Manuals+ — User Manuals Simplified.

SOPHOS AP6 420X Access Point Instruction Manual

Contents

SOPHOS AP6 420X Access Point

Foreward

We are pleased to welcome you as a new Sophos AP6 Series customer.
Sophos AP6 Series access points are high performance wireless products using the latest 802.11ax technology for a best-in-class user experience. The AP6 Series models can be easily managed in Sophos Central, our cloud-based security management platform. All you need to do is set up a Sophos Central account and plug in the device anywhere in your network. The access point will find the cloud-based controller automatically and become operable within seconds.

These operating instructions will help you set up your Sophos Central account, install and configure your Sophos AP6 Series access point and also provide detailed technical specifications. In addition, please also see the following documents that contain useful information on safety, regulatory compliance, and configuration options:

- Sophos AP6 Series Safety Instructions and Regulatory Information
- Sophos AP6 420X Quick Start Guide

The instructions must be read carefully prior to using the device and should be kept in a safe place. You can download all user manuals and additional documentation from the Sophos Knowledgebase under **www.sophos.com/en-us/support/knowledgebase.aspx** or from **www.sophos.com/get-started-ap**

Security symbols

The following symbol and its meaning appears in the Quick Start Guide, Safety Instructions and in these Operating Instructions.
Caution and Important Note. If these notes are not correctly observed:

- This is dangerous to life and the environment
- The access point may be damaged
- The functions of the access point will be no longer guaranteed
- Sophos shall not be liable for damages arising from a failure to comply with the Safety Instructions
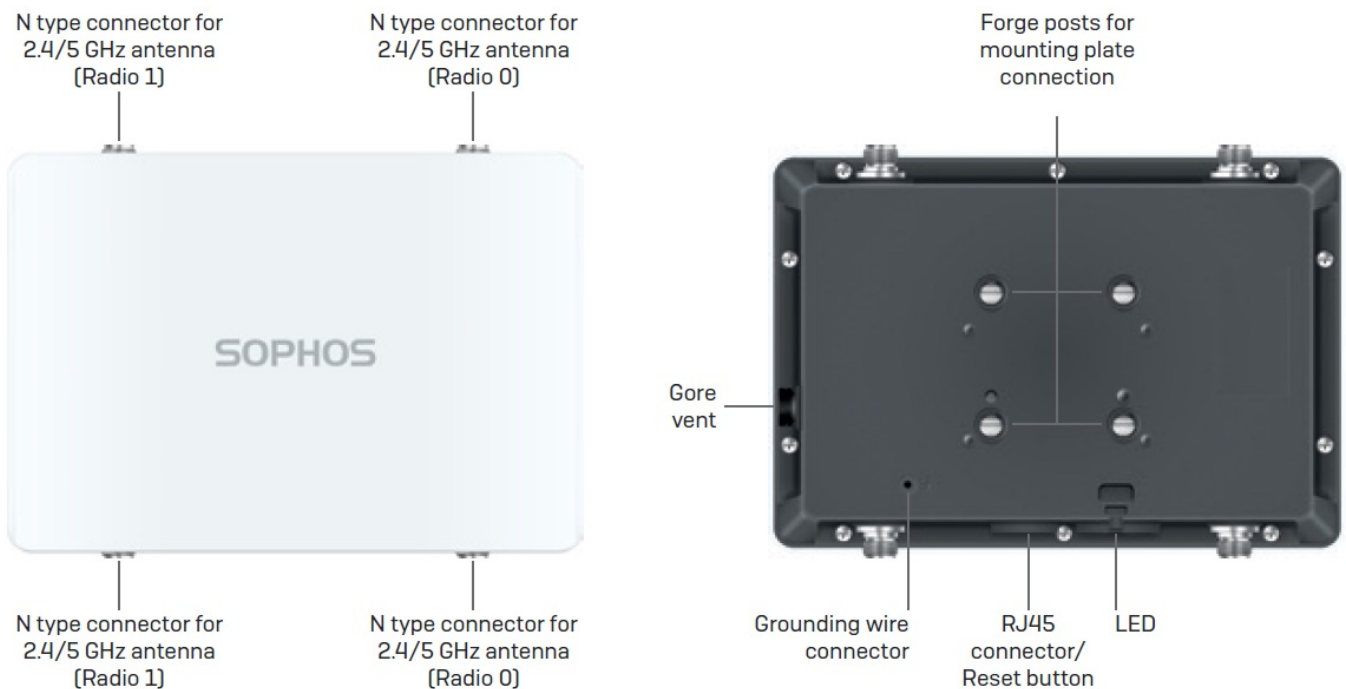
Designed use

The access point must be installed pursuant to the current installation notes. Otherwise failure-free and safe operation cannot be guaranteed. The EU declaration of conformity is available upon request from the following address:

Sophos Technology GmbH
Gustav-Stresemann-Ring 1
65189 Wiesbaden
Germany

It is also available online:
https://docs.sophos.com/nsg/other/RegulatoryCompliance/en-us/index.html

Operating elements and connections

Component descriptions

Component	Description
Status LED	Indicates the operational state of your access point such as boot status, firmware updates and error states. For details, see table "LED Status" below.
Radio LED	Indicates the radio mode your access point is currently operating in. For details, see table "LED Status" below.
Mesh LED	Indicates whether the access point has Mesh activated.
RJ45 connector	Primary Ethernet port to connect your access point to your network. The Ethernet port is 100/1000/2500 Mbps compatible and auto-negotiate to the speed and half- and full-duplex of the connecting device. This port needs to be connected to a PoE capable source (PoE Injector or PoE switch) to power your access point. There is no dedicated DC power source available. Sophos offers suitable PoE injectors for purchase as an optional accessory.
Reset button	Allows you to reboot the device and reset its configuration to the factory default. For details, please see section "Reboot & Reset".
Gore Vent	Prevents excessive heat build-up inside the product while still preventing moisture entry.
Grounding Wire Connector	Used for permanently connecting the AP6 to earth ground to adequately ground the chassis and protect the operator from electrical hazards.
N Type connector	Used for connecting the standard Omni- or optional Sector/Directional antennas
Forge posts	Used for connecting the mounting bracket.

LEDs

Status	Radio	Mesh	
Off	Off	Off	AP is off or reboot started.
Flashing Green	Off	Off	AP is booting and applying configuration*.
Flashing Green	Flashing Green	Off	Configuration reset in progress*.
Flashing Green	Flashing Green	Flashing Green	Reset button pressed, AP preparing configuration reset.
Flashing Fast Green	Off	Off	Firmware update in progress**.
Solid Green	Off	Off or Solid Green	AP is operating in Single-Band.
Solid Green	Green	Off or Solid Green	AP is operating in Dual-Band.

* Your AP should recover from this state after a maximum of 5 minutes.
Note: Do not disconnect from power, nor reboot or reset the device. When the device connects to Sophos Central for the first time, it might take up to 15 minutes to update firmware.
IMPORTANT: LED behavior might change with new updates in Firmware. For latest Quick Start Guide, please visit **https://www.sophos.com/get-started-ap**

Connection and configuration

Your access point can be managed in Sophos Central. The initial connection of your access point to your network

is described in the AP6 Quick Start Guide which was shipped with your device or is available under
www.sophos.com/get-started-ap

For the access point to communicate with Sophos Central servers the following ports will need to be open on your firewall:

- 443 (HTTPS)
- 80 (HTTP)
- 123 (NTP)

After successful connection you can start your initial configuration.

Setting up your access point in Sophos Central

You will need a Sophos Central account to manage your access points from Sophos Central. Please go to
https://central.sophos.com to sign in under your account or create a new account.
After signing in select Wireless from the popup screen or click on Wireless in the left navigation to get started.

