

CISCO AIRONET 2.4 GHZ AND 5 GHZ ANTENNAS AND ACCESSORIES—COMPLETE THE WIRELESS SOLUTION

Cisco Systems® offers a complete range of antennas for access point and bridge equipment that enable a customized wireless solution for almost any installation.

CISCO AIRONET ANTENNAS AND ACCESSORIES

Every wireless LAN deployment is different. When engineering an in-building solution, varying facility sizes, construction materials, and interior divisions raise transmission and multipath considerations. When implementing a building-to-building solution, distance, physical obstructions between facilities, and number of transmission points must be taken into account.

Cisco is committed to providing the best access points, client adapters, and bridges in the industry—and is also committed to providing a complete solution for any wireless LAN deployment. Cisco has the widest range of antennas, cable, and accessories available from any wireless manufacturer.

Cisco offers a complete range of 2.4 GHz and 5 GHz antennas for access point and bridge equipment that enable a customized wireless solution for almost any installation (Figure 1).

Figure 1. Cisco 2.4-GHz Antennas and Accessories







With the Cisco FCC-approved directional and omnidirectional antennas, low-loss cable, mounting hardware, and other accessories, installers can customize a wireless solution that meets the requirements of even the most challenging applications.

ACCESS POINT ANTENNAS

Cisco Aironet 2.4-GHz access point antennas are compatible with all Cisco RP-TNC-equipped access points. The antennas are available with different gain and range capabilities, beam widths, and form factors. Coupling the appropriate antenna and access point allows for efficient coverage in any facility, as well as better reliability at higher data rates (Table 1).

Cisco Aironet 5 GHz access point antennas have RP-TNC connectors and are compatible with Cisco Aironet 1200 Series and 1230AG Series access points when equipped with a RM22A radio module. Selection of the appropriate antenna should provide optimal coverage for the desired application in the 5 GHz frequency band.

Table 1. Cisco Aironet 2.4 GHz Access Point Antennas with RP-TNC Connectors

				
Feature	AIR-ANT5959	AIR-ANT2012	AIR-ANT3213	AIR-ANT2410Y-R
Description	Diversity omnidirectional ceiling mount	Diversity patch wall mount	Pillar mount diversity omnidirectional	Yagi mast or wall mount
Application	Indoor unobtrusive antenna, best for ceiling mount; excellent throughput and coverage solution in high multipath cells and dense user population	Indoor/outdoor, unobtrusive midrange antenna	Indoor, unobtrusive midrange antenna	Indoor/outdoor directional antenna for use with access points or bridges
Gain	Two separate 2-dBi omnidirectional elements; minimum gain of 2.0, maximum gain of 2.35	6.5 dBi with two radiating elements	5.2 dBi with two radiating elements	10 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
Approximate Indoor Range at 6 Mbps*	295 ft (90 m)	418 ft (127 m)	379 ft (121 m)	548 ft (167 m)
Approximate Indoor Range at 54 Mbps*	88 ft (27 m)	126 ft (38 m)	114 ft (35 m)	165 ft (50 m)
Beam Width	360°H, 80°V	80°H, 55°V	360°H, 30°V	47°H, 55°V
Cable Length	3 ft (0.91 m)**	3 ft (0.91 m)**	3 ft (0.91 m)	3 ft (0.91 m)
Dimensions	5.3 x 2.8 x 0.9 in. (13.5 x 7.1 x 2.3 cm)	4.8 x 6.7 x 0.8 in. (12 x 17 x 2 cm)	10 x 1 in. (25.4 x 2.5 cm)	7.25 x 5 in. (18.4 x 12.7 cm)
Weight	0.3 lb (0.14 kg)	9.6 oz (272 g)	1 lb (454 g)	8 oz (227 g)

* All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

** The cable provided on noted antennas meets UL 2043 certification for plenum rating requirements set by local fire codes and supports installation in environmental air spaces such as areas above suspended ceilings.

