ORiNOCO AP-4000

Technical Specifications

APPLICATIONS

- **Metro Wi-Fi outdoor deloyments**
  Broad coverage for public safety, business and residential usage
- **Large corporations**
  Mobile access to improve employee, contractor and customer efficiency
- **Universities**
  Flexible, immediate, mobile faculty and student connectivity in dorms, classrooms, libraries and campus quads
- **Hospitals and medical clinics**
  Real time information system wide for better patient care and reduced errors
- **Local, state and federal agencies**
  Fast access to information to serve constituencies better

RADIO	Dual Radio Access Point with integrated radios: 802.11a + 802.11b/g	
DATA RATES SUPPORTED	802.11b	1, 2, 5.5, 11
	802.11g	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
	802.11a	6, 9, 12, 18, 24, 36, 48, 54 Mbps
NETWORK STANDARD	IEEE 802.11a IEEE 802.11b or IEEE 802.11g	
UPLINK	Autosensing 802.3 10/100BASE-T Ethernet	
FREQUENCY BAND	802.11b/g	2.412 to 2.462 GHz (FCC) 2.412 to 2.472 GHz (ETSI) 2.412 to 2.484 GHz (TELEC) 2.412 to 2.462 GHz (Taiwan) 2.412 to 2.462 GHz (Singapore) 2.412 to 2.462 GHz (S. Korea)
	802.11a	5.15 to 5.35 GHz (FCC UNII 1 and UNII 2), 5.725 to 5.85 GHz (FCC UNII 3/ISM) 5.15 to 5.35 GHz and 5.47 to 5.725 GHz (ETSI) 5.15 to 5.25 GHz (TELEC) 5.15 to 5.25 GHz and 5.725 to 5.825 GHz (Singapore) 5.25 to 5.35 GHz and 5.725 to 5.85GHz (Taiwan) 5.725 to 5.825 GHz (S. Korea)
NETWORK ARCHITECTURE TYPE	Infrastructure	
WIRELESS MEDIUM	802.11b or 802.11g	Direct sequence spread spectrum (DSSS); Orthogonal Frequency Division Multiplexing (OFDM)
	802.11a	Orthogonal Frequency Division Multiplexing (OFDM)
MEDIA ACCESS PROTOCOL	Carrier sense multiple access with collision avoidance (CSMA/CA)	
MODULATION	OFDM	BPSK @ 6 and 9 Mbps QPSK @ 12 and 18 Mbps 16-QAM @ 24 and 36 Mbps 64-QAM @ 48 and 54 Mbps
	DSSS	DBPSK @ 1 Mbps DQPSK @ 2 Mbps CCK @ 5.5 and 11 Mbps
OPERATING CHANNEL	2.4 GHz Band	802.11b: ETSI: 13; Americas: 11; TELEC (Japan): 14 802.11g: ETSI: 13; Americas: 11; Japan (TELEC): 14 CCK, 13 OFDM
	5 GHz Band	FCC: 12 ETSI: 19 Japan (TELEC): 4 Singapore: 9 Taiwan: 8 S. Korea: 4
NON-OVERLAPPING CHANNELS	Fifteen (FCC only)	
RECEIVE SENSITIVITY	802.11b	5.5 Mbps: -89 dBm 11 Mbps: -89 dBm
	802.11g	5.5 Mbps: -89 dBm 11 Mbps: -89 dBm 36 Mbps: -82 dBm 54 Mbps: -76 dBm
	802.11a	36 Mbps: -83 dBm 54 Mbps: -77 dBm
AVAILABLE TRANSMIT POWER SETTING	802.11b	100 mW (20 dBm) 50 mW (17 dBm) 25 mW (14 dBm) 12.5 mW (11 dBm)
	Maximum power setting will vary according to individual country regulations.	

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TRANSMIT POWER SETTING (CONT'D)	802.11g	63 mW (18 dBm) 32 mW (15 dBm) 16 mW (12 dBm) 8 mW (9 dBm)
	Maximum power setting will vary according to individual country regulations.	
	802.11a	63 mW (18 dBm) 32 mW (15 dBm) 16 mW (12 dBm) 8 mW (9 dBm)
	Maximum power setting will vary according to individual country regulations.	
COMPLIANCE STANDARDS	Safety	UL 60950 CSA 22.2 No. 60950-00 IEC 60950 3rd Ed (1999)
	Radio Approvals	FCC Part 15.401-15.407 RSS-210 (Canada)
	Antenna Approvals	EN301.893 EN300.328 EN301.489-1 EN301.489-17 EN50371 ARIB STD-T71, ARIB-STD 33, ARIB-STD 66 FCC 15.247 RSS-210
	EMI and Susceptibility (Class B)	FCC Part 15.107 ICES-003 (Canada)
	Security	802.1X and TKIP WPA AES and 802.11i ready
	Network Standard	IEEE 802.11b IEEE 802.11g IEEE 802.11a
	Other	FCC Bulletin OET-65C Wi-Fi Alliance Certification RSS-102 IEEE 802.3af
SNMP COMPLIANCE	ORiNOCO; rfc1213; rfc1643; SNMPv2c; 802.11i-D3; IANAifType-MIB; MIB802	
ANTENNA	**2.4 GHz**	
	Dual on-board antennas to support antenna and polarization diversity:	
		One 3dBi vertically polarized omni antenna, 360 ° horizontal and 40° vertical beamwidths
		One 2dBi horizontally polarized omni antenna, 360° horizontal and 30° vertical beamwidths
	Certified with	1086-REA 1086-DA24-4 1086-OA24-5 1086-PA24-8.5 1086-PA24-9.5
	5 GHz	
	Dual on-board antennas to support antenna and polarization diversity:	
		One 3dBi vertically polarized omni antenna, 360° horizontal and 40° vertical beamwidths
		One 2dBi horizontally polarized omni antenna, 360° horizontal and 30° vertical beamwidths
	Certified with	1086-REA 1086-PA50-7
	2.4 and 5 GHz	
	Dual band (2.4 and 5GHz) external Range Extender Antenna for optimum antenna placement, 1086-REA	
SECURITY ARCHITECTURE CLIENT AUTHENTICATION	Authentication	802.1X support including PEAP, EAP-TLS, EAP-TTLS EAP-SIM, and other EAP methods that conform to RFC 3748 to yield mutual authentication and dynamic per-user, per-session encryption keys
		RADIUS-based MAC address
		MAC address control list
	Encryption	802.11i support for CCMP/AES keys of 128 bits (WPA2)
		TKIP encryption enhancements (for WEP) with key hashing (per-packet keying) and broadcast key rotation (WPA)
		Support for WEP keys of 64 and 128 bits
	Message Authentication:	802.11i AES message authentication with 128 bit keys
		TKIP with 128 bit Michael Message Integrity Check

