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 58]



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

3.1.4.2 Group Owner Negotiation

Group Owner Negotiation is a three way frame exchange used to agree which P2P Device shall become P2P Group Owner and to agree on characteristics of the P2P Group, as illustrated in Figure 11. The details of those three frames are described in the following sections.



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 47]

Profile information

3.1.4.2.2 GO Negotiation Response

The P2P Device receiving a GO Negotiation Request frame shall examine the received information and respond with a GO Negotiation Response frame.

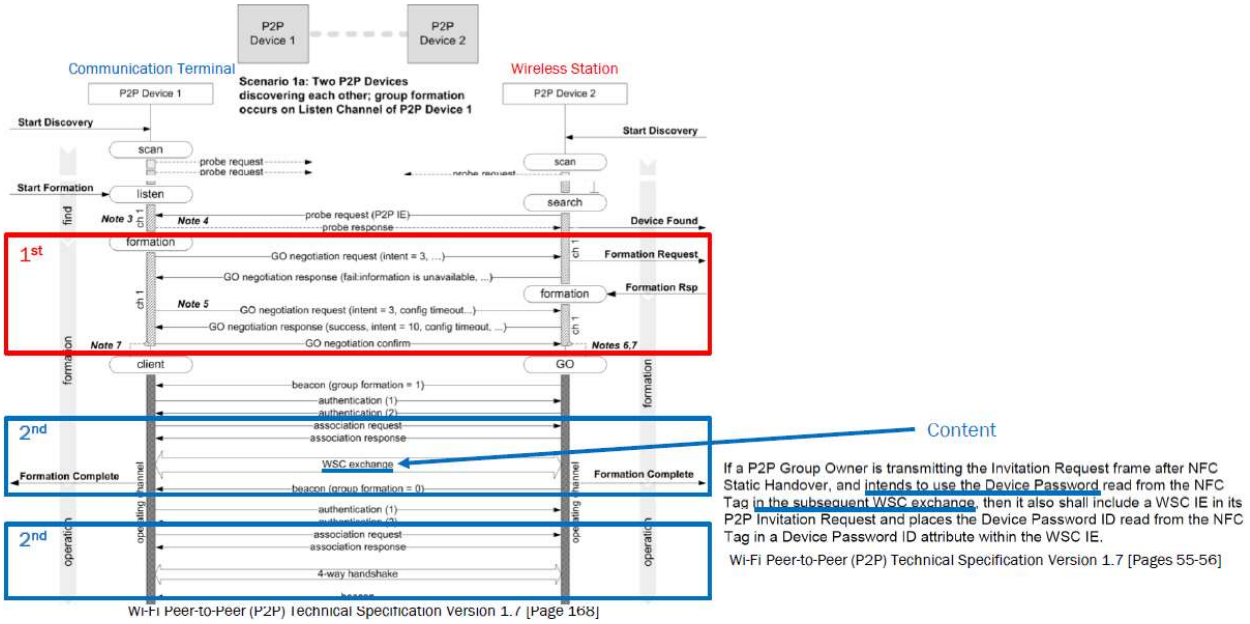
...

A P2P Device that will become the P2P Group Owner constructs the GO Negotiation Response frame corresponding to the following rules. The Channel List attribute shall indicate the channels that the P2P Device may use as Operating Channel of the P2P Group. The channels indicated in the Channel List shall only include channels from the Channel List attribute in the GO Negotiation Request frame. The Operating Channel attribute shall indicate the intended Operating Channel of the P2P Group. The channel indicated in the Operating Channel attribute shall be one of the channels in the Channel List

Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 49, 50]

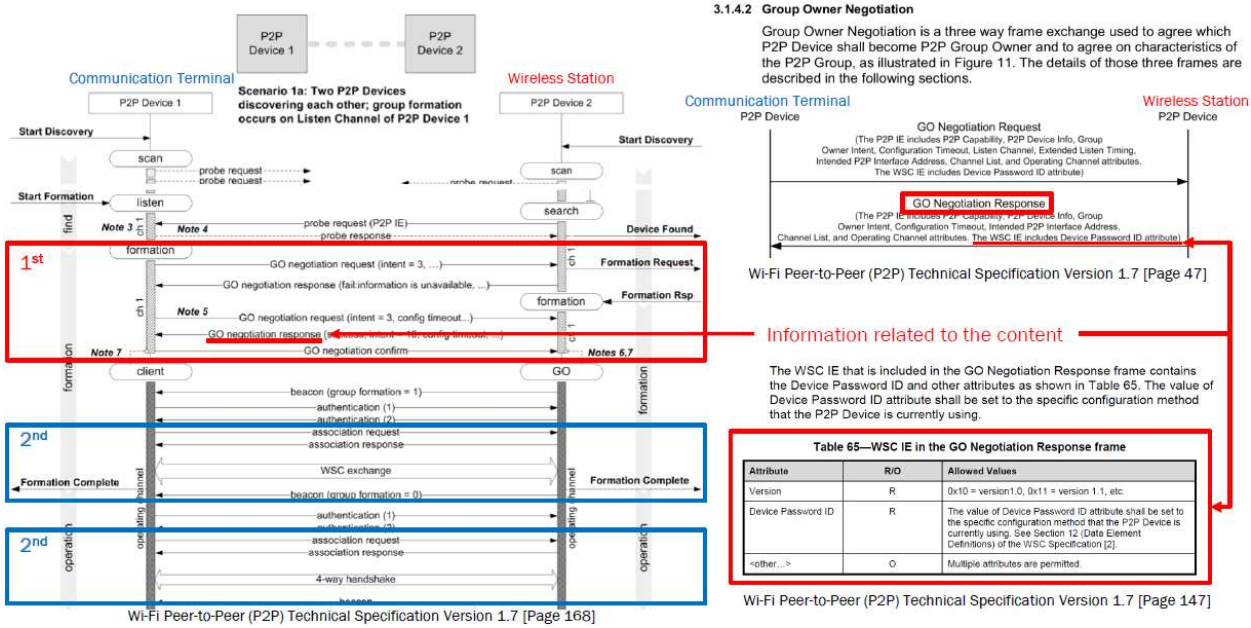
176. A Wi-Fi Direct peer device receives content (*e.g.,* WSC Exchange

data, such as a Device Password) from another Wi-Fi Direct peer device, via the second method (*e.g.,* IEEE 802.11).



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

177. A W-Fi Direct peer device receives information that is related to the content (*e.g.,* WSC IE data, such as a Device Password ID) from another Wi-Fi Direct peer device, via the first method (*e.g.,* P2P).



Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.7 [Page 168]

NATURE OF THE ACTION

178. SPV asserts that TP-Link infringes, directly and indirectly, certain claims of U.S. Patent Nos. 7,796,512, 8,045,531, 8,270,384, 8,902,871, 9,357,441, and 10,039,144 (the "SPV Asserted Patents").

COUNT 1
INFRINGEMENT OF U.S. PATENT NO. 7,779,512

179. SPV realleges and incorporates by reference the allegations set forth above as if restated verbatim here.

180. SPV is the owner, by assignment, of U.S. Patent No. 7,779,512. The '512 Patent was issued by the United States Patent and Trademark Office on September 14, 2010.

181. As the owner of the '512 Patent, SPV holds all substantial rights in and under the '512 Patent, including the right to grant licenses, exclude others, and to enforce, sue, and recover damages for past and future infringement.

182. The '512 Patent is valid, enforceable and was duly issued in full compliance with Title 35 of the United States Code.

