A P P E N D I X   A

Technical Specifications

This appendix provides technical specifications for the Cisco Aironet Wireless LAN Client Adapters. The following topics are covered in this appendix:

Table A-1 lists the technical specifications for the Cisco Aironet Wireless LAN Client Adapters.

Note If a distinction is not made between radio or client adapter type, the specification applies to all Cisco Aironet Wireless LAN Client Adapters.

Table A-1   Technical Specifications for Cisco Aironet Wireless LAN Client Adapters

Physical Specifications	
Size	
PC card and PC-Cardbus card	4.5 in. L x 2.1 in. W x 0.2 in. H (11.3 cm L x 5.4 cm W x 0.5 cm H)
LM card	3.4 in. L x 2.1 in. W x 0.2 in. H (8.6 cm L x 5.4 cm W x 0.5 cm H)
PCI card	5.8 in. L x 3.2 in. W x 0.5 in. H (14.7 cm L x 8.1 cm W x 1.3 cm H)
Mini PCI card	2.3 in. L x 2.0 in. W x 0.2 in. H (6.0 cm L x 5.1 cm W x 0.5 cm H)
Weight	
PC card and LM card	1.3 oz (0.037 kg)
PCI card	4.6 oz (0.13 kg)
Mini PCI card	0.5 oz (0.014 kg)
PC-Cardbus card	1.5 oz (0.043 kg)
Enclosure	
PC card and PC-Cardbus card	Extended Type II PC card
LM card	Standard Type II PC card with RF connectors
Connector	
PC card and LM card	68-pin PCMCIA
PCI card	PCI card edge
PC-Cardbus card	68-pin Cardbus
Status indicators	Green and amber LEDs (except mini PCI card); see Chapter 10
Operating temperature	
340 series client adapters	32ºF to 158ºF (0ºC to 70ºC)
350 series client adapters	–22ºF to 158ºF (–30ºC to 70ºC)
5-GHz client adapters	–22ºF to 158ºF (–30ºC to 70ºC)
Storage temperature	–40ºF to 185ºF (–40ºC to 85ºC)
Humidity (non-operational)	95% relative humidity
ESD	15 kV (human body model)

Table A-1   Technical Specifications for Cisco Aironet Wireless LAN Client Adapters (continued)

Radio Specifications	
Type	
2.4-GHz client adapters	Direct-sequence spread spectrum (DSSS) IEEE 802.11b compliant
5-GHz client adapters	Orthogonal frequency division multiplexing (OFDM) IEEE 802.11a compliant
Power output	
Note Refer to Appendix D for limitations on radiated power (EIRP) levels in the European community and other countries.	
Note If you are using an older version of a 340 or 350 series client adapter, your power level options may be different than those listed here.	
340 series PC card	30 mW (15 dBm) 1 mW (0 dBm)
340 series LM card and PCI card	30 mW (15 dBm) 15 mW (12 dBm) 5 mW (7 dBm) 1 mW (0 dBm)
350 series client adapters	100 mW (20 dBm) 50 mW (17 dBm) 30 mW (15 dBm) 20 mW (13 dBm) 5 mW (7 dBm) 1 mW (0 dBm)
PC-Cardbus card	20 mW (13 dBm) 10 mW (10 dBm) 5 mW (7 dBm) **Note** These values are based on the FCC peak measurement method as defined in FCC 15.407(a)(4).
Operating frequency	
2.4-GHz client adapters	2.400 to 2.497 GHz (depending on the regulatory domain in which the client adapter is used)
5-GHz client adapters	5.15 to 5.25 GHz in the UNII 1 band* 5.25 to 5.35 GHz in the UNII 2 band* *Depending on the regulatory domain in which the client adapter is used
Usable channels	
2.4-GHz client adapters	2412 to 2484 MHz in 5-MHz increments
5-GHz client adapters	5170 to 5320 MHz in 20-MHz increments

Table A-1   Technical Specifications for Cisco Aironet Wireless LAN Client Adapters (continued)

Interference rejection	
2.4-GHz client adapters	35 dB adjacent channel rejection
5-GHz client adapters	16 dB @ 6 Mbps adjacent channel rejection 15 dB @ 9 Mbps adjacent channel rejection 13 dB @ 12 Mbps adjacent channel rejection 11 dB @ 18 Mbps adjacent channel rejection 8 dB @ 24 Mbps adjacent channel rejection 4 dB @ 36 Mbps adjacent channel rejection 0 dB @ 48 Mbps adjacent channel rejection –1 dB @ 54 Mbps adjacent channel rejection
Data rates	
2.4-GHz client adapters	1, 2, 5.5, and 11 Mbps
5-GHz client adapters	6, 9, 12, 18, 24, 36, 48, and 54 Mbps
Modulation	Binary phase shift keying (BPSK) - 1 Mbps Quaternary phase shift keying (QPSK) - 2 Mbps Complementary code keying (CCK) - 5.5 and 11 Mbps Orthogonal frequency division multiplexing (OFDM) - 6 to 54 Mbps
Receiver sensitivity	
340 series client adapters	–90 dBm @ 1 Mbps –88 dBm @ 2 Mbps –87 dBm @ 5.5 Mbps –83 dBm @ 11 Mbps
350 series client adapters	–94 dBm @ 1 Mbps –91 dBm @ 2 Mbps –89 dBm @ 5.5 Mbps –85 dBm @ 11 Mbps
5-GHz client adapters	–85 dBm @ 6 Mbps –84 dBm @ 9 Mbps –82 dBm @ 12 Mbps –80 dBm @ 18 Mbps –77 dBm @ 24 Mbps –73 dBm @ 36 Mbps –69 dBm @ 48 Mbps –68 dBm @ 54 Mbps
Receiver delay spread (multipath)	
2.4-GHz client adapters	500 ns @ 1 Mbps 400 ns @ 2 Mbps 300 ns @ 5.5 Mbps 140 ns @ 11 Mbps (350 series client adapters) 70 ns @ 11 Mbps (340 series client adapters)