Follow the Onboarding Wizard to register your access point.
For more information, please see the Sophos Central Admin Help.
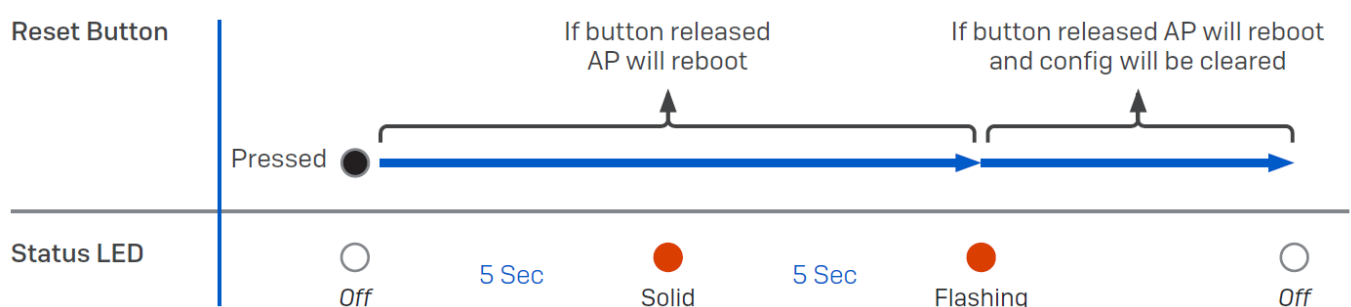
Reboot and reset

Your access point can be rebooted with the installed configuration or reset to the factory default configuration depending on how long you press and hold the reset button.

Reboot with current image and configuration

1. Press reset button.
2. Release reset button.
3. AP reboots (Status LED will go off, then will start blinking after some seconds and turn to solid green after reboot is complete).

Reboot with current image and clear configuration

1. Press and hold reset button for 5 sec.
2. Status, Radio, and Mesh LEDs will start flashing for 5 sec. You can still cancel the configuration clearance process by releasing the reset button before the Mesh LED turns Off. In that case the AP will reboot as described above.
3. After 5 sec. Mesh LED turns off. Status and Radio LEDs continue flashing.
4. Release reset button (configuration will be cleared).
5. AP reboots with factory default settings.

Technical specifications

AP6 420X	
Environment	
Power consumption	25.5W (max.)
Power over Ethernet (PoE) requirements	802.3at
Operating temperature	-20° to 55° C
Storage temperature	-40° to 70° C
Humidity	10% to 95% non-condensing
Hazardous substances	RoHS-2 and REACH compliant
Physical specification	
I/O ports	1x RJ45 100/1000/2500 Mbps Ethernet w/PoE (802.3at) 1x Reset button 1x Kensington security slot
Memory	1 GB DDR3L 4 MB NOR Flash 512 MB NAND Flash
Mounting	Wall-mount hang Pole mount Ceiling

Dimensions (Width x Depth x Height)	260.5 x 180 x 69 mm (10.26 x 7.09 x 2.72 inches)
Weight	1.6 kg (3.53 lbs)
Wireless specification	
Radios	1x 2.4 GHz single band 1x 5 GHz single band
Antennas	4x omni-directional external dual-band antennas for Radio-0 and Radio-1
Antenna Peak Gain	2.7 dBi at 2.4 GHz, 4.8 dBi at 5 GHz
MIMO capabilities	2×2:2
Supported WLAN standards	IEEE 802.11 a/b/g/n/ac/ax
SSIDs	16 (8 per Radio)
Max. Throughput	575 Mbps (2.4 GHz) + 2400 Mbps (5 GHz)

Performance				
Band [MHz]	Standard	Rate	Tx Max Power (MHz per chain) [dBm]	RSSI [dBm]
		1Mbps	23	-98
		2Mbps	22	-91
	802.11b	5Mbps	21	-92
		11Mbps	20	-89

2 GHz (2412 – 2483)				
	802.11g	6Mbps	23	-95
		9Mbps	23	-91
		12Mbps	22	-89
		18Mbps	22	-87
		24Mbps	21	-84
		36Mpbs	21	-81
		48Mbps	20	-77
		54Mbps	20	-76
	802.11n	MCS0	23	-95
		MCS1	23	-92
		MCS2	22	-89
		MCS3	22	-87
		MCS4	21	-83
		MCS5	21	-78
		MCS6	20	-77
		MCS7	19	-76
	802.11ax (HE20)	MCS0	23	-95
		MCS1	23	-92
		MCS2	22	-89
		MCS3	22	-86
		MCS4	21	-83
		MCS5	21	-79
		MCS6	20	-78

		MCS7	19	-76
		MCS8	19	-72
		MCS9	18	-70
		MCS10	17	-67
		MCS11	16	-64
	802.11ax (HE40)	MCS0	23	-92
		MCS1	23	-90
		MCS2	22	-88
		MCS3	22	-85
		MCS4	21	-82
		MCS5	21	-78
		MCS6	20	-75
		MCS7	19	-73
		MCS8	17	-71
		MCS9	17	-68
		MCS10	16	-65
		MCS11	15	-62

Performance				
	802.11a	6Mbps	22	-97
		9Mbps	22	-95
		12Mbps	22	-92
		18Mbps	22	-89
		24Mbps	22	-87
		36Mbps	22	-84
		48Mbps	21	-80

		54Mbps	20	-78
5 GHz (5180 – 5825)	802.11n (HT20)	MCS0	22	-97
		MCS1	22	-94
		MCS2	22	-91
		MCS3	22	-88
		MCS4	21	-86
		MCS5	21	-83
		MCS6	20	-80
		MCS7	19	-78
	802.11n (HT40)	MCS0	22	-94
		MCS1	22	-93
		MCS2	22	-89
		MCS3	22	-85
		MCS4	21	-81
		MCS5	21	-79
		MCS6	20	-75
		MCS7	19	-75
	802.11ac (VHT20)	MCS0	22	-97
		MCS1	22	-94
		MCS2	22	-91
		MCS3	22	-88
		MCS4	21	-86
		MCS5	21	-83
		MCS6	20	-80
		MCS7	19	-78
		MCS8	18	-74
	802.11ac (VHT40)	MCS0	22	-94
		MCS1	22	-91
		MCS2	22	-88
		MCS3	22	-85
		MCS4	21	-82
		MCS5	21	-78
		MCS6	20	-76

		MCS7	19	-75
		MCS8	18	-72
		MCS9	17	-69
	802.11ac (VHT80)	MCS0	22	-91
		MCS1	22	-88
		MCS2	22	-85
		MCS3	22	-82
		MCS4	21	-79
		MCS5	21	-78
		MCS6	20	-73
		MCS7	19	-72
		MCS8	18	-69
		MCS9	17	-66

Performance				
	802.11ax (HE20)	MCS0	22	-97
		MCS1	22	-94
		MCS2	22	-91
		MCS3	22	-88
		MCS4	21	-86
		MCS5	21	-83
		MCS6	20	-80
		MCS7	19	-78
		MCS8	17	-74
		MCS9	18	-70
		MCS10	16	-68
		MCS11	15	-67
		MCS0	22	-94
		MCS1	22	-91
		MCS2	22	-88
		MCS3	22	-85
		MCS4	21	-82
		MCS5	21	-78