				
Feature	AIR-ANT1728	AIR-ANT4941	AIR-ANT3549	AIR-ANT1729
Description	Omnidirectional ceiling mount	2.2-dBi dipole antenna	Patch wall mount	Patch wall mount
Application	Indoor midrange antenna, typically hung from crossbars of drop ceilings	Indoor omnidirectional coverage	Indoor, unobtrusive, long-range antenna (may also be used as a midrange bridge antenna)	Indoor/outdoor, unobtrusive, midrange antenna (may also be used as a midrange bridge antenna)
Gain	5.2 dBi	2.2 dBi	9 dBi	6 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
Approximate Indoor Range at 6 Mbps*	379 ft (116 m)	300 ft (91 m)	507 ft (155 m)	403 ft (123 m)
Approximate Indoor Range at 54 Mbps*	114 ft (35 m)	90 ft (27 m)	153 ft (47 m)	121 ft (37 m)
Beam Width	360°H, 38°V	360°H, 65°V	60°H, 60°V	75°H, 65°V
Cable Length	3 ft (0.91 m)	–	3 ft (0.91 m)	3 ft (0.91 m)
Dimensions	Length: 9 in. (22.9 cm) Diameter: 1 in. (2.5 cm)	5.5 in. (14 cm)	5 x 5 in. (12.7 x 12.7 cm)	4 x 5 in. (10 x 13 cm)
Weight	4.6 oz (130 g)	1.1 oz (31 g)	5.3 oz (150 g)	4.9 oz (139 g)

* All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Table 2. Cisco Aironet 5 GHz Access Point Antennas with RP-TNC Connectors

					
Feature	AIR-ANT5135D-R	AIR-ANT5145V-R	AIR-ANT5160V-R	AIR-ANT5170P-R	AIR-ANT5195P-R
Description	3.5-dBi dipole antenna	4.5-dBi diversity omnidirectional ceiling mount	6 dBi omnidirectional antenna	Diversity patch wall mount	Patch wall or articulating mast mount
Application	Indoor omnidirectional coverage	Indoor midrange antenna	Indoor/outdoor midrange antenna	Indoor/outdoor directional wall mount antenna	Indoor/outdoor patch antenna provides different mounting options
Gain	3.5 dBi	4.5 dBi	6 dBi	7.0 dBi	9.5 dBi
Frequency	5 GHz	5 GHz	5 GHz	5 GHz	5 GHz
Approximate Indoor Range at 6 Mbps*	675 ft (206 m)	732 ft (223 m)	822 ft (251 m)	880 ft (270 m)	1030 ft (313 m)
Approximate Indoor Range at 54 Mbps*	75 ft (21 m)	82 ft (25 m)	92 ft (28 m)	140 ft (43 m)	170 ft (52 m)
Beam Width	360°H, 40°E	360°H, 50°E	360°H, 17°E	70° H, 50° V	50° H, 43° V
Cable Length	–	3 ft (0.91 m)	3 ft (0.91 m)	36" **	36" **
Dimensions	5.3 x 0.6 in. (13.5 x 1.5 cm)	6.75 x 4.2 in. (17.1 x 12.7 cm)	12 in. length; 1 in. diameter (30.5 x 2.5 cm)	5.7 in. (14.5 cm) x 4.3 in. (10.9 cm) x 0.7 in. (1.8 cm)	5.1 in. (12.9 cm) x 5.1 in. (12.9 cm) x 1.0 in. (2.5 cm)
Weight	1 oz (28.3 g)	11.5 oz (326 g)	5.3 oz (150 g)	8 oz (0.2 kg)	10 oz. (0.2 kg)

* All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

** The cable provided on noted antennas meets UL 2043 certification for plenum rating requirements set by local fire codes and supports installation in environmental air spaces such as areas above suspended ceilings.

2.4 GHZ AND 5 GHZ ACCESS POINT AND BRIDGE ANTENNAS WITH N TYPE CONNECTORS

Cisco offers antennas that can be used with both the 1400 Series Wireless Bridges and 1500 Series Lightweight Outdoor Mesh Access Points. The antennas, access points and bridges all utilize a robust N-type connector. Various gains and antenna types are available (Table 3).

