

# APe 2400i

## 2.4GHZ HIGH POWER WIRELESS OUTDOOR CPE



### OVERVIEW

The APe 2400e is a 2.4GHz Band wireless point to point bridge that is capable of sustaining up to 300Mbps data rates through its 9 dBi directional antenna and has more capacity than other competing access points at unprecedented price. Equipped with a FAT and THIN AP mode, this point to point bridge is capable of providing flexible operating modes that allows your APe 2400e to be configured individually or deployed through a network completely utilized and maintained by an access point controller for a smarter and more convenient way of configuration.

In addition, the APe 2400e is equipped with a Load Balancing feature which allows this point to point bridge to effectively maximize its performance by equally dividing wireless connected clients to other access points within range. Spectrum Navigation has also been uniquely provided to allow the access point to direct clients to the channel with least congestion.

In terms of deployment, the APe 2400e is equipped with a passive PoE port, allowing you to utilize ethernet cables for both power and data, successfully reducing deployment cost with simpler installation and easy placement in optimal locations. Moreover, the APe 2400e is sleekly designed for flexible installation, combining aesthetically pleasing design with its flexible mounting kit through steel cable tie.

Features	Additional Information
<b>Chipset Solution</b>	<ul style="list-style-type: none"> <li>CPU: AR9342</li> <li>RF: AR9342</li> </ul>
<b>Flash</b>	16Mbyte
<b>Memory (DDR II)</b>	64Mbyte
<b>Standard compliance</b>	<ul style="list-style-type: none"> <li>IEEE802.3u MDI / MDIX 10/100 Fast Ethernet</li> <li>IEEE802.11b/g/n wireless LAN interface</li> <li>IEEE 802.11n wireless LAN standard</li> </ul>
<b>Power Input Requirement</b>	<ul style="list-style-type: none"> <li>Passive PoE 15V</li> <li>Pin 4,5 VDC+</li> <li>Pin 7,8 VDC-</li> </ul>
<b>CPU Rate</b>	400MHz
<b>Ethernet PHY</b>	10/100 Mbps
<b>Antenna</b>	Internal 9 dBi directional antenna (Vertical, Horizontal)
<b>Antenna Frequency band</b>	2.4~2.5GHz
<b>Vertical Port HPBW</b>	(XY Plane /H-Plane) >80° ; (XZ Plane /E-Plane) >60°
<b>Horizontal Port HPBW</b>	(XY Plane /E-Plane) >70° ; (XZ Plane /H-Plane) >50°
<b>Antenna Configuration</b>	2 * 2 (2 Tx,2 Rx)
<b>LAN Port</b>	1port
<b>Reset Button</b>	Reset to factory default
<b>Ground</b>	Ground terminal x1
<b>System Update Capability</b>	<ul style="list-style-type: none"> <li>Support Web-UI upgrade via Ethernet port or wireless network</li> <li>Support TFTP upgrade via Ethernet port</li> </ul>
<b>LED Definition</b>	<p>Power (Single-color LED x1)</p> <ul style="list-style-type: none"> <li>Green On: Power / system on</li> <li>Green Off: Power / system off</li> </ul> <p>LAN (Single-color LED x1)</p> <ul style="list-style-type: none"> <li>Off: No Ethernet connection detected</li> <li>Green On: Ethernet connection detected</li> <li>Green Blinking: Sending / receiving data</li> </ul> <p>5G WLAN (Single-color LED x1)</p> <ul style="list-style-type: none"> <li>Green Off: WLAN disabled</li> <li>Green On: WLAN enable</li> <li>Green Blinking: WLAN data transmit</li> </ul> <p>Signal *3 (Single-color LED x3)</p> <ul style="list-style-type: none"> <li>Excellent: 3 LED Green ON</li> <li>Good: 2 LED Green ON</li> <li>Weak: 1 LED Green ON</li> </ul>

**SPECIFICATIONS MAY CHANGE WITHOUT PRIOR NOTICE**

**Data Rate** 11b: 11M, 5.5M, 2M, 1Mbps  
 11g: 54M, 48M, 36M, 24M, 18M, 12M, 9M, 6Mbps  
 11n: HT20 MCS0~15  
 HT40 MCS0~15