	802.11ax (HE40)	MCS6	20	-76
		MCS7	19	-75
		MCS8	18	-72
		MCS9	17	-69
		MCS10	16	-66
		MCS11	15	-63
	802.11ax (HE80)	MCS0	22	-91
		MCS1	22	-88
		MCS2	22	-85
		MCS3	22	-82
		MCS4	21	-79
		MCS5	21	-75
		MCS6	20	-73
		MCS7	19	-72
		MCS8	18	-69
		MCS9	17	-66
		MCS10	16	-63
		MCS11	15	-61
	802.11ax (HE160)	MCS0	22	-85
		MCS1	22	-81
		MCS2	22	-78
		MCS3	22	-75
		MCS4	21	-72
		MCS5	21	-71
		MCS6	20	-69
		MCS7	19	-68
		MCS8	18	-65
		MCS9	17	-62
		MCS10	16	-59
		MCS11	15	-57

Radiation patterns

2.4 GHz Band

ZX

YZ

XY

—2400 (MHz) —2450 (MHz) —2500 (MHz)

5 GHz Band

ZX

YZ

XY

—5150 (MHz) —5325 (MHz) —5500 (MHz) —5675(MHz) —5850 (MHz)

Optional Sector / Directional Antennas

SOPHOS
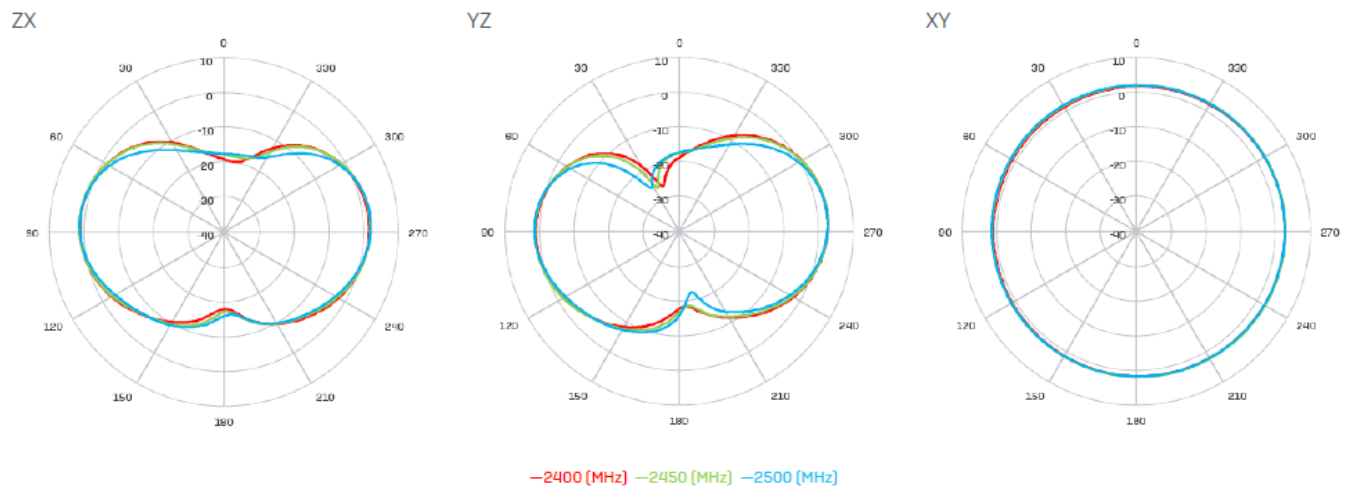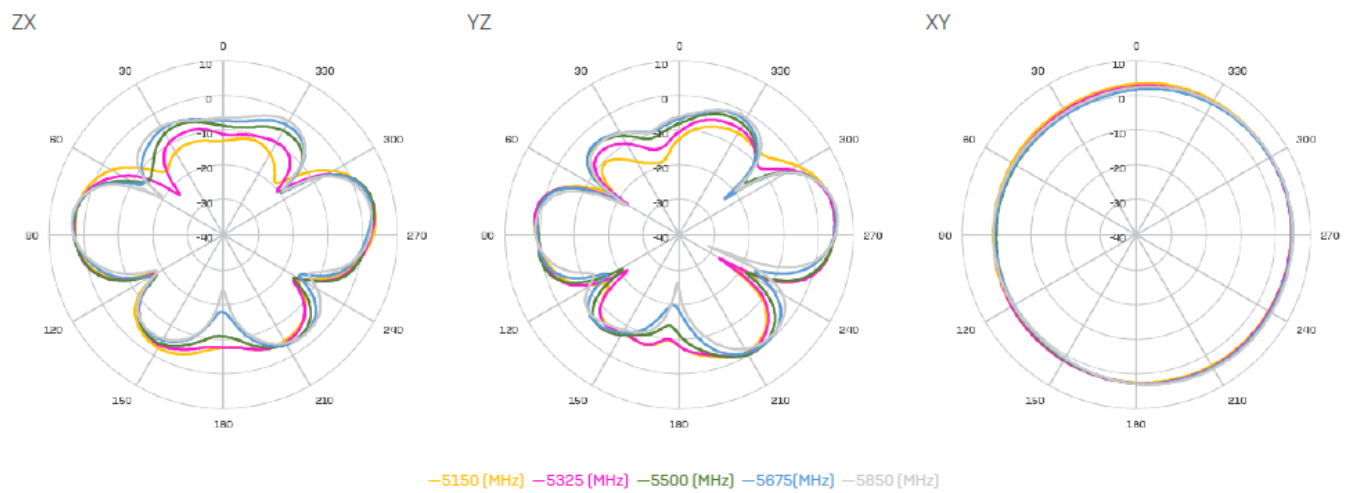
Technical specifications

Optional Sector/Directional Antennas

120° Sector Antenna

Frequency range	2400~2500 MHz	5150~5850 MHz
Port	V-pol./H-pol.	V-pol. H-pol.
Antenna Gain	10.6~10.8 dBi/10.0~11.4 dBi	12.5~13.1 dBi/11.6~12.9 dBi
HPBW/Horizontal	76~77 deg/63~66 deg	40~61 deg/52~76 deg
HPBW/Vertical	24~25 deg/26~28 deg	11~13 deg/11~13 deg
Isolation	20 dB	
Impedance	50 Ohms	
Connector	N Jack	
Dimensions (Height x Width x Depth)	320 x 200 x 20.5 mm (12.6 x 7.87 x 0.81 inches)	

30° Directional Antenna

Frequency range	2400~2500 MHz	5150~5850 MHz
Port	V-pol./H-pol.	V-pol./H-pol.
Antenna Gain	11.6~11.8 dBi/ 11.6~12.0 dBi	10.6~11.0 dBi/10.4~11.5 dBi
HPBW/Horizontal	36~37 deg/35~36 deg	33~35 deg/26~36 deg
HPBW/Vertical	34~35 deg/36~38 deg	32~39 deg/30~41 deg
Isolation	20 dB	
Impedance	50 Ohms	
Connector	N Jack	
Dimensions (Height x Width x Depth)	320 x 200 x 20.5 mm (12.6 x 7.87 x 0.81 inches)	