Table 3. Cisco Aironet 2.4 GHz and 5 GHz Access Point and Bridge Antennas with N-Type Connectors






Feature	AIR-ANT5175V-N	AIR-ANT2455V-N
		
Description	Omnidirectional	Omnidirectional
Application	Outdoor	Outdoor, direct mount on unit
Gain	7.5 dBi	5.5 dBi
Frequency	4.9–5.8 MHz	2.4 GHz
Beam width	16°V	25° V
Cable Length	12"	None
Dimensions	12 in (30.48 cm) x 1 in. (2.54 cm)	12.5 in (31.75 cm) x 1 in. (2.54 cm)
Weight	6 oz (17 kg)	5 oz. (14 kg)

Table 4 highlights the antennas for use with the Cisco Aironet 1400 Series Wireless Bridge featuring an N-type connector.

Table 4. Cisco Aironet 5.8 GHz Bridge Antennas with N-Type Connectors

Feature	AIR-ANT58G9VOA-N	AIR-ANT58G10SSA-N	AIR-ANT58G28SDA-N
			
Description	<ul style="list-style-type: none"> • Omni-directional • Mast mount 	<ul style="list-style-type: none"> • Sector antenna • Mast mount 	<ul style="list-style-type: none"> • Dish antenna • Mast mount
Application	<ul style="list-style-type: none"> • Outdoor short-range point-to-multipoint applications 	<ul style="list-style-type: none"> • Outdoor medium-range point-to-point and point-to-multipoint applications 	<ul style="list-style-type: none"> • Outdoor long-range directional connections
Gain	<ul style="list-style-type: none"> • 9.0 dBi 	<ul style="list-style-type: none"> • 9.5 dBi 	<ul style="list-style-type: none"> • 28.0 dBi
Frequency	<ul style="list-style-type: none"> • 5.8 MHz 	<ul style="list-style-type: none"> • 5.8 MHz 	<ul style="list-style-type: none"> • 5.8 MHz
Polarization	<ul style="list-style-type: none"> • Vertical 	<ul style="list-style-type: none"> • Vertical or horizontal • Field configurable 	<ul style="list-style-type: none"> • Vertical or horizontal • Field configurable
Elevation Adjustment	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • +/- 12.5 degrees
Approximate Range at 9 Mbps*	<ul style="list-style-type: none"> • 8 miles (13 km) (with 22.5 dBi captive antenna on the remote site) 	<ul style="list-style-type: none"> • 8 miles (13 km) (with 22.5 dBi captive antenna on the remote site) 	<ul style="list-style-type: none"> • 23 miles (37 km) (with 28 dBi antennas on each end)
Approximate Range at 54 Mbps	<ul style="list-style-type: none"> • 2 miles (3 km) (with 22.5 dBi captive antenna on the remote site) 	<ul style="list-style-type: none"> • 2 miles (3 km) (with 22.5 dBi captive antenna on the remote site) 	<ul style="list-style-type: none"> • 12 miles (19 km) (with 28 dBi antennas on each end)
Beam Width	<ul style="list-style-type: none"> • 360° H, 6° V 	<ul style="list-style-type: none"> • 60° H, 60° V 	<ul style="list-style-type: none"> • 5.7° H, 6° V
Supplied Jumper Cable Length	<ul style="list-style-type: none"> • 4.9 ft. (1.5 m) 	<ul style="list-style-type: none"> • 4.9 ft. (1.5 m) 	<ul style="list-style-type: none"> • 4.9 ft. (1.5 m)
Dimensions	<ul style="list-style-type: none"> • Length: 18 in. (46 cm) • Diameter: 1 in. (2.5 cm) 	<ul style="list-style-type: none"> • Length: 2.5 in. (6.4 cm) • Width: 2.5 in. (6.4 cm) • Depth: 1.75 in. (4.5 cm) 	<ul style="list-style-type: none"> • Diameter: 29 in. (74 cm) • Depth: 14.5 in. (36.8 cm)
Weight	<ul style="list-style-type: none"> • 2.0 lb. (0.9 kg) 	<ul style="list-style-type: none"> • 1.25 lb. (0.6 kg) 	<ul style="list-style-type: none"> • 9.5 lb. (4.3 kg)