183. SPV alleges that TP-Link has infringed, and continues to infringe, the '512 Patent.

184. TP-Link makes, uses, offers to sell, sells, and/or imports products and video monitoring services and products accessible on the TP-Link App, websites, and all other similar products ("TP-Link Accused Products") that infringe the '512

Patent. These products include, without limitation, TP-Link Deco Mesh devices and business EAPs enabled for 802.11k/r. By way of example, specific TP-Link Accused products include:

- 802.11ac Whole Home Mesh Wi Fi 6 System Models AX1800 and AX3000;
- 802.11ac Whole Home Mesh Wi Fi System Model AC1200;
- 802.11ac Smart Home Mesh Wi Fi System Model AC2200;
- 802.11ac Tri Band Mesh Wi Fi 6/6E System Models AX3600, AX6600, AXE5400, and AX5700;
- 802.11ac Dual Band Hybrid Mesh Wi Fi Systems: AC1300 and AV600;
- 802.11ac Whole Home Powerline Mesh Wi Fi System AV1000;
- Deco X20, Deco XE200, Deco W3600, Deco XE75, Deco XE75 Pro, Deco XE5300, Deco X60, Deco X25, Deco X90, Deco X5700, Deco X68, DecoX5400 Pro, DecoX4300 Pro, Deco X3600, Deco W7200, Deco W6000, Deco X50-Outdoor, Deco PX50, Deco X50-PoE, Deco X55, Deco M5, Deco S4, Deco P9, Deco M4, Deco W2400, and Deco E3;

802.11ac Omada EAPs: EAP670, EAP660 HD, EAP650, EAP620 HD, EAP610, EAP265 HD, EAP245, EAP225, EAP115, EAP110, EAP615 Wall, EAP235 Wall, EAP230 Wall, EAP225 Wall, EAP115 Wall, EAP610 Outdoor,

EAP225 Outdoor, EAP110 Outdoor, and EAP653.

185. TP-Link has directly infringed at least claim 1 of the ’512 Patent by using (including its own testing), making, selling, offering for sale, licensing, and/or importing into the United States without authority the TP-Link Accused Products.

186. The TP-Link Accused Products are designed, manufactured, and intended to be used in normal operation to practice the ’512 Patent and feature functionality comprising the steps noted above.

187. TP-Link has used and tested the TP-Link Accused Products in the United States.

188. TP-Link thus has infringed and continues to infringe the ’512 Patent.

189. TP-Link’s activities were without authority of license under the ’512 Patent.

190. TP-Link’s users, customers, agents and/or other third parties (collectively, “third-party infringers”) infringed and continue to infringe the asserted claims including under 35 U.S.C. § 271(a) by using the TP-Link Accused Products according to their normal and intended use.

191. TP-Link has, since at least as early as September 2019, known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products directly infringes the ’512 Patent.

192. TP-Link's knowledge of the '512 Patent, which covers operating the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '512 Patent are met, extends to its knowledge that the third-party infringers' use of the TP-Link Accused Products directly infringes the '512 Patent, or, at the very least, rendered TP-Link willfully blind to such infringement.

193. With knowledge of or willful blindness to the fact that the third-party infringers' use of the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '512 Patent are met directly infringes the '512 Patent, TP-Link has actively encouraged the third-party infringers to directly infringe the '512 Patent by making, using, testing, selling, offering for sale, importing and/or licensing the accused products by, for example: marketing TP-Link's Mesh Units and Access Point 802.11 k/r switching capabilities to the third-party infringers; supporting and managing the third-party infringers' use of the TP-Link 801.11 k/r functionalities; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products such as by, for example, publishing instructional information on the TP-Link websites (including, without limitation, the knowledge center, instructional videos and on the TP-Link branded websites) directing and encouraging third-party infringers how to make and use the 802.11 k/r switching features of the TP-Link Accused Products.

194. TP-Link induces the third-party infringers to infringe the asserted claims of the ’512 Patent by directing or encouraging them to operate the TP-Link Accused Products which satisfy all limitations of the asserted claims of the ’512 Patent. For example, TP-Link advertises and promotes the 802.11 k/r switching features of the TP-Link Accused Products and encourages the third-party infringers to operate them in an infringing manner. TP-Link further provides technical assistance directing and instructing third parties how to operate the TP-Link Accused Products by, for example, publishing instructional materials, videos, knowledge center resources, how-to guides, troubleshooting, manuals, and user guides.

195. In response, the third-party infringers acquire and operate the TP-Link Accused Products in an infringing manner.

196. TP-Link specifically intends to induce, and did induce, the third-party infringers to infringe the asserted claims of the ’512 Patent, and TP-Link knew of or was willfully blind to such infringement. TP-Link advised, encouraged, and/or aided the third-party infringers to engage in direct infringement, including through its encouragement, advice, and assistance to the third-party infringers to use the 802.11 k/r switching features of the TP-Link Accused Products. Having known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products in their intended manner such that all limitations of asserted

claims of the ’512 Patent were met directly infringed the ’512 Patent, TP-Link, upon information and belief, actively encouraged and induced the third-party infringers to directly infringe the ’512 Patent by making, using, testing, selling, offering for sale, importing and/or licensing said TP-Link Accused Products, and by, for example: marketing the TP-Link Accused Products to the third-party infringers; supporting and managing the third-party infringers’ use of the TP-Link Accused Products; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products by, for example, publishing the following instructional information directing third-party infringers how to make and use the TP-Link Accused Products to infringe the asserted claims of the ’512 Patent:

- https://www.tp-link.com/us/support/download/;
- https://www.tp-link.com/us/support/download/deco-x20/;
- https://www.tp-link.com/us/support/emulator/;
- https://emulator.tp-link.com/eap_emulator_660/index.html;
- https://emulator.tp-link.com/eap_emulator_620HD_v3/index.html;
- https://static.tp-link.com/upload/product-overview/2022/202211/20221122/Deco%20W3600(2-pack)(US)%201.0_Datasheet.pdf;
- https://static.tp-

link.com/upload/manual/2021/202111/20211101/1910013097_Deco%20XE75&XE5300%201.0_User%20Guide.pdf;

- https://www.tp-link.com/us/support/download/deco-x60/;
- https://www.tp-link.com/us/support/download/deco-m4/;
- https://www.tp-link.com/us/support/download/deco-m9-plus/;
- https://www.tp-link.com/us/support/download/deco-m9-plus/#FAQs;
- https://www.tp-link.com/us/support/download/deco-x90/;
- https://www.tp-link.com/us/support/download/deco-xe75/;
- https://www.tp-link.com/us/support/download/deco-x5700/;
- https://www.tp-link.com/us/support/download/deco-m5/;
- https://www.tp-link.com/us/support/download/deco-p7/;
- https://static.tp-link.com/2019/201904/20190428/1910012360_Deco%20P7_UG.pdf;
- https://www.tp-link.com/us/support/download/deco-p9/;
- https://www.tp-link.com/us/learning-center/;
- https://community.tp-link.com/us/home/kb;
- https://www.tp-link.com/us/support/faq/;
- https://www.tp-link.com/us/support/setup-video/; and
- www.tp-link.com help documentation, among others.

197. Based upon the foregoing facts, among other things, TP-Link has

induced and continues to induce infringement of the asserted claims of the ’512 Patent under 35 U.S.C. § 271(b).

198. TP-Link has sold, provided and/or licensed to the third-party infringers and continues to sell, provide and/or license the TP-Link Accused Products that are especially made and adapted—and specifically intended by TP-Link—to be used as components and material parts of the inventions covered by the ’512 Patent. For example, the TP-Link Accused Products include 802.11 k/r switching features identified above which the third-party infringers used in a manner such that all limitations of the asserted claims are met, and without which the third-party infringers would have been unable to use and avail themselves of the intended functionality of the accused products.

199. TP-Link also knew that the accused products are operated in a manner that practices each asserted claim of the ’512 Patent.

200. The 802.11 k/r switching features are specially made and adapted to infringe the asserted claims of the ’512 Patent.

201. The 802.11 k/r switching features are not a staple article or commodity of commerce, and, because the functionality was designed to work with the TP-Link Accused Products solely in a manner that is covered by the ’512 Patent, it has no substantial non-infringing use. At least by SPV’s notice of TP-Link’s infringement, based upon the foregoing facts, TP-Link knew of or was

willfully blind to the fact that such functionality was especially made and adapted for—and was in fact used in—the accused products in a manner that is covered by the '512 Patent.