Radiation patterns Sector Antenna – Horizontal Polarization
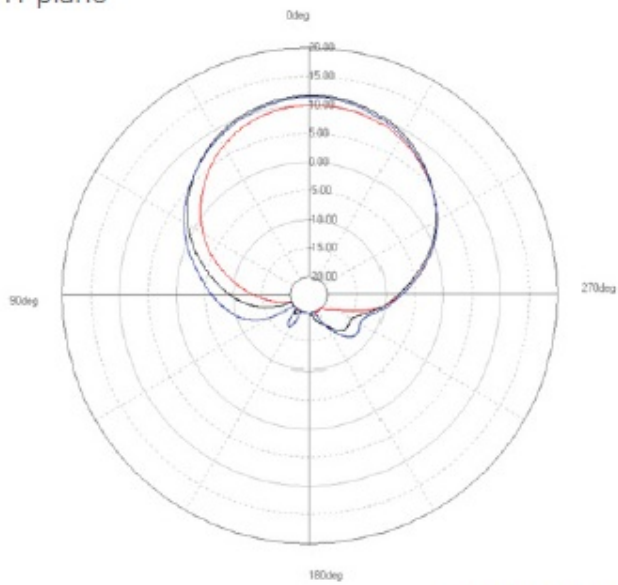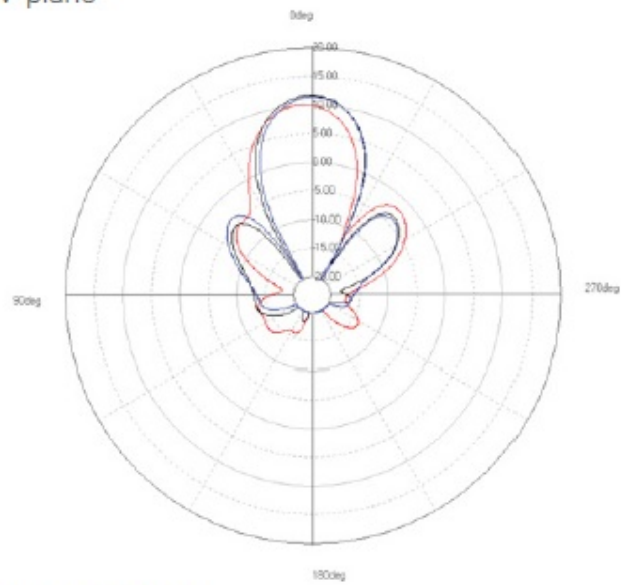
2.4 GHz Band

H-plane

V-plane

—2400 (MHz) —2450 (MHz) —2500 (MHz)
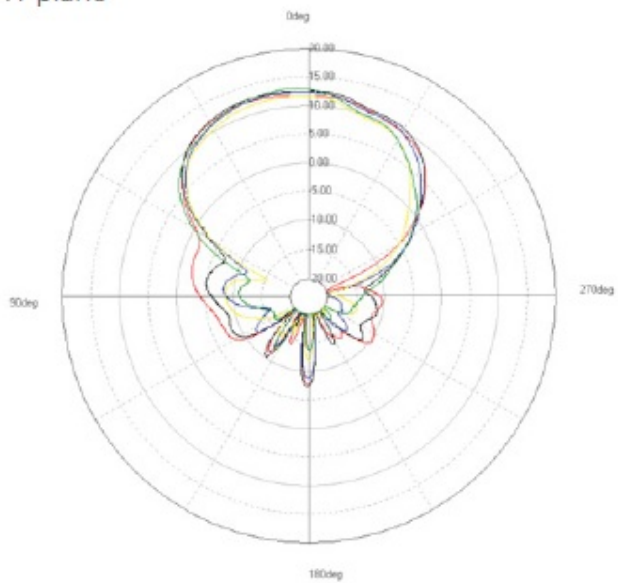
5 GHz Band
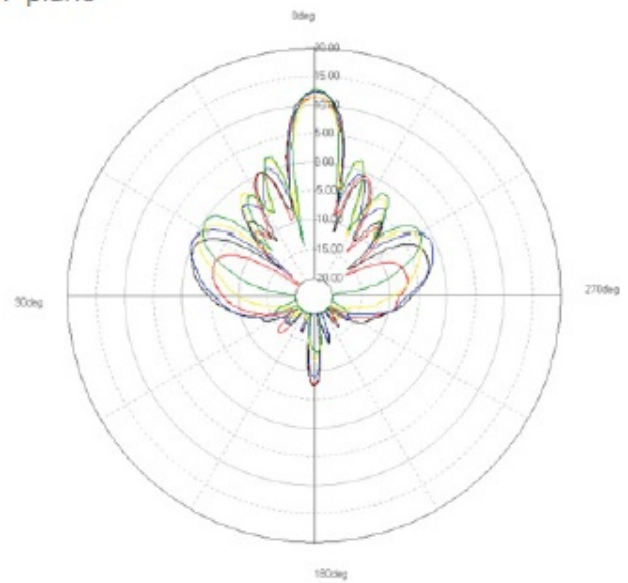
H-plane

V-plane

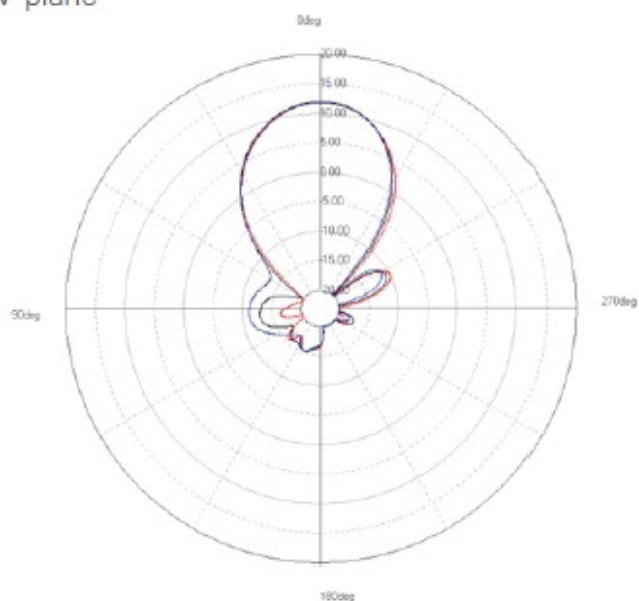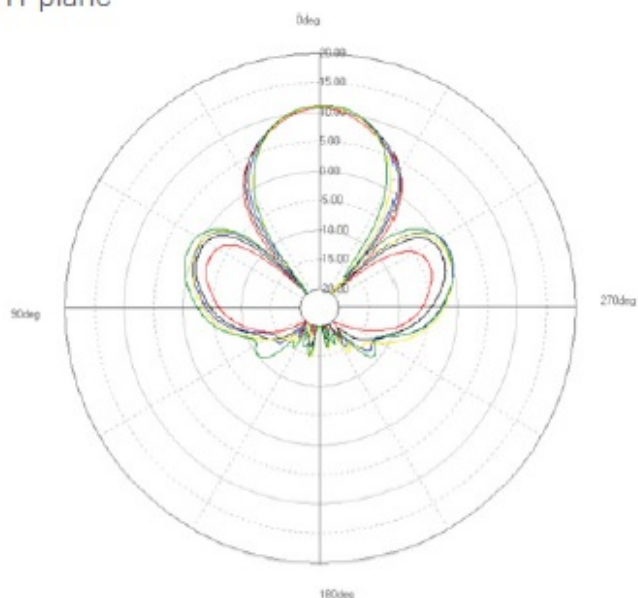—4900 (MHz) —5150 (MHz) —5350 (MHz) —5475 (MHz) —5725 (MHz) —5875 (MHz)