**Data modulation type**

- DSSS/BPSK/QPSK/CCK/DQPSK/DBPSK
- 802.11b/g/n: OFDM
- 802.11n: OFDM

**RF frequency range**

- FCC: 2.412 GHz ~ 2.462 GHz
- CE: 2.412 GHz ~ 2.472 GHz

**Power Consumption (W)** <12W

Average Output Power @ 25° (Single Chain) (± 2dBm)			
	Mode	Data Rate	Power
	802.11b	1,5,11Mbps	27dB
	802.11g	6, 9, 12, 18, 24Mbps	25dB
		36Mbps	24dB
		48, 54Mbps	23dB
		802.11gn (HT20)	MCS0, MCS8
		MCS1, MCS2, MCS3, MCS9, MCS10, MCS11	26dB
		MCS4, MCS12	25dB
		MCS5, MCS13	24dB
		MCS6, MCS7, MCS14, MCS15	23dB
	802.11gn (HT40)	MCS0, MCS8	26dB
		MCS1, MCS2, MCS3, MCS9, MCS10, MCS11	25dB
		MCS4, MCS12	24dB
MCS5, MCS13		23dB	
MCS6, MCS7, MCS14, MCS15		22dB	

Sensitivity (at single chain)	Mode	11b	11g	11n HT20	11n HT40
		FER<8%	FER<10%	FER<10%	FER<10%
	11	-85	-	-	-
	5.5	-88	-	-	-
	2	-89	-	-	-
	1	-91	-	-	-
	6	-	-89	-	-
	9	-	-88	-	-
	12	-	-85	-	-
	18	-	-83	-	-
	24	-	-80	-	-
	36	-	-76	-	-
	48	-	-71	-	-
	54	-	-70	-	-
	0/8	-	-	-83	-
	1/9	-	-	-80	-
	2/10	-	-	-78	-
	3/11	-	-	-75	-
	4/12	-	-	-71	-
	5/13	-	-	-67	-
	6/14	-	-	-66	-
	7/15	-	-	-65	-
	0/8	-	-	-	-80
	1/9	-	-	-	-77

**SPECIFICATIONS MAY CHANGE WITHOUT PRIOR NOTICE**

2/10	-	-	-	-75
3/11	-	-	-	-72
4/12	-	-	-	-68
5/13	-	-	-	-64
6/14	-	-	-	-63
7/15	-	-	-	-62

### Firmware Specification (FAT AP Mode)

Function Catalog	Detailed Function	Default Settings
<b>Web Language</b>	English	English
<b>Status</b>	<ul style="list-style-type: none"> <li>Information</li> <li>Connections</li> <li>Statistics</li> <li>ARP Table</li> <li>Bridge Table</li> <li>DHCP Client List</li> <li>Network Activity</li> </ul>	
<b>System</b>	<p>Basic Settings:</p> <ul style="list-style-type: none"> <li>Device Mode</li> <li>Device Name</li> <li>Ethernet DateRate</li> <li>Network Modes</li> <li>Country/Region</li> <li>Spanning Tree (STP)</li> <li>STP Forward Delay</li> <li>GPS Coordinate</li> </ul>	<p>apXXXXXX</p> <p>Auto</p> <p>Bridge</p> <p>United States</p> <p>Enable</p> <p>1 (second)</p>
TCP/IP Settings (Bridge Mode):	IP Address (Manual or DHCP, In DHCP mode, if DHCP server is not available, then use manually set IP address)	Manual, 192.168.1.1
TCP/IP Settings (Router Mode):	<ol style="list-style-type: none"> <li>WAN Settings <ul style="list-style-type: none"> <li>Static IP</li> <li>DHCP Client</li> <li>PPPoE</li> </ul> </li> <li>LAN Settings <ul style="list-style-type: none"> <li>DHCP Server</li> </ul> </li> </ol>	
Time Setting	<ol style="list-style-type: none"> <li>Current Time</li> <li>Time Zone Select</li> <li>Enable NTP client update</li> </ol>	<p>GMT</p> <p>Disabled</p>
RADIUS Settings	IP Address of Authentication RADIUS Server	0.0.0.0
Firewall Setting (Router Mode Only)	<ol style="list-style-type: none"> <li>Src IP Filtering</li> <li>Dest IP Filtering</li> <li>Src Port Filtering</li> <li>Dest Port Filtering</li> <li>Port Forwarding</li> <li>UDP Pass-through</li> <li>DMZ</li> </ol>	
<b>Wireless</b>	<p>Basic Wireless Settings</p> <p>Disable Wireless LAN Interface</p> <p>Operation Mode</p> <p>AP Mode Function:</p> <ol style="list-style-type: none"> <li>SSID</li> <li>Broadcast SSID</li> <li>802.11 Mode</li> <li>HT Protect</li> <li>Frequency/Channel</li> <li>Extension Channel</li> <li>Channel Model <ul style="list-style-type: none"> <li>5MHz</li> <li>10MHz</li> <li>20MHz</li> <li>40MHz</li> </ul> </li> </ol>	<p>Unselected</p> <p>AP</p> <p>Wireless</p> <p>Enabled</p> <p>802.11b/g/n</p> <p>Disabled</p> <p>2437MHz (6)</p> <p>None</p> <p>20MHz</p>