202. Based upon the foregoing facts, among other things, TP-Link has contributorily infringed and continues to contributorily infringe the asserted claims of the '512 Patent under 35 U.S.C. § 271(c).

203. Upon information and belief, TP-Links' acts of infringement of the '512 Patent continue since notice and since this complaint was filed and are, therefore, carried out with knowledge of the asserted claims of the '512 Patent and how the TP-Link Accused Products infringe them. Rather than take a license to the '512 Patent, TP-Link's ongoing infringing conduct reflects a business decision to "efficiently infringe" the asserted claims and in doing so constitutes willful infringement under the standard of *Halo Elecs., Inc. v. Pulse Elecs., Inc*., 136 S. Ct. 1923 (2016).

204. TP-Link's acts of direct and indirect infringement have caused and continue to cause damage to SPV for which SPV is entitled to recover damages sustained as a result of TP-Link's infringing acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court, pursuant to 35 U.S.C. § 284.

COUNT 2
INFRINGEMENT OF U.S. PATENT NO. 8,045,531

205. SPV realleges and incorporates by reference the allegations set forth above as if restated verbatim here.

206. SPV is the owner, by assignment, of U.S. Patent No. 8,045,531. The '512 Patent was issued by the United States Patent and Trademark Office on October 25, 2011.

207. As the owner of the '531 Patent, SPV holds all substantial rights in and under the '531 Patent, including the right to grant licenses, exclude others, and to enforce, sue, and recover damages for past and future infringement.

208. The '531 Patent is valid, enforceable and was duly issued in full compliance with Title 35 of the United States Code.

209. SPV alleges that TP-Link has infringed, and continues to infringe, the '531 Patent.

210. TP-Link makes, uses, offers to sell, sells, and/or imports products and video monitoring services and products accessible on the TP-Link App, websites, and all other similar products ("TP-Link Accused Products") that infringe the '531 Patent. These products include, without limitation, TP-Link Omada WiFI system comprising, by way of example, TP-Link Omada OC200 and OC300 controller devices that interface with TP-Link Omada APs to provide WLAN service. Accused TP-Link WiFi Systems also comprise one or more Omada APs (WAPs)

managed by an Omada Controller including, without limitation, Omada APs identified at https://www.tp link.com/us/business networking/all omada/#omada-acces-points such as TP-Link Access Points Models EAP660 HD, EAP620 HD, EAP610, EAP265 HD, EAP245, EAP225, EAP115, EAP110, EAP615 Wall, EAP235 Wall, EAP230 Wall, EAP225 Wall, EAP115 Wall, EAP225 Outdoor, EAP110 Outdoor, and EAP 653. Additional TP-Link Accused Products with respect to the '531 patent include the TP-Link Systems featuring TP-Link APs and TP-Link access controllers (ACs including, for example, TP-Link AC50 and AC500 wireless controllers) that support configuration using the CAPWAP protocol to provide service in a WLAN.

211. TP-Link has directly infringed at least claim 1 of the '531 Patent by using (including its own testing), making, selling, offering for sale, licensing, and/or importing into the United States without authority the TP-Link Accused Products.

212. The TP-Link Accused Products are designed, manufactured, and intended to be used in normal operation to practice the '531 Patent and feature functionality comprising the steps noted above.

213. TP-Link has used and tested the TP-Link Accused Products in the United States.

214. TP-Link thus has infringed and continues to infringe the '531 Patent.

215. TP-Link's activities were without authority of license under the '531 Patent.

216. TP-Link's users, customers, agents and/or other third parties (collectively, "third-party infringers") infringed and continue to infringe the asserted claims including under 35 U.S.C. § 271(a) by using the TP-Link Accused Products according to their normal and intended use.

217. TP-Link has, since at least as early as September 2019, known or been willfully blind to the fact that the third-party infringers' use of the TP-Link Accused Products directly infringes the '531 Patent.

218. TP-Link's knowledge of the '531 Patent, which covers operating the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '531 Patent are met, extends to its knowledge that the third-party infringers' use of the TP-Link Accused Products directly infringes the '531 Patent, or, at the very least, rendered TP-Link willfully blind to such infringement.

219. With knowledge of or willful blindness to the fact that the third-party infringers' use of the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '512 Patent are met directly infringes the '512 Patent, TP-Link has actively encouraged the third-party infringers to directly infringe the '512 Patent by making, using, testing, selling, offering for sale, importing and/or licensing the accused products by, for example: marketing

TP-Link's Devices capabilities to the third-party infringers; supporting and managing the third-party infringers' use of the TP-Link wireless functionalities; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products such as by, for example, publishing instructional information on the TP-Link websites (including, without limitation, the knowledge center, instructional videos and on the TP-Link branded websites) directing and encouraging third-party infringers how to make and use the wireless features of the TP-Link Accused Products.

220. TP-Link induces the third-party infringers to infringe the asserted claims of the '531 Patent by directing or encouraging them to operate the TP-Link Accused Products which satisfy all limitations of the asserted claims of the '531 Patent. For example, TP-Link advertises and promotes the wireless features of the TP-Link Accused Products and encourages the third-party infringers to operate them in an infringing manner. TP-Link further provides technical assistance directing and instructing third parties how to operate the TP-Link Accused Products by, for example, publishing instructional materials, videos, knowledge center resources, how-to guides, troubleshooting, manuals, and user guides.

221. In response, the third-party infringers acquire and operate the TP-Link Accused Products in an infringing manner.

222. TP-Link specifically intends to induce, and did induce, the third-party

infringers to infringe the asserted claims of the ’531 Patent, and TP-Link knew of or was willfully blind to such infringement. TP-Link advised, encouraged, and/or aided the third-party infringers to engage in direct infringement, including through its encouragement, advice, and assistance to the third-party infringers to use the wireless features of the TP-Link Accused Products. Having known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products in their intended manner such that all limitations of asserted claims of the ’531 Patent were met directly infringed the ’531 Patent, TP-Link, upon information and belief, actively encouraged and induced the third-party infringers to directly infringe the ’531 Patent by making, using, testing, selling, offering for sale, importing and/or licensing said TP-Link Accused Products, and by, for example: marketing the TP-Link Accused Products to the third-party infringers; supporting and managing the third-party infringers’ use of the TP-Link Accused Products; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products by, for example, publishing the following instructional information directing third-party infringers how to make and use the TP-Link Accused Products to infringe the asserted claims of the ’531 Patent:

- https://www.tp-link.com/us/support/download/;
- https://www.tp-link.com/us/support/download/oc200/;

- https://www.tp-link.com/us/support/download/oc300/;
- https://www.tp-link.com/us/support/emulator/;
- https://emulator.tp-link.com/oc200/index.html#statistics;
- https://emulator.tp-link.com/omada-sdn-controller-v4.3/index.html#dashboard;
- https://emulator.tp-link.com/EmulatorV5.0/index.html);
- https://static.tp-link.com/product-overview/2021/202107/20210719/Controller%20Datasheet.pdf;
- https://static.tp-link.com/upload/manual/2022/202208/20220819/1910013217_Omada%20SDN%20Controller_User%20Guide_REV5.4.0.pdf;
- https://www.tp-link.com/us/support/download/eap660-hd/;
- https://www.tp-link.com/us/support/download/eap620-hd/;
- https://www.tp-link.com/us/support/download/eap650/;
- https://www.tp-link.com/us/support/download/eap610/;
- https://www.tp-link.com/us/support/download/eap265-hd/;
- https://www.tp-link.com/us/support/download/eap245/;
- https://www.tp-link.com/us/support/download/eap115/;
- https://www.tp-link.com/us/support/download/eap225-outdoor/;
- https://www.tp-link.com/us/support/download/eap110-outdoor/;

- https://www.tp-link.com/us/support/download/eap670/;
- https://www.tp-link.com/us/support/download/eap615-wall/;
- https://www.tp-link.com/us/support/download/eap235-wall/;
- https://www.tp-link.com/us/support/download/eap225-wall/;
- https://www.tp-link.com/us/support/download/eap653/;
- https://www.tp-link.com/us/support/download/eap610-outdoor/;
- https://www.tp-link.com/us/support/download/eap225/;
- https://www.tp-link.com/us/support/download/eap110/;
- https://www.tp-link.com/us/learning-center/;
- https://community.tp-link.com/us/home/kb;
- https://www.tp-link.com/us/support/faq/;
- https://www.tp-link.com/us/support/setup-video/; and
- www.tp-link.com help documentation, among others.