Table A-1   Technical Specifications for Cisco Aironet Wireless LAN Client Adapters (continued)

Range		
	340 series client adapters	**Outdoor** 1500 ft (457.2 m) @ 1 Mbps 1200 ft (365.8 m) @ 2 Mbps 800 ft (243.8 m) @ 5.5 Mbps 400 ft (121.9 m) @ 11 Mbps **Indoor** 300 ft (91.4 m) @ 1 Mbps 225 ft (68.6 m) @ 2 Mbps 150 ft (45.7 m) @ 5.5 Mbps 100 ft (30.5 m) @ 11 Mbps **Note** The above range numbers assume the use of a snap-on antenna with the LM card.
	350 series client adapters	**Outdoor** 2000 ft (609.6 m) @ 1 Mbps 1500 ft (457.2 m) @ 2 Mbps 1000 ft (304.8 m) @ 5.5 Mbps 800 ft (243.8 m) @ 11 Mbps **Indoor** 350 ft (106.7 m) @ 1 Mbps 250 ft (76.2 m) @ 2 Mbps 200 ft (61 m) @ 5.5 Mbps 150 ft (45.7 m) @ 11 Mbps **Note** The above range numbers assume the use of a snap-on antenna with the LM card.
	5-GHz client adapters	**Outdoor** 1200 ft (365.8 m) @ 6 Mbps 700 ft (213.4 m) @ 18 Mbps 120 ft (36.6 m) @ 54 Mbps **Indoor** 200 ft (61.0 m) @ 6 Mbps 150 ft (45.7 m) @ 18 Mbps 70 ft (21.3 m) @ 54 Mbps **Note** The above range numbers assume that the client adapter is being used with a Cisco Aironet 1200 Series Access Point with a patch antenna. Different range characteristics are likely when using the client adapter with a non-Cisco access point or a Cisco Aironet 1200 Series Access Point with an omni-directional antenna.
Antenna		
	PC card	Integrated diversity antenna
	LM card	Two MMCX antenna connectors
	PCI card	RP-TNC connector
	Mini PCI card	Ultra-miniature SMT U.FL antenna connectors
	PC-Cardbus card	Integrated patch antenna

Table A-1   Technical Specifications for Cisco Aironet Wireless LAN Client Adapters (continued)

Power Specifications	
Operational voltage	
PC, LM, and PCI card	5.0 V (± 0.25 V)
Mini PCI card	3.0 to 3.6 V
PC-Cardbus card	3.3 V (± 0.33 V)
Receive current steady state	
PC card and LM card	Typically 250 mA
PCI card	Typically 350 mA
Mini PCI card	Typically 330 mA
PC-Cardbus card	Typically 580 mA
Transmit current steady state	
340 series PC card and LM card	Typically 350 mA @ 15 dBm
340 series PCI card	Typically 450 mA @ 15 dBm
350 series PC card and LM card	Typically 450 mA @ 20 dBm
350 series PCI card	Typically 550 mA @ 20 dBm
350 series mini PCI card	Typically 570 mA @ 20 dBm
PC-Cardbus card	Typically 520 mA
Sleep mode steady state	
340 series PC card and LM card	Typically 15 mA
340 series PCI card	Typically 110 mA
350 series PC card, LM card, and mini PCI card	Typically 15 mA
350 series PCI card	Typically 115 mA
PC-Cardbus card	Typically 20 mA
Safety and Regulatory Compliance Specifications	
Safety	Designed to meet: • UL 1950 Third Ed. • CSA 22.2 No. 950-95 • IEC 60950 Second Ed., including Amendments 1-4 with all deviations • EN 60950 Second Ed., including Amendments 1-4

Table A-1   Technical Specifications for Cisco Aironet Wireless LAN Client Adapters (continued)

EMI and susceptibility	FCC Part 15.107 & 15.109 Class B ICES-003 Class B (Canada) EN 55022 B AS/NZS 3548 Class B VCCI Class B EN 55024 EN 301.489-1 and EN-301.489-17
Radio approvals	FCC Part 15.247 (2.4-GHz client adapters) FCC Part 15.407 (5-GHz client adapters) Canada RSS-139-1 (2.4-GHz client adapters), RSS-210 Japan Telec 33B (2.4-GHz client adapters) Japan ARIB STD-T71 (5-GHz client adapters) EN 300.328 (2.4-GHz client adapters) EN 301.893 (5-GHz client adapters)
RF exposure	OET-65C RSS-102 ANSI C95.1