2.4 GHZ BRIDGE ANTENNAS

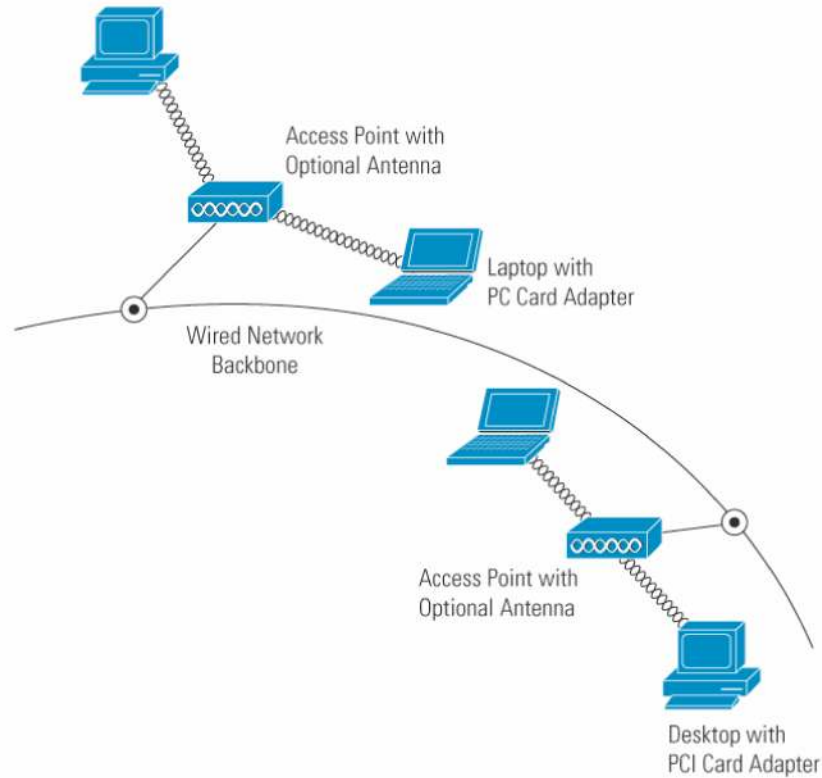
Cisco Aironet bridge antennas allow for extraordinary transmission distances between two or more buildings. Available in directional configurations for point-to-point transmission and omnidirectional configuration for point-to-multipoint implementations, Cisco has a bridge antenna for every application (Table 5).

Table 5. Cisco Aironet 2.4 GHz Bridge Antennas with RP-TNC Connectors

					
	AIR-ANT2506	AIR-ANT24120	AIR-ANT2414S-R	AIR-ANT1949	AIR-ANT3338
Description	Omnidirectional mast mount	High-gain omnidirectional mast mount	Vertically polarized sector	Yagi mast mount	Solid dish
Application	Outdoor short-range point-to-multipoint applications	Outdoor midrange point-to-multipoint applications	Outdoor long range point-to-multipoint applications	Outdoor midrange directional connections	Outdoor long-range directional connections
Gain	5.2 dBi	12 dBi	14 dBi	13.5 dBi	21 dBi
Approximate Range at 2 Mbps*	3.3 miles (5.31 km)	15.81 miles (25.43 km)	16.71 miles (26.89 km)	18.33 miles (29.49 km)	26.49 miles (42.62 km)
Approximate Range at 11 Mbps*	1.66 miles (2.66 km)	7.92 miles (12.75 km)	8.89 miles (14.30 km)	11.19 miles (18.01 km)	20.1 miles (32.33 km)
Approximate Range at 54 Mbps*	.21 miles (.34 km)	1.0 miles (1.6 km)	1.26 miles (2.02 km)	1.41 miles (2.27 km)	4.46 miles (7.17 km)
Beam Width	360°H, 38°V	360°H, 7°V	90°H, 8.5°V	30°H, 25°V	12.4°H, 12.4°V
Cable Length	3 ft (0.91 m)	1 ft (0.30 m)	5 ft (1.5m)	3 ft (0.91 m)	2 ft (0.61 m)
Dimensions	Length: 13 in. (33 cm) Diameter: 1 in. (2.5 cm)	Length: 42 in. (107 cm) Diameter: 1.5 in. (3.8 cm)	Length: 36 in. (91 cm) Width: 6 in. (15 cm)	Length: 18 in. (46 cm) Diameter: 3 in. (7.6 cm)	Diameter 24 in. (61 cm)
Weight	6 oz (170 g)	1.5 lb (0.68 kg)	6.5 lb (3 kg)	1.5 lb (0.68 kg)	11 lb (5 kg)