223. Based upon the foregoing facts, among other things, TP-Link has induced and continues to induce infringement of the asserted claims of the '531 Patent under 35 U.S.C. § 271(b).

224. TP-Link has sold, provided and/or licensed to the third-party infringers and continues to sell, provide and/or license the TP-Link Accused Products that are especially made and adapted—and specifically intended by TP-Link—to be used as components and material parts of the inventions covered by

the ’531 Patent. For example, the TP-Link Accused Products include wireless features identified above which the third-party infringers used in a manner such that all limitations of the asserted claims are met, and without which the third-party infringers would have been unable to use and avail themselves of the intended functionality of the accused products.

225. TP-Link also knew that the accused products are operated in a manner that practices each asserted claim of the ’531 Patent.

226. The wireless features are specially made and adapted to infringe the asserted claims of the ’531 Patent.

227. The wireless features are not a staple article or commodity of commerce, and, because the functionality was designed to work with the TP-Link Accused Products solely in a manner that is covered by the ’531 Patent, it has no substantial non-infringing use. At least by SPV’s notice of TP-Link’s infringement, based upon the foregoing facts, TP-Link knew of or was willfully blind to the fact that such functionality was especially made and adapted for—and was in fact used in—the accused products in a manner that is covered by the ’531 Patent.

228. Based upon the foregoing facts, among other things, TP-Link has contributorily infringed and continues to contributorily infringe the asserted claims of the ’531 Patent under 35 U.S.C. § 271(c).

229. Upon information and belief, TP-Links’ acts of infringement of the

'531 Patent continue since notice and since this complaint was filed and are, therefore, carried out with knowledge of the asserted claims of the '531 Patent and how the TP-Link Accused Products infringe them. Rather than take a license to the '531 Patent, TP-Link's ongoing infringing conduct reflects a business decision to "efficiently infringe" the asserted claims and in doing so constitutes willful infringement under the standard of *Halo Elecs., Inc. v. Pulse Elecs., Inc*., 136 S. Ct. 1923 (2016).

230. TP-Link's acts of direct and indirect infringement have caused and continue to cause damage to SPV for which SPV is entitled to recover damages sustained as a result of TP-Link's infringing acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court, pursuant to 35 U.S.C. § 284.

COUNT 3
INFRINGEMENT OF U.S. PATENT NO. 8,270,384

231. SPV realleges and incorporates by reference the allegations set forth above as if restated verbatim here.

232. SPV is the owner, by assignment, of U.S. Patent No. 8,270,384. The '384 Patent was issued by the United States Patent and Trademark Office on September 18, 2012.

233. As the owner of the '384 Patent, SPV holds all substantial rights in and under the '384 Patent, including the right to grant licenses, exclude others, and

to enforce, sue, and recover damages for past and future infringement.

234. The ’384 Patent is valid, enforceable and was duly issued in full compliance with Title 35 of the United States Code.

235. SPV alleges that TP-Link has infringed, and continues to infringe, the ’384 Patent.

236. TP-Link makes, uses, offers to sell, sells, and/or imports products and video monitoring services and products accessible on the TP-Link App, websites, and all other similar products (“TP-Link Accused Products”) that infringe the ’384 Patent. These products include, without limitation, TP-Link Omada WiFI system comprising, by way of example, TP-Link Omada OC200 and OC300 controller devices that interface with TP-Link Omada APs to provide WLAN service. Accused TP-Link WiFi Systems also comprise Omada Software Defined Networking (SDN) and comprise one or more Omada APs (WAPs) managed by an Omada Controller including, without limitation, Omada APs identified at https://www.tp link.com/us/business networking/all omada/#omada-acces-points such as TP-Link Access Points Models EAP660 HD, EAP620 HD, EAP610, EAP265 HD, EAP245, EAP225, EAP115, EAP110, EAP615 Wall, EAP235 Wall, EAP230 Wall, EAP225 Wall, EAP115 Wall, EAP225 Outdoor, EAP110 Outdoor, and EAP653. TP-Link Accused Products also include TP Link access points (AP) that support configuration using the CAPWAP protocol to provide service in a

WLAN, including CAP300/CAP1200/CAP1750 and CAP 300-Outdoor.

237. TP-Link has directly infringed at least claim 1 of the ’384 Patent by using (including its own testing), making, selling, offering for sale, licensing, and/or importing into the United States without authority the TP-Link Accused Products.

238. The TP-Link Accused Products are designed, manufactured, and intended to be used in normal operation to practice the ’384 Patent and feature functionality comprising the steps noted above.

239. TP-Link has used and tested the TP-Link Accused Products in the United States.

240. TP-Link thus has infringed and continues to infringe the ’384 Patent.

241. TP-Link’s activities were without authority of license under the ’384 Patent.

242. TP-Link’s users, customers, agents and/or other third parties (collectively, “third-party infringers”) infringed and continue to infringe the asserted claims including under 35 U.S.C. § 271(a) by using the TP-Link Accused Products according to their normal and intended use.

243. TP-Link has, since at least as early as September 2019, known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products directly infringes the ’384 Patent.

244. TP-Link's knowledge of the '384 Patent, which covers operating the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '384 Patent are met, extends to its knowledge that the third-party infringers' use of the TP-Link Accused Products directly infringes the '384 Patent, or, at the very least, rendered TP-Link willfully blind to such infringement.

245. With knowledge of or willful blindness to the fact that the third-party infringers' use of the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '384 Patent are met directly infringes the '384 Patent, TP-Link has actively encouraged the third-party infringers to directly infringe the '384 Patent by making, using, testing, selling, offering for sale, importing and/or licensing the accused products by, for example: marketing TP-Link's Devices capabilities to the third-party infringers; supporting and managing the third-party infringers' use of the TP-Link wireless functionalities; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products such as by, for example, publishing instructional information on the TP-Link websites (including, without limitation, the knowledge center, instructional videos and on the TP-Link branded website) directing and encouraging third-party infringers how to make and use the wireless features of the TP-Link Accused Products.

246. TP-Link induces the third-party infringers to infringe the asserted

claims of the ’384 Patent by directing or encouraging them to operate the TP-Link Accused Products which satisfy all limitations of the asserted claims of the ’384 Patent. For example, TP-Link advertises and promotes the wireless features of the TP-Link Accused Products and encourages the third-party infringers to operate them in an infringing manner. TP-Link further provides technical assistance directing and instructing third parties how to operate the TP-Link Accused Products by, for example, publishing instructional materials, videos, knowledge center resources, how-to guides, troubleshooting, manuals, and user guides.