	8. Maximum Output Power (per chain)	Full
	9. Data Rate	Auto
	10. 11.Extension channel protect mode	None
	<ul style="list-style-type: none"> <li>• None</li> <li>• CTS to self</li> <li>• RTS-CTS</li> </ul>	
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	Wireless Client Mode Function:	
	1. SSID	Wireless
	2. Lock AP MAC	Disabled
	3. 802.11 Mode	802.11b/g/n
	4. Channel Model	20MHz
	<ul style="list-style-type: none"> <li>• 5MHz</li> <li>• 10MHz</li> <li>• 20MHz</li> <li>• 40MHz</li> </ul>	
	5. Maximum Output Power (per chain)	Full
	6. Extension channel protect mode	None
	<ul style="list-style-type: none"> <li>• None</li> <li>• CTS to self</li> <li>• RTS-CTS</li> </ul>	
	7. Enable MAC Clone	Disabled
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	Bridge Mode Function:	
	1. 802.11 Mode	802.11b/g/n
	2. Frequency/Channel	2437MHz (6)
	3. Extension Channel	None
	4. Channel Model	20MHz
	<ul style="list-style-type: none"> <li>• 5MHz</li> <li>• 10MHz</li> <li>• 20MHz</li> <li>• 40MHz</li> </ul>	
	5. Maximum Output Power (per chain)	Full
	6. Data Rate	Auto
	7. Extension channel protect mode	None
	<ul style="list-style-type: none"> <li>• None</li> <li>• CTS to self</li> <li>• RTS-CTS</li> </ul>	
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	AP Repeater Mode Function:	
	1. SSID	Wireless
	2. Broadcast SSID	Enable
	3. 802.11 Mode	802.11b/g/n
	4. HT Protect	Disabled
	5. Frequency/Channel	2437MHz (6)
	6. Extension Channel	None
	7. Channel Model	20MHz
	<ul style="list-style-type: none"> <li>• 5MHz</li> <li>• 10MHz</li> <li>• 20MHz</li> <li>• 40MHz</li> </ul>	
	8. Maximum Output Power (per chain)	Full
	9. Data Rate	Auto
	10. Extension channel protect mode	None
	<ul style="list-style-type: none"> <li>• None</li> <li>• CTS to self</li> <li>• RTS-CTS</li> </ul>	
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Profile Settings	1. VAP Profile Settings (up to 16 profiles)	Disabled
	2. Enable 802.1Q VLAN	0
	<ul style="list-style-type: none"> <li>• Management VLAN ID</li> </ul>	
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	In Each Profile:	
	Basic Settings	
	1. Profile Name	Profile1~16
	2. SSID	Wireless
	3. Broadcast SSID	Enabled
	4. Wireless Separation	Disabled
	5. WMM	Enabled
	6. Station Number Limitation	Disabled
	7. Max. Station Num	32