Radiation patterns Sector Antenna – Vertical Polarization
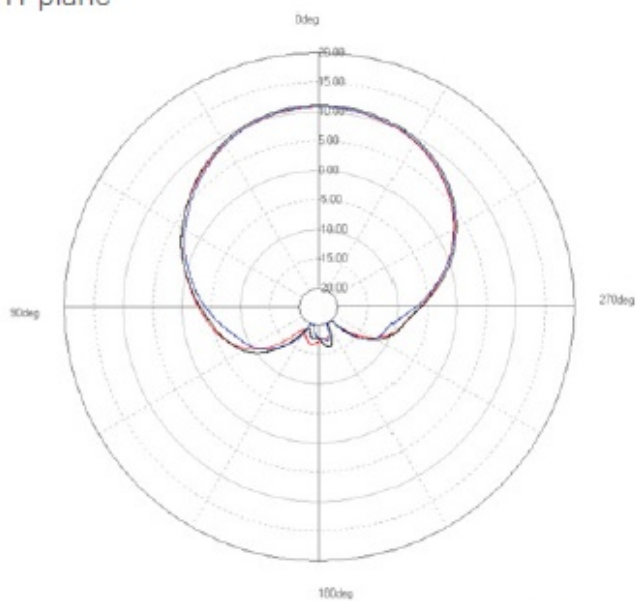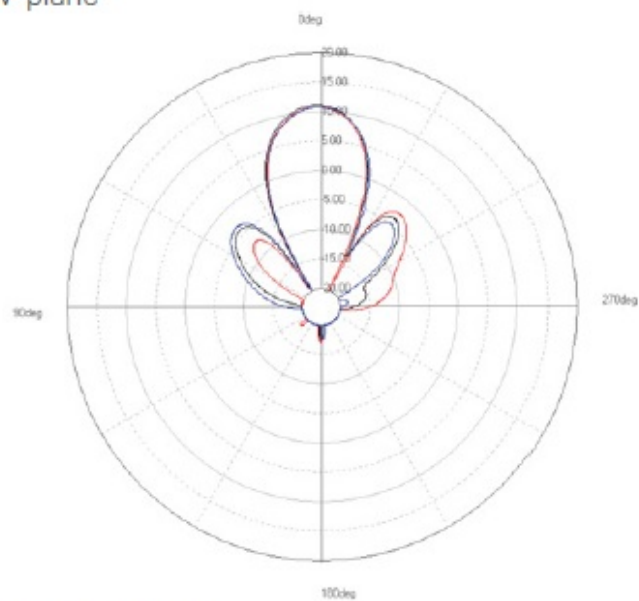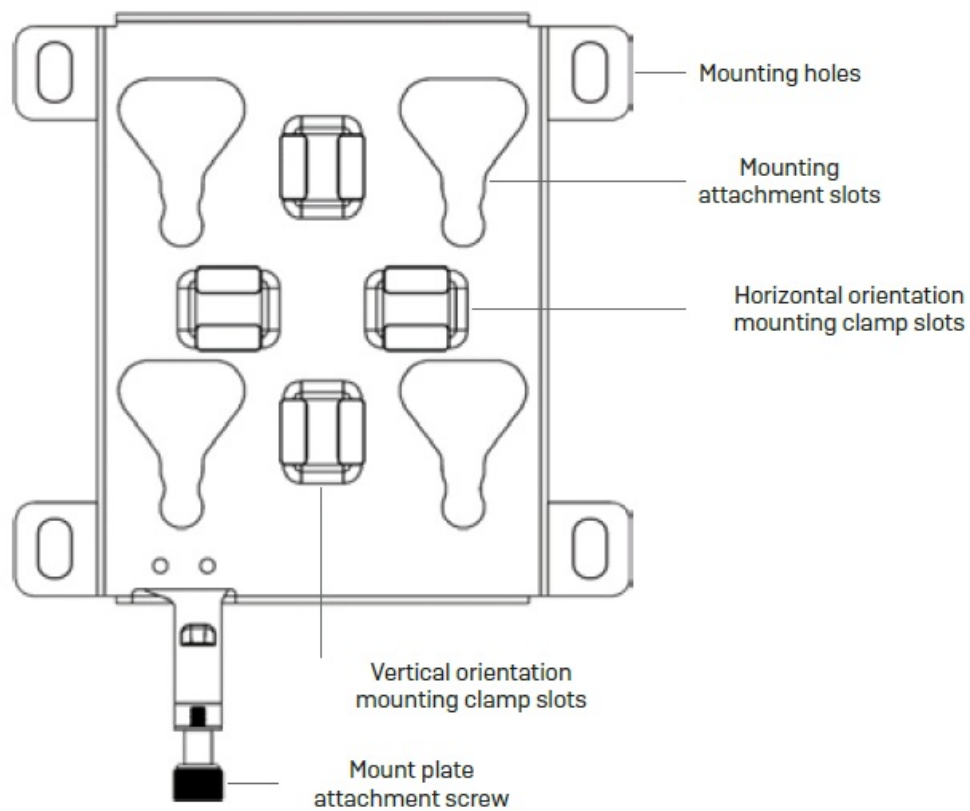
2.4 GHz Band

H-plane

V-plane

—2400 (MHz) —2450 (MHz) —2500 (MHz)
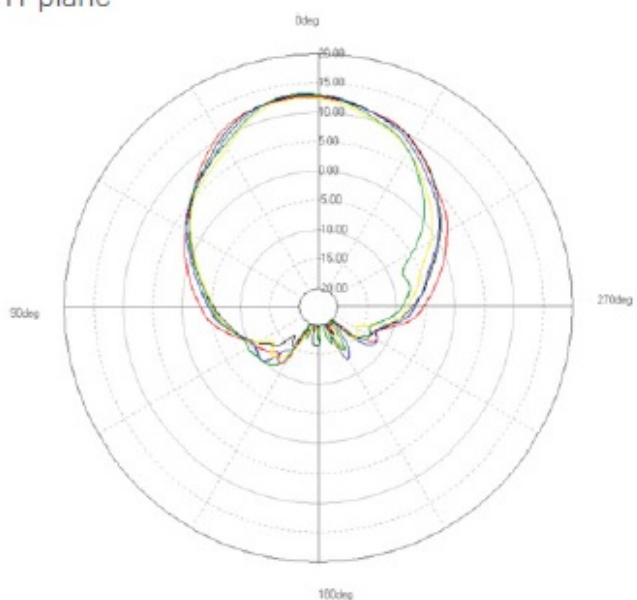
5 GHz Band
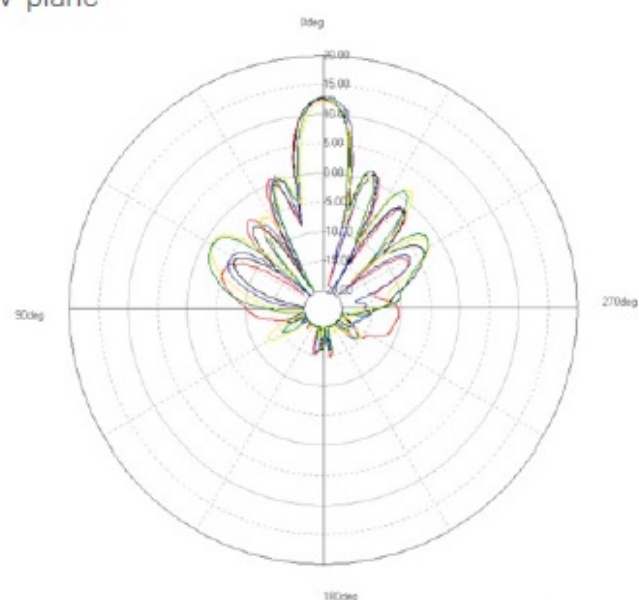
H-plane

V-plane

—4900 (MHz) —5150 (MHz) —5350 (MHz) —5475 (MHz) —5725 (MHz) —5875 (MHz)