247. In response, the third-party infringers acquire and operate the TP-Link Accused Products in an infringing manner.

248. TP-Link specifically intends to induce, and did induce, the third-party infringers to infringe the asserted claims of the ’384 Patent, and TP-Link knew of or was willfully blind to such infringement. TP-Link advised, encouraged, and/or aided the third-party infringers to engage in direct infringement, including through its encouragement, advice, and assistance to the third-party infringers to use the wireless features of the TP-Link Accused Products. Having known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products in their intended manner such that all limitations of asserted claims of the ’384 Patent were met directly infringed the ’384 Patent, TP-Link, upon information and belief, actively encouraged and induced the third-party

infringers to directly infringe the ’384 Patent by making, using, testing, selling, offering for sale, importing and/or licensing said TP-Link Accused Products, and by, for example: marketing the TP-Link Accused Products to the third-party infringers; supporting and managing the third-party infringers’ use of the TP-Link Accused Products; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products by, for example, publishing the following instructional information directing third-party infringers how to make and use the TP-Link Accused Products to infringe the asserted claims of the ’384 Patent:

- https://www.tp-link.com/us/support/download/;
- https://www.tp-link.com/us/support/download/oc200/;
- https://www.tp-link.com/us/support/download/oc300/;
- https://www.tp-link.com/us/support/emulator/;
- https://emulator.tp-link.com/oc200/index.html#statistics;
- https://emulator.tp-link.com/omada-sdn-controller-v4.3/index.html#dashboard;
- https://emulator.tp-link.com/EmulatorV5.0/index.html); https://emulator.tp-link.com/eap_emulator_660/index.html;
- https://emulator.tp-link.com/eap_emulator_620HD_v3/index.html;
- https://static.tp-link.com/product-

overview/2021/202107/20210719/Controller%20Datasheet.pdf;

- https://static.tp-link.com/upload/manual/2022/202208/20220819/1910013217_Omada%20SDN%20Controller_User%20Guide_REV5.4.0.pdf;
- https://www.tp-link.com/us/support/download/eap660-hd/;
- https://www.tp-link.com/us/support/download/eap620-hd/;
- https://www.tp-link.com/us/support/download/eap650/;
- https://www.tp-link.com/us/support/download/eap610/;
- https://www.tp-link.com/us/support/download/eap265-hd/;
- https://www.tp-link.com/us/support/download/eap245/;
- https://www.tp-link.com/us/support/download/eap115/;
- https://www.tp-link.com/us/support/download/eap225-outdoor/;
- https://www.tp-link.com/us/support/download/eap110-outdoor/;
- https://www.tp-link.com/us/support/download/eap670/;
- https://www.tp-link.com/us/support/download/eap615-wall/;
- https://www.tp-link.com/us/support/download/eap235-wall/;
- https://www.tp-link.com/us/support/download/eap225-wall/;
- https://www.tp-link.com/us/support/download/eap653/;
- https://www.tp-link.com/us/support/download/eap610-outdoor/;
- https://www.tp-link.com/us/support/download/eap225/;

- https://www.tp-link.com/us/support/download/eap110/;
- https://www.tp-link.com/us/learning-center/;
- https://community.tp-link.com/us/home/kb;
- https://www.tp-link.com/us/support/faq/;
- https://www.tp-link.com/us/support/setup-video/; and
- www.tp-link.com help documentation, among others.

249. Based upon the foregoing facts, among other things, TP-Link has induced and continues to induce infringement of the asserted claims of the '384 Patent under 35 U.S.C. § 271(b).

250. TP-Link has sold, provided and/or licensed to the third-party infringers and continues to sell, provide and/or license the TP-Link Accused Products that are especially made and adapted—and specifically intended by TP-Link—to be used as components and material parts of the inventions covered by the '384 Patent. For example, the TP-Link Accused Products include wireless features identified above which the third-party infringers used in a manner such that all limitations of the asserted claims are met, and without which the third-party infringers would have been unable to use and avail themselves of the intended functionality of the accused products.

251. TP-Link also knew that the accused products are operated in a manner that practices each asserted claim of the '384 Patent.

252. The wireless features are specially made and adapted to infringe the asserted claims of the ’384 Patent.

253. The wireless features are not a staple article or commodity of commerce, and, because the functionality was designed to work with the TP-Link Accused Products solely in a manner that is covered by the ’384 Patent, it has no substantial non-infringing use. At least by SPV’s notice of TP-Link’s infringement, based upon the foregoing facts, TP-Link knew of or was willfully blind to the fact that such functionality was especially made and adapted for—and was in fact used in—the accused products in a manner that is covered by the ’384 Patent.

254. Based upon the foregoing facts, among other things, TP-Link has contributorily infringed and continues to contributorily infringe the asserted claims of the ’384 Patent under 35 U.S.C. § 271(c).

255. Upon information and belief, TP-Links’ acts of infringement of the ’384 Patent continue since notice and since this complaint was filed and are, therefore, carried out with knowledge of the asserted claims of the ’384 Patent and how the TP-Link Accused Products infringe them. Rather than take a license to the ’384 Patent, TP-Link’s ongoing infringing conduct reflects a business decision to “efficiently infringe” the asserted claims and in doing so constitutes willful infringement under the standard of *Halo Elecs., Inc. v. Pulse Elecs., Inc*., 136 S. Ct. 1923 (2016).

256. TP-Link's acts of direct and indirect infringement have caused and continue to cause damage to SPV for which SPV is entitled to recover damages sustained as a result of TP-Link's infringing acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court, pursuant to 35 U.S.C. § 284.

COUNT 4
INFRINGEMENT OF U.S. PATENT NO. 8,902,871

257. SPV realleges and incorporates by reference the allegations set forth above as if restated verbatim here.

258. SPV is the owner, by assignment, of U.S. Patent No. 8,902,871. The '871 Patent was issued by the United States Patent and Trademark Office on December 2, 2014.

259. As the owner of the '871 Patent, SPV holds all substantial rights in and under the '871 Patent, including the right to grant licenses, exclude others, and to enforce, sue, and recover damages for past and future infringement.

260. The '871 Patent is valid, enforceable and was duly issued in full compliance with Title 35 of the United States Code.

261. SPV alleges that TP-Link has infringed, and continues to infringe, the '871 Patent.

262. TP-Link makes, uses, offers to sell, sells, and/or imports products and routers accessible on the TP-Link App, websites, and all other similar products

("TP-Link Accused Products") that infringe the '821 Patent. These products include, without limitation, TP-Link Wi-Fi adaptors that support Wi-Fi Direct. The Accused Products include at least the Archer T4U, Archer T5UH, Archer T9UH, and TL-WN752N Wi-Fi adaptors that support Wi-Fi Direct.

263. TP-Link has directly infringed at least claim 1 of the '821 Patent by using (including its own testing), making, selling, offering for sale, licensing, and/or importing into the United States without authority the TP-Link Accused Products.

264. The TP-Link Accused Products are designed, manufactured, and intended to be used in normal operation to practice the '821 Patent and feature functionality comprising the steps noted above.

265. TP-Link has used and tested the TP-Link Accused Products in the United States.

266. TP-Link thus has infringed and continues to infringe the '821 Patent.

267. TP-Link's activities were without authority of license under the '821 Patent.

268. TP-Link's users, customers, agents and/or other third parties (collectively, "third-party infringers") infringed and continue to infringe the asserted claims including under 35 U.S.C. § 271(a) by using the TP-Link Accused Products according to their normal and intended use.

269. TP-Link has, since at least as early as September 2019, known or been willfully blind to the fact that the third-party infringers' use of the TP-Link Accused Products directly infringes the '821 Patent.

270. TP-Link's knowledge of the '821 Patent, which covers operating the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '821 Patent are met, extends to its knowledge that the third-party infringers' use of the TP-Link Accused Products directly infringes the '821 Patent, or, at the very least, rendered TP-Link willfully blind to such infringement.

271. With knowledge of or willful blindness to the fact that the third-party infringers' use of the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '821 Patent are met directly infringes the '821 Patent, TP-Link has actively encouraged the third-party infringers to directly infringe the '821 Patent by making, using, testing, selling, offering for sale, importing and/or licensing the accused products by, for example: marketing TP-Link's Devices Wi-Fi Direct capabilities to the third-party infringers; supporting and managing the third-party infringers' use of the TP-Link Wi-Fi Direct functionalities; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products such as by, for example, publishing instructional information on the TP-Link websites (including, without limitation, the knowledge center, instructional videos and on

the TP-Link branded website) directing and encouraging third-party infringers how to make and use the Wi-Fi Direct features of the TP-Link Accused Products.