	Security Settings		
	1. Open System	Open System	
	2. Shared Key (64/128/152-bits WEP)		
	3. Legacy 802.1X		
	4. WPA		
	5. WPA2		
	6. WPA + WPA2		
	7. WPA-PSK(TKIP)		
	8. WPA2-PSK(AES)		
	9. WPA-PSK + WPA2-PSK		
Advanced settings	A-MPDU Aggregation	Enabled	
	A-MSDU Aggregation	Disabled	
	Short GI	Enabled	
	RTS Threshold(0~2347)	2347	
	Fragmentation Length(256~2346)	2346	
	Beacon Interval(20~10000ms)	100	
	DTIM Interval (1-255)	1	
	Preamble Type	Auto	
	IGMP Snooping	Enabled	
	RIFS	Enabled	
	Link Integration	Disabled	
	TDM Coordination	Disabled	
Space-in-meter	1000 (m)		
Access Control	Support up to 32 MAC addresses for each profile with modes below: <ul style="list-style-type: none"> <li>• Disable</li> <li>• Allow Listed</li> <li>• Deny Listed</li> </ul>	Disabled	
Traffic Shaping	1. Overall Traffic Shaping <ul style="list-style-type: none"> <li>• Incoming Traffic Limit</li> <li>• Incoming Traffic Burst</li> <li>• Outgoing Traffic Limit</li> <li>• Outgoing Traffic Burst</li> </ul>	Disabled	
	2. VAP Traffic Shaping (per VAP profile) <ul style="list-style-type: none"> <li>• Outgoing Traffic Limit</li> <li>• Outgoing Traffic Burst</li> </ul>	Disabled	
Captive Portal	Support CoovaChilli Access Controller (enable/disable per VAP profile) <ol style="list-style-type: none"> <li>1. RADIUS Settings <ul style="list-style-type: none"> <li>• Primary RADIUS Server</li> <li>• Secondary RADIUS Server</li> <li>• RADIUS Auth Port</li> <li>• RADIUS Acct Port</li> <li>• RADIUS Shared Secret</li> <li>• RADIUS NASID</li> </ul> </li> <li>2. Captive Portal Settings <ul style="list-style-type: none"> <li>• UAM Portal URL</li> <li>• UAM Secret</li> </ul> </li> </ol>	Disabled	
WDS Setting	<ul style="list-style-type: none"> <li>• WDS Separation</li> <li>• Remote AP Address1~4</li> </ul>	Disabled	
Management	Remote Management	Embedded Web Configuration Interface <ul style="list-style-type: none"> <li>• HTTP</li> <li>• HTTPS</li> </ul>	HTTP
		Remote Console <ul style="list-style-type: none"> <li>• Telnet</li> <li>• SSH</li> </ul>	Telnet

	SNMP Management	V2
	<ul style="list-style-type: none"> <li>V2</li> <li>V3</li> </ul>	
	FTP	Enabled
	WISE (Windows-based Utility Software)	Disabled
Firmware Upload	Upgrade Device's Firmware	
Config File	<ul style="list-style-type: none"> <li>Backup and Restore Configuration</li> <li>Reset Settings to Factory Default</li> <li>Reboot Device</li> </ul>	
Password Settings	Change Password	password
Certificate Settings	<ul style="list-style-type: none"> <li>Import / Delete User's Certificate Files for Wireless Client Mode's User Authentication (802.1X, WPA, or WPA2)</li> </ul>	
<b>Tools</b>		
System Logs	Syslog (RFC 3164) Support	Disabled
Site Survey	Wireless Network (AP) Scan Tool	
Ping Watchdog	<ul style="list-style-type: none"> <li>Enable Ping Watchdog</li> <li>IP Address to Ping</li> <li>Ping Interval</li> <li>Startup Delay</li> <li>Failure Count To Reboot</li> </ul>	Disabled 0.0.0.0 300 Seconds 100 Seconds 300
Data Rate Test	Perform Per-Data rate Transmission Test and Display Throughput Statistics (WDS Mode Only)	
Antenna Alignment	Perform Continuous Throughput Statistics for Antenna Alignment (WDS Mode Only)	
Speed Test	Perform TCP/IP Data Throughput Test (All Mode)	