* All range estimations are based on use of a BR 1310 access point and the same type of antenna at each end of the connection under ideal outdoor conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Figure 2. Optional, Higher-Gain Antennas Extend the Range of Access Points



LOW-LOSS/ULTRA-LOW-LOSS CABLES

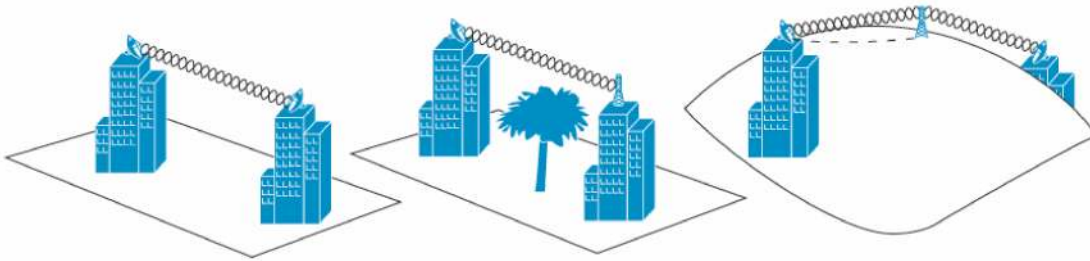
Low-loss cables extend the length between any Cisco Aironet 2.4 GHz and 5 GHz radio and the antenna with RP-TNC connectors. With a loss of 6.7 dB per 100 feet (30 m) for the low-loss cable and 4.4 dB for the ultra-low-loss cable, this provides installation flexibility without a significant sacrifice in range (Table 6).

Table 6. Cisco Aironet Low-Loss Antenna Cable Features

Feature	AIR-CAB020LL-R	AIR-CAB050LL-R	AIR-CAB100ULL-R	AIR-CAB150ULL-R
Cable Length	20 ft (6 m)	50 ft (15 m)	100 ft (30 m)	150 ft (46 m)
Transmission Loss @ 2.4 GHz	1.3 dB	3.4 dB	4.4 dB	6.6 dB

With Cisco Aironet bridge antennas, the right mounting hardware, and qualified installation, wireless links over great distances and obstacles are possible (Figure 3).

Figure 3. Crossing Great Distances with Cisco Aironet Bridge Antennas



ACCESSORIES

To complete an installation, Cisco provides accessories that offer increased capabilities, safety, and convenience (Figure 4; Table 7).

Figure 4. Cisco Aironet Antenna Accessories for use with RP-TNC Connectors



Table 7. Cisco Aironet Accessory Features

Feature	AIR-ACC2537-060	AIR-ACC3354	AIR-ACC245LA-R	AIR-ACC2662
Description	60 in. (152 cm) bulkhead extender	2.4 GHz lightning arrester	2.4 GHz and 5 GHz lightning arrester	Yagi articulating mount
Application	Flexible antenna cable that extends access point cabling, typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity; flexible antenna cable that extends access point cabling, typically within an enclosure	Supports both 2.4 GHz and 5 GHz applications; Helps prevent damage due to lightning-induced surges or static electricity; helps prevent damage due to lightning-induced surges or static electricity	Adds swiveling capability to mast-mounted Yagi antennas

POWER INJECTOR CABLES FOR CISCO AIRONET 1400 SERIES WIRELESS BRIDGES

Typical installations will place the outdoor unit on an external mast with the power injector unit placed indoors. These cables come with a pair of F-type connectors on each end. To allow flexibility in the distance between the units, a variety of cables are available (Table 8).