272. TP-Link induces the third-party infringers to infringe the asserted claims of the '821 Patent by directing or encouraging them to operate the TP-Link Accused Products which satisfy all limitations of the asserted claims of the '821 Patent. For example, TP-Link advertises and promotes the Wi-Fi Direct features of the TP-Link Accused Products and encourages the third-party infringers to operate them in an infringing manner. TP-Link further provides technical assistance directing and instructing third parties how to operate the TP-Link Accused Products by, for example, publishing instructional materials, videos, knowledge center resources, how-to guides, troubleshooting, manuals, and user guides.

273. In response, the third-party infringers acquire and operate the TP-Link Accused Products in an infringing manner.

274. TP-Link specifically intends to induce, and did induce, the third-party infringers to infringe the asserted claims of the '821 Patent, and TP-Link knew of or was willfully blind to such infringement. TP-Link advised, encouraged, and/or aided the third-party infringers to engage in direct infringement, including through its encouragement, advice, and assistance to the third-party infringers to use the Wi-Fi Direct features of the TP-Link Accused Products. Having known or been willfully blind to the fact that the third-party infringers' use of the TP-Link

Accused Products in their intended manner such that all limitations of asserted claims of the ’821 Patent were met directly infringed the ’821 Patent, TP-Link, upon information and belief, actively encouraged and induced the third-party infringers to directly infringe the ’821 Patent by making, using, testing, selling, offering for sale, importing and/or licensing said TP-Link Accused Products, and by, for example: marketing the TP-Link Accused Products to the third-party infringers; supporting and managing the third-party infringers’ use of the TP-Link Accused Products; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products by, for example, publishing the following instructional information directing third-party infringers how to make and use the TP-Link Accused Products to infringe the asserted claims of the ’821 Patent:

- https://www.tp-link.com/us/support/download/;
- https://www.tp-link.com/us/support/download/archer-t4u/;
- https://static.tp-link.com/2020/202010/20201019/Archer%20T4U(EU&US)_3.0_datasheet.pdf;
- https://www.tp-link.com/us/support/download/archer-t4uh/;
- https://www.tp-link.com/us/support/download/archer-t9uh/;
- https://www.tp-link.com/us/support/download/tl-wn725n/;

- https://www.tp-link.com/us/learning-center/;
- https://community.tp-link.com/us/home/kb;
- https://www.tp-link.com/us/support/faq/;
- https://www.tp-link.com/us/support/setup-video/; and
- www.tp-link.com help documentation, among others.

275. Based upon the foregoing facts, among other things, TP-Link has induced and continues to induce infringement of the asserted claims of the '821 Patent under 35 U.S.C. § 271(b).

276. TP-Link has sold, provided and/or licensed to the third-party infringers and continues to sell, provide and/or license the TP-Link Accused Products that are especially made and adapted—and specifically intended by TP-Link—to be used as components and material parts of the inventions covered by the '821 Patent. For example, the TP-Link Accused Products include Wi-Fi Direct features identified above which the third-party infringers used in a manner such that all limitations of the asserted claims are met, and without which the third-party infringers would have been unable to use and avail themselves of the intended functionality of the accused products.

277. TP-Link also knew that the accused products are operated in a manner that practices each asserted claim of the '821 Patent.

278. The Wi-Fi Direct features are specially made and adapted to infringe

the asserted claims of the ’821 Patent.

279. The Wi-Fi Direct features are not a staple article or commodity of commerce, and, because the functionality was designed to work with the TP-Link Accused Products solely in a manner that is covered by the ’821 Patent, it has no substantial non-infringing use. At least by SPV’s notice of TP-Link’s infringement, based upon the foregoing facts, TP-Link knew of or was willfully blind to the fact that such functionality was especially made and adapted for—and was in fact used in—the accused products in a manner that is covered by the ’821 Patent.

280. Based upon the foregoing facts, among other things, TP-Link has contributorily infringed and continues to contributorily infringe the asserted claims of the ’821 Patent under 35 U.S.C. § 271(c).

281. Upon information and belief, TP-Links’ acts of infringement of the ’821 Patent continue since notice and since this complaint was filed and are, therefore, carried out with knowledge of the asserted claims of the ’821 Patent and how the TP-Link Accused Products infringe them. Rather than take a license to the ’821 Patent, TP-Link’s ongoing infringing conduct reflects a business decision to “efficiently infringe” the asserted claims and in doing so constitutes willful infringement under the standard of *Halo Elecs., Inc. v. Pulse Elecs., Inc*., 136 S. Ct. 1923 (2016).

282. TP-Link’s acts of direct and indirect infringement have caused and

continue to cause damage to SPV for which SPV is entitled to recover damages sustained as a result of TP-Link's infringing acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court, pursuant to 35 U.S.C. § 284.

COUNT 5
INFRINGEMENT OF U.S. PATENT NO. 9,357,441

283. SPV realleges and incorporates by reference the allegations set forth above as if restated verbatim here.

284. SPV is the owner, by assignment, of U.S. Patent No. 9,357,441. The '441 Patent was issued by the United States Patent and Trademark Office on May 31, 2016.

285. As the owner of the '441 Patent, SPV holds all substantial rights in and under the '441 Patent, including the right to grant licenses, exclude others, and to enforce, sue, and recover damages for past and future infringement.

286. The '441 Patent is valid, enforceable and was duly issued in full compliance with Title 35 of the United States Code.

287. SPV alleges that TP-Link has infringed, and continues to infringe, the '441 Patent.

288. TP-Link makes, uses, offers to sell, sells, and/or imports products and routers accessible on the TP-Link App, websites, and all other similar products ("TP-Link Accused Products") that infringe the '441 Patent. These products

include, without limitation, TP-Link Wi-Fi adaptors that support Wi-Fi Direct. The Accused Products include at least the Archer T4U, Archer T5UH, Archer T9UH, and TL-WN752N Wi-Fi adaptors that support Wi-Fi Direct.

289. TP-Link has directly infringed at least claim 1 of the '441 Patent by using (including its own testing), making, selling, offering for sale, licensing, and/or importing into the United States without authority the TP-Link Accused Products.

290. The TP-Link Accused Products are designed, manufactured, and intended to be used in normal operation to practice the '441 Patent and feature functionality comprising the steps noted above.

291. TP-Link has used and tested the TP-Link Accused Products in the United States.

292. TP-Link thus has infringed and continues to infringe the '441 Patent.

293. TP-Link's activities were without authority of license under the '441 Patent.

294. TP-Link's users, customers, agents and/or other third parties (collectively, "third-party infringers") infringed and continue to infringe the asserted claims including under 35 U.S.C. § 271(a) by using the TP-Link Accused Products according to their normal and intended use.

295. TP-Link has, since at least as early as September 2019, known or been

willfully blind to the fact that the third-party infringers' use of the TP-Link Accused Products directly infringes the '441 Patent.

296. TP-Link's knowledge of the '441 Patent, which covers operating the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '441 Patent are met, extends to its knowledge that the third-party infringers' use of the TP-Link Accused Products directly infringes the '441 Patent, or, at the very least, rendered TP-Link willfully blind to such infringement.

297. With knowledge of or willful blindness to the fact that the third-party infringers' use of the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '441 Patent are met directly infringes the '441 Patent, TP-Link has actively encouraged the third-party infringers to directly infringe the '441 Patent by making, using, testing, selling, offering for sale, importing and/or licensing the accused products by, for example: marketing TP-Link's Devices Wi-Fi Direct capabilities to the third-party infringers; supporting and managing the third-party infringers' use of the TP- Wi-Fi Direct functionalities; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products such as by, for example, publishing instructional information on the TP-Link websites (including, without limitation, the knowledge center, instructional videos and on the TP-Link branded website) directing and encouraging third-party infringers how to make and

use the Wi-Fi Direct features of the TP-Link Accused Products.