Radiation patterns Directional Antenna – Horizontal Polarization
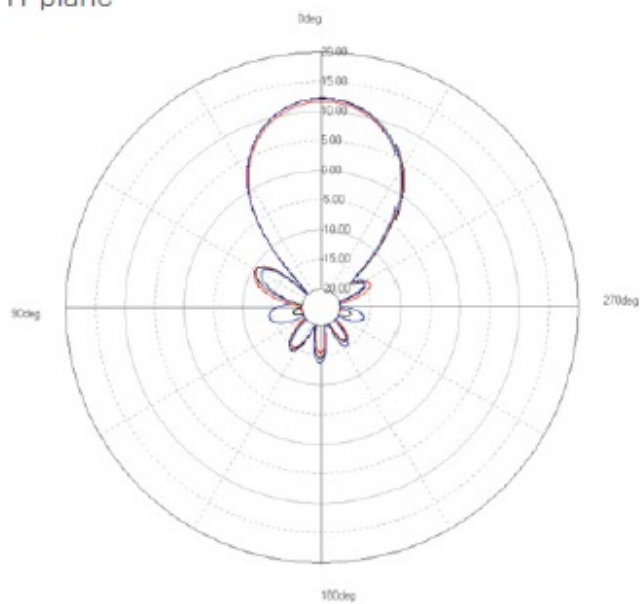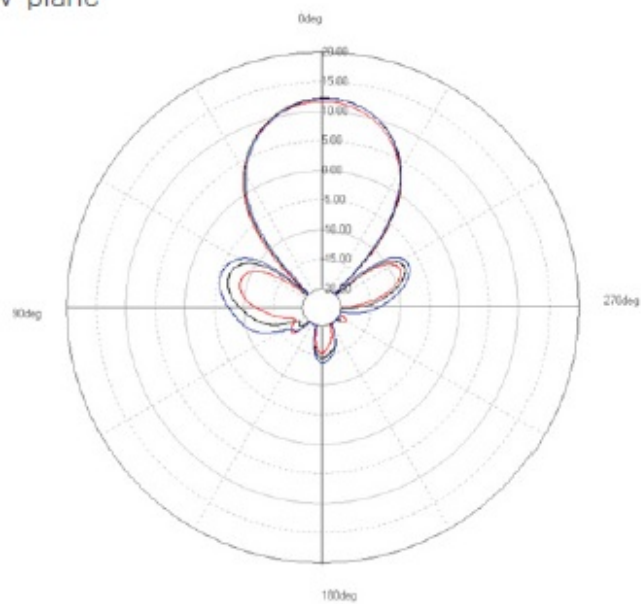
2.4 GHz Band

H-plane

V-plane

—2400 (MHz) —2450 (MHz) —2500 (MHz)
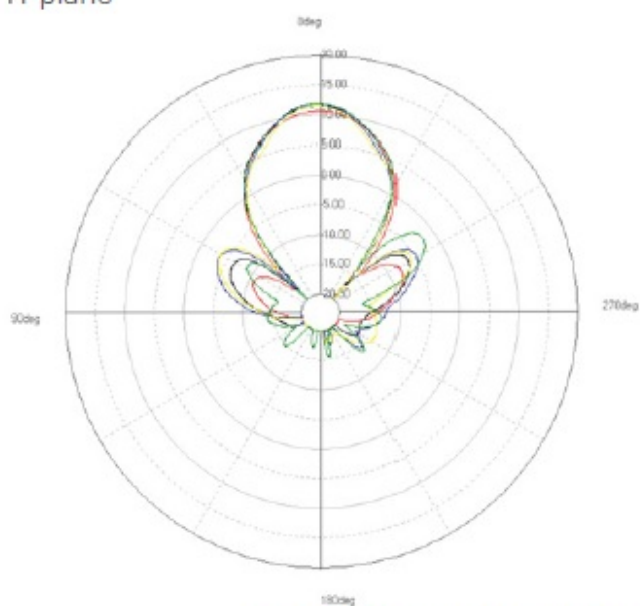
5 GHz Band
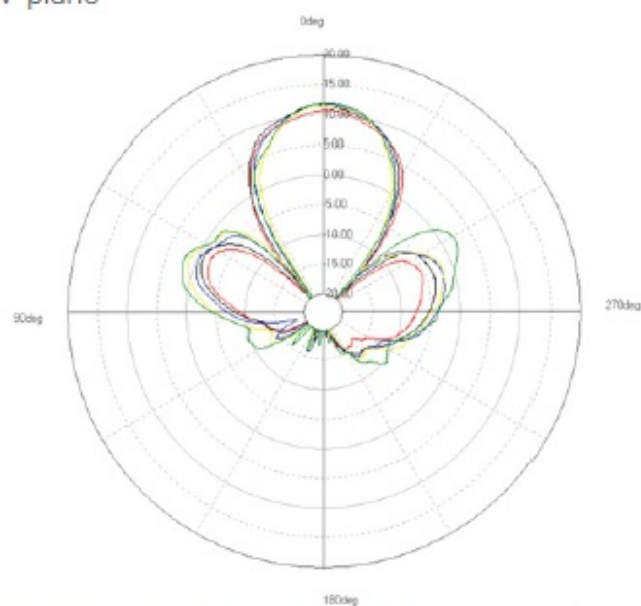
H-plane

V-plane

—4900 (MHz) —5150 (MHz) —5350 (MHz) —5475 (MHz) —5725 (MHz) —5875 (MHz)

Radiation patterns Directional Antenna – Vertical Polarization
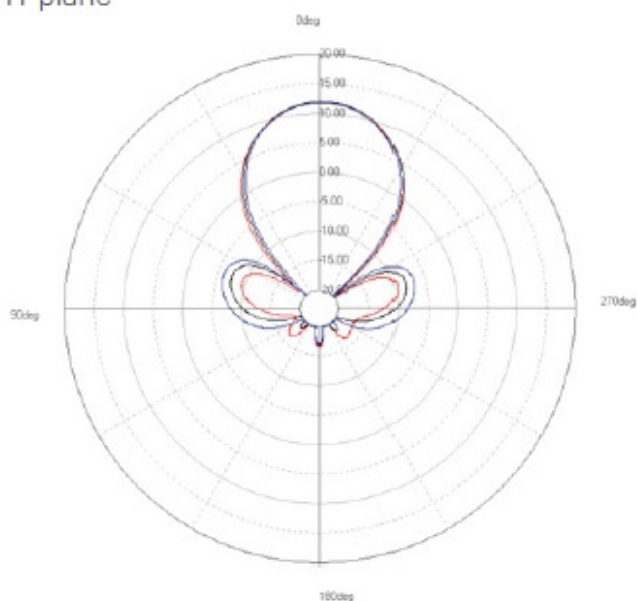
2.4 GHz Band

H-plane

V-plane

—2400 (MHz) —2450 (MHz) —2500 (MHz)

5 GHz Band

H-plane

V-plane
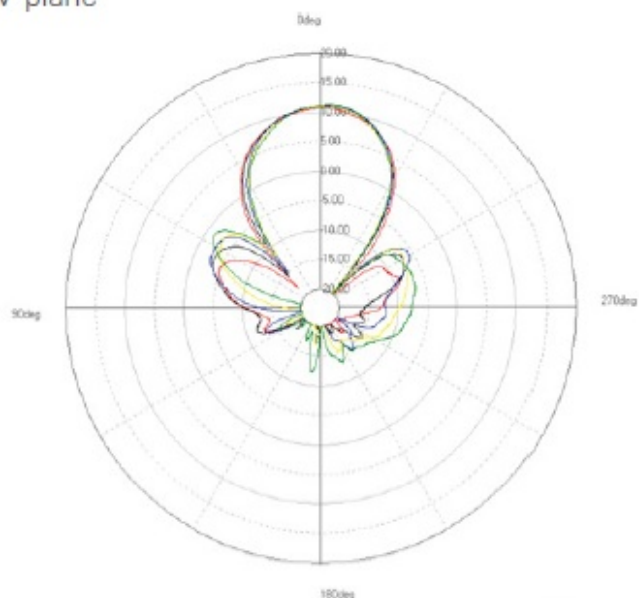
—4900 (MHz) —5150 (MHz) —5350 (MHz) —5475 (MHz) —5725 (MHz) —5875 (MHz)

Mounting instructions

There are various mounting options available allowing you to hang your access point on the wall or mount it on a pole. Both options require the use of the mounting bracket which is shipped with your access point. The following sections provide detailed instructions on each of these options.