Figure 5. Cisco Aironet Power Injector Cables



Table 8. Cisco Aironet Power Injector Cable Features

Feature	AIR-CAB020DRG6-F=	AIR-CAB050DRG6-F=	AIR-CAB100DRG6-F
Cable Length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)

ACCESSORIES

To complete an installation, Cisco provides a variety of accessories that offer increased functionality, safety, and convenience (Figure 6; Table 9).

Figure 6. Cisco Aironet 1400 Series Bridge Accessories



Table 9. Cisco Aironet 1400 Series Bridge Accessory Features

Feature	AIR-ACCRWM1400	AIR-ACCBRGB=	AIR-ACCMFM1400=
Description	<ul style="list-style-type: none"> • Roof/Wall mount kit 	<ul style="list-style-type: none"> • Grounding block 	<ul style="list-style-type: none"> • Multifunction mount
Application	<ul style="list-style-type: none"> • Allows mounting to flat surfaces • Includes full elevation and azimuth adjustment 	<ul style="list-style-type: none"> • Helps prevent damage due to lightning-induced surges or static electricity 	<ul style="list-style-type: none"> • Allows mounting to poles with a diameter between 1.5 in. and 2.5 in. • Includes both elevation and polarization adjustment

CISCO AIRONET 1300 SERIES MOUNTING HARDWARE

In addition to the antennas available from Cisco, the Cisco 1300 Series has different mounting options (Figure 7). These optional mounting kits are available for mounting to a roof, wall, or pole. The quick-hang mounting bracket allows a simple one-person installation.

Figure 7. Cisco Aironet 1300 Series Mounting Hardware



MOUNTING KITS FOR CISCO AIRONET 1300 SERIES OUTDOOR ACCESS POINT/BRIDGES

A roof-mount kit is available for use with Cisco Aironet 1300 Series outdoor access points/bridges (integrated antenna and connectorized versions). A wall-mount kit is available for use with Cisco Aironet 1300 Series outdoor access points/bridges with RP-TNC type connectors. The wall-mount kit is for indoor use only. These kits must be ordered separately (Table 9).

Table 10. Mounting Kits for Cisco Aironet 1300 Series Outdoor Access Points/Bridges

Product Number	Product Description
AIR-ACCWAMK1300=	<p>Cisco Aironet 1300 Series Wall-Mount Kit for use with AIR-BR1310G-x-K9-R</p> <p>Kit includes:</p> <ul style="list-style-type: none"> • Two 1-ft RG-59 power injector cables • Wall-mount bracket • Mounting hardware
AIR-ACCRMK1300=	<p>Cisco Aironet 1300 Series Roof-Mount Kit for use with AIR-BR1310G-x-K9</p> <p>Kit includes:</p> <ul style="list-style-type: none"> • Roof-mount mast (pole and mounting base) • Multifunction mount (allows mounting to roof-mount mast, or directly to a wall) • Mounting hardware • 20-ft dual RG-6 cable assembly with F-Type connectors • 50-ft dual RG-6 cable assembly with F-Type connectors • Coaxial sealant • One Cisco Aironet grounding block • Grounding lug • Anticorrosion gel • U-bolts • Coaxial sealant • Optional 100-ft dual RG-6 cable available separately

CISCO AIRONET 1500 SERIES ACCESSORIES

In addition to the antennas offered by Cisco for the 1500 Series, there are various accessories that are available (Table 11).

Table 11. Cisco Aironet 1500 Series Accessories

Product Number	Product Description
AIR-ACCPMK1500=	Pole Mount Kit
AIR-PWR-ST-LT-TAP=	Streetlight Power Tap, 105-260 VAC
AIR-PWRINJ1500=	Power Injector, In 100–240VAC, Out 48 VDC
AIR-ETH1500-150=	Outdoor Ethernet Cable, 150 ft.
AIR-LAP1510KITP-A	Pole-Top Kit, 2.4 Omni 5 GHz Omni
AIR-LAP1510KITRO-A	Roof-Top Kit, 2.4 Omni 5GHz Omni
AIR-LAP1510KITRS-A	Roof-Top Kit, 2.4 Omni 5GHz Sector



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