298. TP-Link induces the third-party infringers to infringe the asserted claims of the ’441 Patent by directing or encouraging them to operate the TP-Link Accused Products which satisfy all limitations of the asserted claims of the ’441 Patent. For example, TP-Link advertises and promotes the Wi-Fi Direct features of the TP-Link Accused Products and encourages the third-party infringers to operate them in an infringing manner. TP-Link further provides technical assistance directing and instructing third parties how to operate the TP-Link Accused Products by, for example, publishing instructional materials, videos, knowledge center resources, how-to guides, troubleshooting, manuals, and user guides.

299. In response, the third-party infringers acquire and operate the TP-Link Accused Products in an infringing manner.

300. TP-Link specifically intends to induce, and did induce, the third-party infringers to infringe the asserted claims of the ’441 Patent, and TP-Link knew of or was willfully blind to such infringement. TP-Link advised, encouraged, and/or aided the third-party infringers to engage in direct infringement, including through its encouragement, advice, and assistance to the third-party infringers to use the Wi-Fi Direct features of the TP-Link Accused Products. Having known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products in their intended manner such that all limitations of asserted

claims of the ’441 Patent were met directly infringed the ’441 Patent, TP-Link, upon information and belief, actively encouraged and induced the third-party infringers to directly infringe the ’441 Patent by making, using, testing, selling, offering for sale, importing and/or licensing said TP-Link Accused Products, and by, for example: marketing the TP-Link Accused Products to the third-party infringers; supporting and managing the third-party infringers’ use of the TP-Link Accused Products; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products by, for example, publishing the following instructional information directing third-party infringers how to make and use the TP-Link Accused Products to infringe the asserted claims of the ’441 Patent:

- https://www.tp-link.com/us/support/download/;
- https://www.tp-link.com/us/support/download/archer-t4u/;
- https://static.tp-link.com/2020/202010/20201019/Archer%20T4U(EU&US)_3.0_datasheet.pdf;
- https://www.tp-link.com/us/support/download/archer-t4uh/;
- https://www.tp-link.com/us/support/download/archer-t9uh/;
- https://www.tp-link.com/us/support/download/tl-wn725n/;
- https://www.tp-link.com/us/learning-center/;

- https://community.tp-link.com/us/home/kb;
- https://www.tp-link.com/us/support/faq/;
- https://www.tp-link.com/us/support/setup-video/; and
- www.tp-link.com help documentation, among others.

301. Based upon the foregoing facts, among other things, TP-Link has induced and continues to induce infringement of the asserted claims of the '441 Patent under 35 U.S.C. § 271(b).

302. TP-Link has sold, provided and/or licensed to the third-party infringers and continues to sell, provide and/or license the TP-Link Accused Products that are especially made and adapted—and specifically intended by TP-Link—to be used as components and material parts of the inventions covered by the '441 Patent. For example, the TP-Link Accused Products include Wi-Fi Direct features identified above which the third-party infringers used in a manner such that all limitations of the asserted claims are met, and without which the third-party infringers would have been unable to use and avail themselves of the intended functionality of the accused products.

303. TP-Link also knew that the accused products are operated in a manner that practices each asserted claim of the '441 Patent.

304. The wireless features are specially made and adapted to infringe the asserted claims of the '441 Patent.

305. The Wi-Fi Direct features are not a staple article or commodity of commerce, and, because the functionality was designed to work with the TP-Link Accused Products solely in a manner that is covered by the '441 Patent, it has no substantial non-infringing use. At least by SPV's notice of TP-Link's infringement, based upon the foregoing facts, TP-Link knew of or was willfully blind to the fact that such Wi-Fi Direct functionality was especially made and adapted for—and was in fact used in—the accused products in a manner that is covered by the '441 Patent.

306. Based upon the foregoing facts, among other things, TP-Link has contributorily infringed and continues to contributorily infringe the asserted claims of the '441 Patent under 35 U.S.C. § 271(c).

307. Upon information and belief, TP-Links' acts of infringement of the '441 Patent continue since notice and since this complaint was filed and are, therefore, carried out with knowledge of the asserted claims of the '441 Patent and how the TP-Link Accused Products infringe them. Rather than take a license to the '441 Patent, TP-Link's ongoing infringing conduct reflects a business decision to "efficiently infringe" the asserted claims and in doing so constitutes willful infringement under the standard of *Halo Elecs., Inc. v. Pulse Elecs., Inc*., 136 S. Ct. 1923 (2016).

308. TP-Link's acts of direct and indirect infringement have caused and

continue to cause damage to SPV for which SPV is entitled to recover damages sustained as a result of TP-Link's infringing acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court, pursuant to 35 U.S.C. § 284.

COUNT 6
INFRINGEMENT OF U.S. PATENT NO. 10,039,144

309. SPV realleges and incorporates by reference the allegations set forth above as if restated verbatim here.

310. SPV is the owner, by assignment, of U.S. Patent No. 10,039,144. The '144 Patent was issued by the United States Patent and Trademark Office on July 31, 2018.

311. As the owner of the '144 Patent, SPV holds all substantial rights in and under the '144 Patent, including the right to grant licenses, exclude others, and to enforce, sue, and recover damages for past and future infringement.

312. The '144 Patent is valid, enforceable and was duly issued in full compliance with Title 35 of the United States Code.

313. SPV alleges that TP-Link has infringed, and continues to infringe, the '144 Patent.

314. TP-Link makes, uses, offers to sell, sells, and/or imports products and routers accessible on the TP-Link App, websites, and all other similar products ("TP-Link Accused Products") that infringe the '144 Patent. These products

include, without limitation, TP-Link Wi-Fi adaptors that support Wi-Fi Direct. The Accused Products include at least the Archer T4U, Archer T5UH, Archer T9UH, and TL-WN752N Wi-Fi adaptors that support Wi-Fi Direct.

315. TP-Link has directly infringed at least claim 1 of the '144 Patent by using (including its own testing), making, selling, offering for sale, licensing, and/or importing into the United States without authority the TP-Link Accused Products.

316. The TP-Link Accused Products are designed, manufactured, and intended to be used in normal operation to practice the '144 Patent and feature functionality comprising the steps noted above.

317. TP-Link has used and tested the TP-Link Accused Products in the United States.

318. TP-Link thus has infringed and continues to infringe the '144 Patent.

319. TP-Link's activities were without authority of license under the '144 Patent.

320. TP-Link's users, customers, agents and/or other third parties (collectively, "third-party infringers") infringed and continue to infringe the asserted claims including under 35 U.S.C. § 271(a) by using the TP-Link Accused Products according to their normal and intended use.

321. TP-Link has, since at least as early as September 2019, known or been

willfully blind to the fact that the third-party infringers' use of the TP-Link Accused Products directly infringes the '144 Patent.

322. TP-Link's knowledge of the '144 Patent, which covers operating the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '144 Patent are met, extends to its knowledge that the third-party infringers' use of the TP-Link Accused Products directly infringes the '144 Patent, or, at the very least, rendered TP-Link willfully blind to such infringement.

323. With knowledge of or willful blindness to the fact that the third-party infringers' use of the TP-Link Accused Products in their intended manner such that all limitations of the asserted claims of the '144 Patent are met directly infringes the '144 Patent, TP-Link has actively encouraged the third-party infringers to directly infringe the '144 Patent by making, using, testing, selling, offering for sale, importing and/or licensing the accused products by, for example: marketing TP-Link's Devices Wi-Fi Direct capabilities to the third-party infringers; supporting and managing the third-party infringers' use of the TP-Link Wi-Fi Direct functionalities; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products such as by, for example, publishing instructional information on the TP-Link websites (including, without limitation, the knowledge center, instructional videos and on the TP-Link branded website) directing and encouraging third-party infringers how

to make and use the Wi-Fi Direct features of the TP-Link Accused Products.