Mounting bracket

Mounting holes

Mounting attachment slots

Horizontal orientation mounting clamp slots

Vertical orientation mounting clamp slots

Mount plate attachment screw

Wall mount

1. Use the mounting bracket to mark the screw mounting positions on the wall.
2. Attach the access point to the bracket by hanging the 4 forge posts into the attachment slots of the bracket and pressing it down.
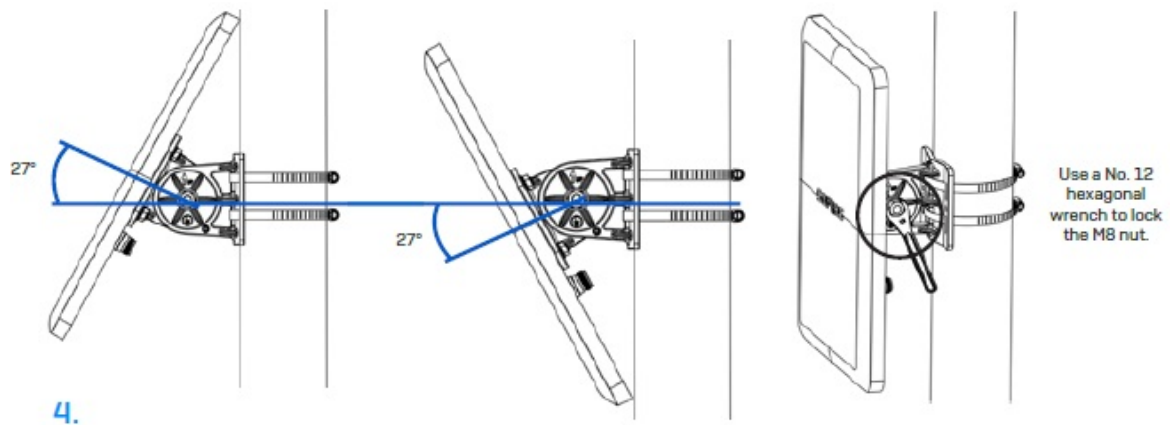3. Tighten the attachment screw to fix the access point to the bracket.

1.

2.

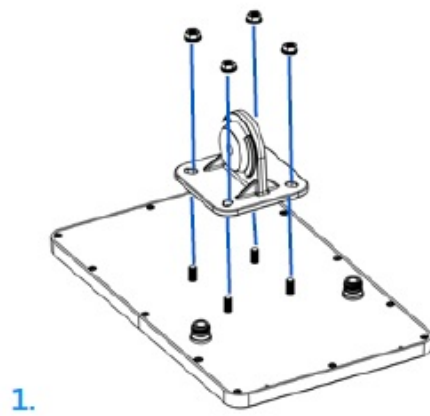3.

Tighten the attachment screw
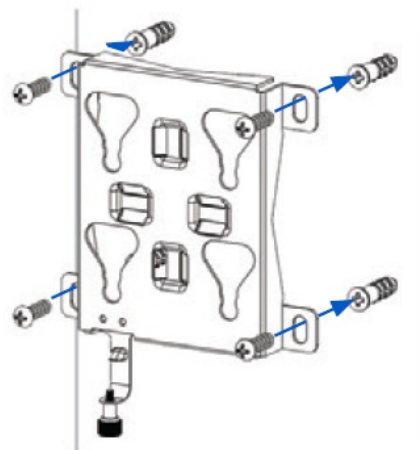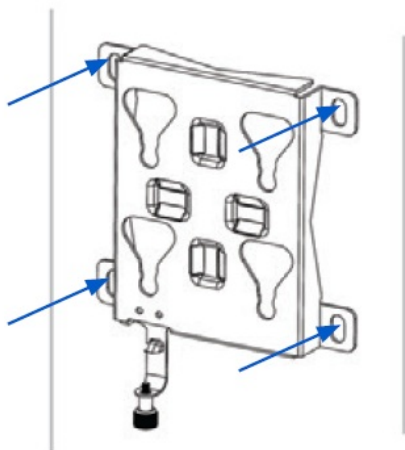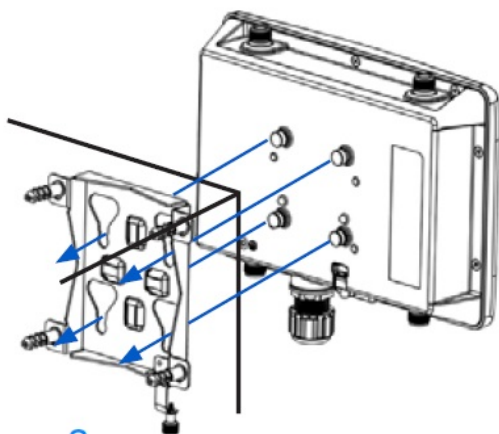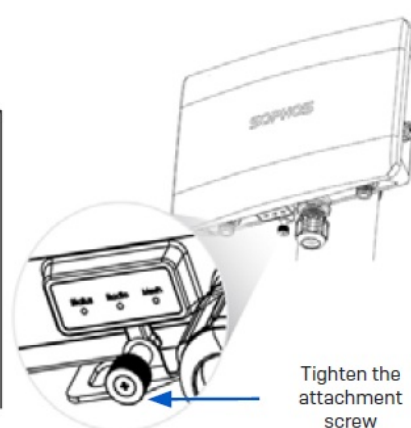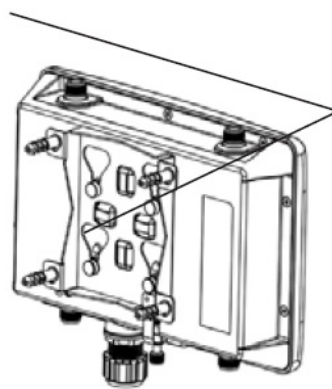
Pole mount

1. Attach the two metal clamps to the back of the mounting bracket using the vertical or horizontal mounting slots (according to the desired orientation).
2. Hold the bracket against the pole and tighten the metal clamps.
3. Attach the access point to the bracket by hanging the 4 forge posts into the attachment slots of the bracket and pressing it down.
4. Tighten the attachment screw to fix the access point to the bracket

1.

2.

3.

4.