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INTRUSION DETECTION	Rogue AP and client detection Detect switch port of rogue access point when used in conjunction with Wavelink Mobile Manager Detect MIC intrusion attacks	
STATUS LEDS	Four indicators on the top panel indicate power, wireless traffic, Ethernet traffic, and error conditions	
REMOTE CONFIGURATION SUPPORT	DHCP, Telnet, HTTP, TFTP, Boot P, and SNMP	
LOCAL CONFIGURATION	RS-232 Serial port, DB9 Female	
DIMENSIONS	Packaged	11.375 x 9.25 x 2.75 inches (289 mm x 235 mm x 70 mm)
	Unpackaged	7.8 x 4.75 x 1 inches (198 mm x 121 mm x 25 mm)
WEIGHT	Packaged weight	2.05 lbs (.92 kg)
	Unpackaged weight	.65 lbs (.29 kg) AP-only, .45 lbs (.20 kg) for power supply
ENVIRONMENTAL	Operating	0° to 55°C, 5-95% humidity non-condensing @ 5° to 55°C
	Storage	-20° to 85°C, 5-95% humidity non-condensing @ 5° to 85°C
PROCESSOR	220MHz MIPS 4000 processor	
SYSTEM MEMORY	16 Mbytes RAM 8 Mbytes FLASH	
INPUT POWER REQUIREMENTS	90 to 240 VAC ±10% (power supply) 48 VDC ±10% (device)	
POWER DRAW	10 watts, RMS	
WARRANTY	One year	
WI-FI CERTIFICATION	View Wi-Fi Interoperability Certificate for ORiNOCO AP-4000	
PART NUMBERS	8670-US	ORiNOCO AP-4000 US FCC-MU; with Middle and Upper Bands only for 802.11a, includes external antenna connectors for 802.11a and 802.11b/g for FCC countries
	8670-US2	ORiNOCO AP-4000 US FCC-LMU; with Lower, Middle and Upper Bands for 802.11a (no antenna connector for 802.11a) for FCC countries
	8670-AU	ORiNOCO AP-4000 AU FCC-LMU; certified for Australia; Lower, Middle and Upper Bands for 802.11a; includes external antenna connectors for 802.11b/g
	8670-AU2	ORiNOCO AP-4000 AU FCC-LMU; certified for Australia; Middle and Upper Bands for 802.11a; includes external antenna connectors for 802.11a and 802.11b/g
	8670-BR	ORiNOCO AP-4000 BRAZIL-L; certified for Brazil; includes external antenna connectors for 802.11b/g and 802.11a
	8670-JP	ORiNOCO AP-4000 JP MKK; certified for Japan; includes external antenna connectors for 802.11b/g and 802.11a
	8670-SG	ORiNOCO AP-4000 UK SG-LU; certified for Singapore; includes external antenna connectors for 802.11b/g and 802.11a
	8670-CN	ORiNOCO AP-4000 CN ASIA; certified for China; includes external antenna connectors for 802.11b/g and 802.11a
	8670-SK	ORiNOCO AP-4000 SK ASIA; certified for South Korea; includes external antenna connectors for 802.11b/g and 802.11a
	8670-TW	ORiNOCO AP-4000 TW ASIA; certified for Taiwan; includes external antenna connectors for 802.11b/g and 802.11a
	8670-EU	ORiNOCO AP-4000 EU ETS-L; with Lower Band only for 802.11a, includes external antenna connectors for 802.11a and 802.11b/g
	8670-EU2	ORiNOCO AP-4000 EU ETS- with Lower and Middle Bands for 802.11a, includes external antenna connectors for 802.11b/g and 802.11a; certified for Finland, Germany and Netherlands only
	8670-UK	ORiNOCO AP-4000 UK ETS-LM; with Lower and Middle bands, includes external
	Customers are responsible for verifying approval for use in their country. Not all regulatory domains have been approved	

[1] To achieve 802.11i security, the EAP method that is used must conform to both RFC 3748 and IETF draft-walker-ieee802-req-07 (Submitted as an Informational RFC). In RFC 3748, EAP- MD5-Challenge (Section 5.4), One-Time Password (Section 5.5) and Generic Token Card (Section 5.6), are non-compliant with the requirements specified in IETF draft-walker-ieee802-req-07 and thus do not support the 802.11i security claims when used with 802.11i.