324. TP-Link induces the third-party infringers to infringe the asserted claims of the ’441 Patent by directing or encouraging them to operate the TP-Link Accused Products which satisfy all limitations of the asserted claims of the ’144 Patent. For example, TP-Link advertises and promotes the Wi-Fi Direct features of the TP-Link Accused Products and encourages the third-party infringers to operate them in an infringing manner. TP-Link further provides technical assistance directing and instructing third parties how to operate the TP-Link Accused Products by, for example, publishing instructional materials, videos, knowledge center resources, how-to guides, troubleshooting, manuals, and user guides.

325. In response, the third-party infringers acquire and operate the TP-Link Accused Products in an infringing manner.

326. TP-Link specifically intends to induce, and did induce, the third-party infringers to infringe the asserted claims of the ’144 Patent, and TP-Link knew of or was willfully blind to such infringement. TP-Link advised, encouraged, and/or aided the third-party infringers to engage in direct infringement, including through its encouragement, advice, and assistance to the third-party infringers to use the wireless features of the TP-Link Accused Products. Having known or been willfully blind to the fact that the third-party infringers’ use of the TP-Link Accused Products in their intended manner such that all limitations of asserted

claims of the ’144 Patent were met directly infringed the ’144 Patent, TP-Link, upon information and belief, actively encouraged and induced the third-party infringers to directly infringe the ’144 Patent by making, using, testing, selling, offering for sale, importing and/or licensing said TP-Link Accused Products, and by, for example: marketing the TP-Link Accused Products to the third-party infringers; supporting and managing the third-party infringers’ use of the TP-Link Accused Products; and providing technical assistance to the third-party infringers during their continued use of the TP-Link Accused Products by, for example, publishing the following instructional information directing third-party infringers how to make and use the TP-Link Accused Products to infringe the asserted claims of the ’144 Patent:

- https://www.tp-link.com/us/support/download/;
- https://www.tp-link.com/us/support/download/archer-t4u/;
- https://static.tp-link.com/2020/202010/20201019/Archer%20T4U(EU&US)_3.0_datasheet.pdf;
- https://www.tp-link.com/us/support/download/archer-t4uh/;
- https://www.tp-link.com/us/support/download/archer-t9uh/;
- https://www.tp-link.com/us/support/download/tl-wn725n/;
- https://www.tp-link.com/us/learning-center/;

- https://community.tp-link.com/us/home/kb;
- https://www.tp-link.com/us/support/faq/;
- https://www.tp-link.com/us/support/setup-video/; and
- www.tp-link.com help documentation, among others.

327. Based upon the foregoing facts, among other things, TP-Link has induced and continues to induce infringement of the asserted claims of the '144 Patent under 35 U.S.C. § 271(b).

328. TP-Link has sold, provided and/or licensed to the third-party infringers and continues to sell, provide and/or license the TP-Link Accused Products that are especially made and adapted—and specifically intended by TP-Link—to be used as components and material parts of the inventions covered by the '144 Patent. For example, the TP-Link Accused Products include Wi-Fi Direct features identified above which the third-party infringers used in a manner such that all limitations of the asserted claims are met, and without which the third-party infringers would have been unable to use and avail themselves of the intended functionality of the accused products.

329. TP-Link also knew that the accused products are operated in a manner that practices each asserted claim of the '144 Patent.

330. The wireless features are specially made and adapted to infringe the asserted claims of the '144 Patent.

331. The Wi-Fi Direct features are not a staple article or commodity of commerce, and, because the functionality was designed to work with the TP-Link Accused Products solely in a manner that is covered by the '144 Patent, it has no substantial non-infringing use. At least by SPV's notice of TP-Link's infringement, based upon the foregoing facts, TP-Link knew of or was willfully blind to the fact that such functionality was especially made and adapted for—and was in fact used in—the accused products in a manner that is covered by the '144 Patent.

332. Based upon the foregoing facts, among other things, TP-Link has contributorily infringed and continues to contributorily infringe the asserted claims of the '144 Patent under 35 U.S.C. § 271(c).

333. Upon information and belief, TP-Links' acts of infringement of the '144 Patent continue since notice and since this complaint was filed and are, therefore, carried out with knowledge of the asserted claims of the '144 Patent and how the TP-Link Accused Products infringe them. Rather than take a license to the '144 Patent, TP-Link's ongoing infringing conduct reflects a business decision to "efficiently infringe" the asserted claims and in doing so constitutes willful infringement under the standard of *Halo Elecs., Inc. v. Pulse Elecs., Inc*., 136 S. Ct. 1923 (2016).

334. TP-Link's acts of direct and indirect infringement have caused and continue to cause damage to SPV for which SPV is entitled to recover damages

sustained as a result of TP-Link's infringing acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court, pursuant to 35 U.S.C. § 284.

NOTICE

335. SPV does not currently distribute, sell, offer for sale, or make products embodying the Asserted Patents.

336. TP-Link had notice of infringement of the '512, '531, '384, '871, '441 and '144 Patents prior to filing of this complaint.

337. SPV has complied with all notice requirements of 35 U.S.C. § 287.

NOTICE OF REQUIREMENT OF LITIGATION HOLD

338. TP-Link is hereby notified it is legally obligated to locate, preserve, and maintain all records, notes, drawings, documents, data, communications, materials, electronic recordings, audio/video/photographic recordings, and digital files, including edited and unedited or "raw" source material, and other information and tangible things that TP-Link knows, or reasonably should know, may be relevant to actual or potential claims, counterclaims, defenses, and/or damages by any party or potential party in this lawsuit, whether created or residing in hard copy form or in the form of electronically stored information (hereafter collectively referred to as "Potential Evidence").

339. As used above, the phrase "electronically stored information" includes without limitation: computer files (and file fragments), e-mail (both sent and

received, whether internally or externally), information concerning e-mail (including but not limited to logs of e-mail history and usage, header information, and deleted but recoverable e-mails), text files (including drafts, revisions, and active or deleted word processing documents), instant messages, audio recordings and files, video footage and files, audio files, photographic footage and files, spreadsheets, databases, calendars, telephone logs, contact manager information, internet usage files, and all other information created, received, or maintained on any and all electronic and/or digital forms, sources and media, including, without limitation, any and all hard disks, removable media, peripheral computer or electronic storage devices, laptop computers, mobile phones, personal data assistant devices, Blackberry devices, iPhones, video cameras and still cameras, and any and all other locations where electronic data is stored. These sources may also include any personal electronic, digital, and storage devices of any and all of TP-Link's agents, resellers, distributors or employees if TP-Link's electronically stored information resides there.

340. TP-Link is hereby further notified and forewarned that any alteration, destruction, negligent loss, or unavailability, by act or omission, of any Potential Evidence may result in damages or a legal presumption by the Court and/or jury that the Potential Evidence is not favorable to TP-Link's claims and/or defenses. To avoid such a result, TP-Link's preservation duties include, but are not limited

to, the requirement that TP-Link immediately notify its agents, distributors, and employees to halt and/or supervise the auto-delete functions of TP-Link's electronic systems and refrain from deleting Potential Evidence, either manually or through a policy of periodic deletion.

JURY DEMAND

SPV hereby demands a trial by jury on all claims, issues, and damages so triable.

PRAYER FOR RELIEF

SPV prays for the following relief:

a. That TP-Link be summoned to appear and answer;

b. That the Court enter judgment that TP-Link has infringed the '512, '531, '384, '871, '441 and '144 Patents.

c. That the Court grant SPV judgment against TP-Link for all actual, consequential, special, punitive, increased, and/or statutory damages, including, if necessary, an accounting of all damages; pre- and post-judgment interest as allowed by law; and reasonable attorney's fees, costs, and expenses incurred in this action;

d. That TP-Link's infringement be found to have been willful;

e. That this case be found to be exceptional under 35 U.S.C. § 285; and

f. That SPV be granted such other and further relief as the Court may deem just and proper under the circumstances.

Dated: December 9, 2022

Respectfully submitted,

CONNOR LEE & SHUMAKER PLLC

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