Tighten the attachment screw
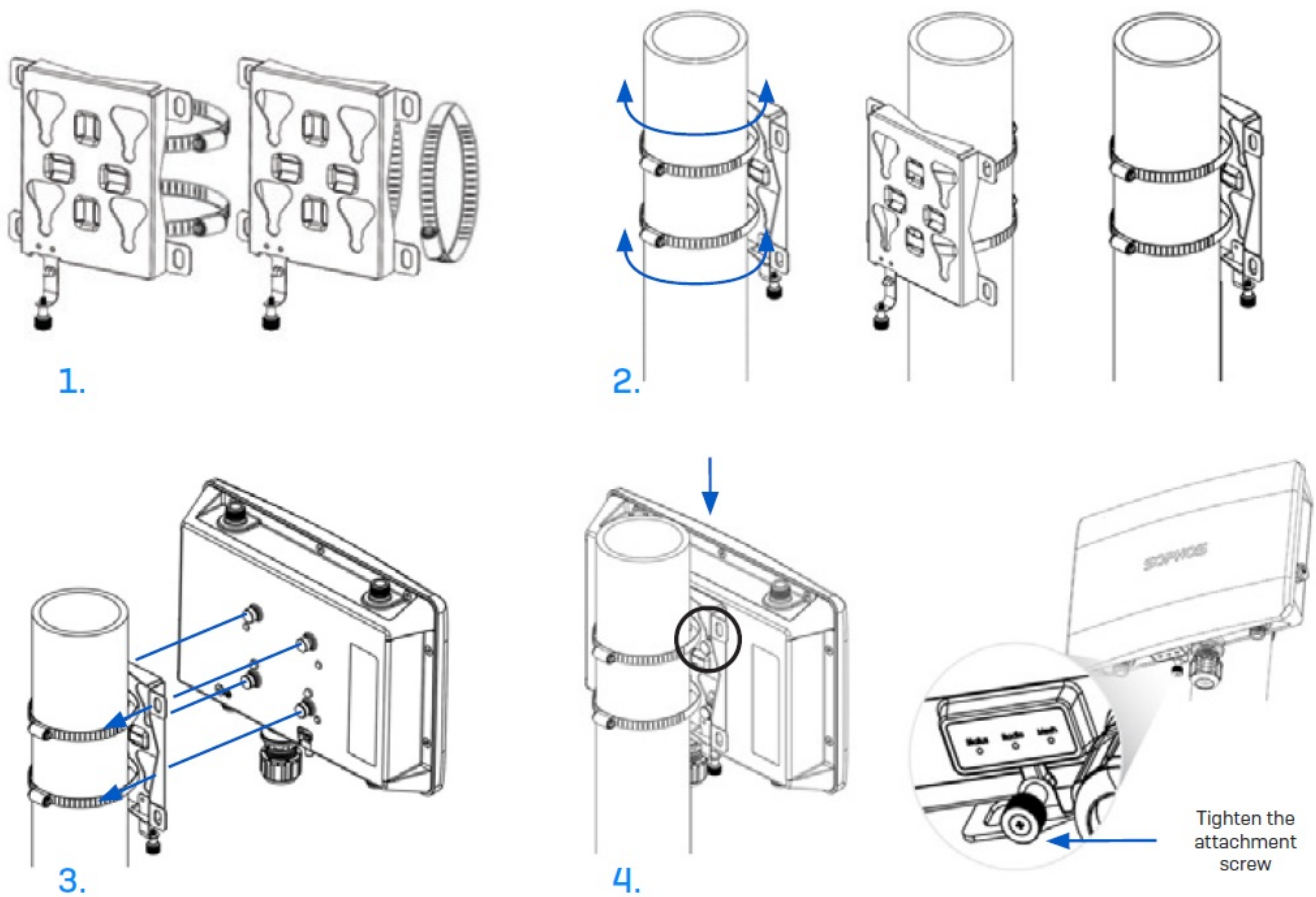
Sector/Directional Antenna Mounting Instructions

1. Attach the articulating mount to the back of the sector/directional antenna using four of the supplied M6 nuts.
2. Fix the T-form bracket to the pole by using the two supplied stainless steel hose clamps.
   Please note: The clamps can be used for poles of 35- 65 mm (1.5-2.5 inches) diameter.
3. Fix the articulating mount to the T-form bracket by using the supplied M8x40 bolts, nut, spring washer and washer.
4. Direct the antenna upward or downward (max. angle is 27°) and fix it into place.

1.

2.

M8x40 Screw Bolts

T-form Bracket

Washer

Spring Washer

M8 Nut

3.

27°

27°

Use a No. 12 hexagonal wrench to lock the M8 nut.

4.
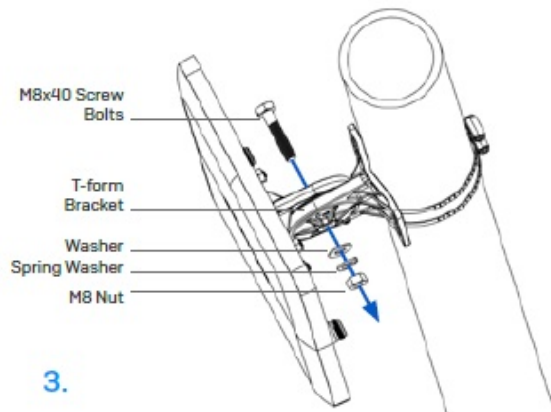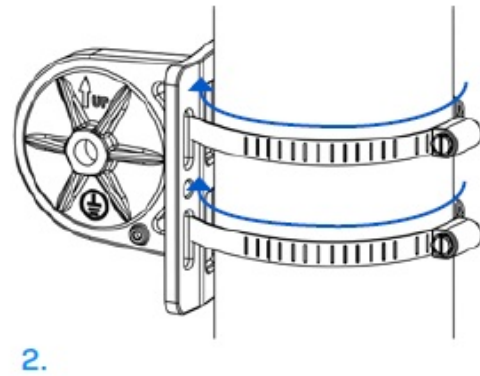
Connect the Sector/Directional Antenna to the Access Point

Connect the antenna to your AP6 420X access point by using the supplied cables. You can use your sector/directional antenna either in combination with the standard omni-directional antennas or with another sector/directional antenna.
Choose the appropriate connection for the scenario which best fits your use case – as shown in the table below.

Scenario	2.4 GHz Band (Top)	5 GHz Band (Bottom)
a	Sector / Directional	Sector / Directional
b	Sector / Directional	Omni
c	Omni	Sector / Directional
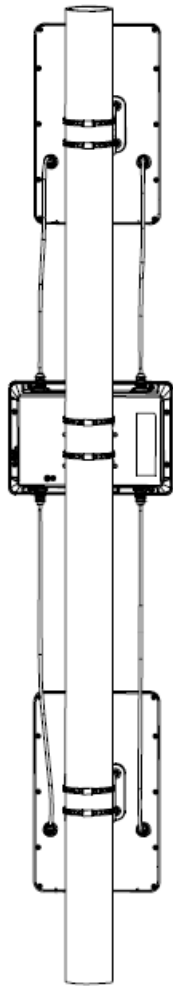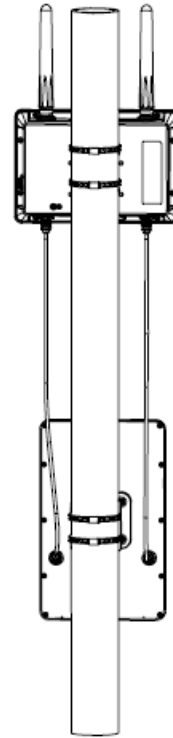
a.   b.   c.

Configure Sector / Directional Antenna Software Settings

Once the external antenna is connected, please select the corresponding antenna settings in your Sophos Central Wireless admin account. Once selected and the configuration synched, the AP reboots and the correct power values will be set.

WARNING: Failure to configure the correct antenna settings may place the AP outside of regulatory limits. The administrator is responsible for ensuring this configuration is correct.

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Documents / Resources

SOPHOS Operating Instructions AP6 420X	**SOPHOS AP6 420X Access Point** [pdf] Instruction Manual AP6 420X, AP6 420X Access Point, Access Point, Point

References

- **Service and Support**
- **Sophos Central**
- **Regulatory compliance documents**
- **User Manual**