## Firmware Specification (AC & Thin AP Mode)

Function Catalog	Detail Function	Default Settings
	Web Language English	English
	Status <ul style="list-style-type: none"> <li>Information</li> <li>Managed APs</li> <li>Wireless Users</li> </ul>	
Wireless Settings	Wireless Networks	Wireless Network Name (SSID) Settings, up to 16 SSID profiles can be activated.
	In Each Profile:	
	Basic Settings	
	1. SSID	Wireless Profile1 ~ 16
	2. Description	Enabled
	3. Broadcast SSID	Disabled
	4. Wireless Separation	Enabled
	5. WMM	Disabled
	6. Station Number Limitation	32
	7. Max. Station Num	
	Security Settings	Open System
	1. Open System	
	2. Shared Key (64/128/152-bits WEP)	
	3. Legacy 802.1X	
	4. WPA	
	5. WPA2	
	6. WPA + WPA2	
	7. WPA-PSK(TKIP)	
	8. WPA2-PSK(AES)	
	9. WPA-PSK + WPA2-PSK	
Wireless Protocol	Basic Settings <ul style="list-style-type: none"> <li>Country Region</li> <li>802.11 Mode</li> <li>Data Rate</li> </ul>	United States 802.11b/g/n Auto
	Advanced Settings	
	1. A-MPDU Aggregation	Enabled
	2. A-MSDU Aggregation	Disabled
	3. Short GI	Enabled
	4. IGMP Snooping	Enabled
	5. RIFS	Enabled
	6. HTProtect	Disabled
	7. Preamble Type	Auto
	8. RTS Threshold(0~2347)	2347
	9. Fragmentation Length(256~2346)	2346
	10. Beacon Interval(20~10000ms)	100
	11. DTIM Interval (1-255)	1
	12. Extension Channel Protection	None
	13. Space In Meter	1000 (m)
	14. Link Integration	Disabled
	15. TDM Coordination	Disabled
Access Control	Support up to 32 MAC addresses for each profile with modes below: <ul style="list-style-type: none"> <li>Disable</li> <li>Allow Listed</li> <li>Deny Listed</li> </ul>	Disabled
Traffic Shaping	1. Overall Traffic Shaping <ul style="list-style-type: none"> <li>Incoming Traffic Limit</li> <li>Incoming Traffic Burst</li> <li>Outgoing Traffic Limit</li> <li>Outgoing Traffic Burst</li> </ul>	Disabled
	2. VAP Traffic Shaping (per VAP profile) <ul style="list-style-type: none"> <li>Outgoing Traffic Limit</li> <li>Outgoing Traffic Burst</li> </ul>	Disabled

### SPECIFICATIONS MAY CHANGE WITHOUT PRIOR NOTICE

Captive Portal	Support CoovaChilli Access Controller Disabled (enable/disable per VAP profile)
	<ol style="list-style-type: none"> <li>RADIUS Settings <ul style="list-style-type: none"> <li>Primary RADIUS Server</li> <li>Secondary RADIUS Server</li> <li>RADIUS Auth Port</li> <li>RADIUS Acct Port</li> <li>RADIUS Shared Secret</li> <li>RADIUS NASID</li> </ul> </li> <li>Captive Portal Settings <ul style="list-style-type: none"> <li>UAM Portal URL</li> <li>UAM Secret</li> </ul> </li> </ol>
RADIUS Settings	IP Address of Authentication RADIUS Server 0.0.0.0
Firewall Setting (Router Mode Only)	<ol style="list-style-type: none"> <li>Src IP Filtering</li> <li>Dest IP Filtering</li> <li>Src Port Filtering</li> <li>Dest Port Filtering</li> <li>Port Forwarding</li> <li>UDP Pass-through</li> <li>DMZ</li> </ol>
<b>Management</b>	
AP Management	Management of Individual Thin APs <ol style="list-style-type: none"> <li>Restart</li> <li>Rename</li> <li>Set IP</li> <li>Radio <ul style="list-style-type: none"> <li>Channel Mode 20MHz</li> <li>Channel 2437MHz (6)</li> <li>Extension Channel None</li> <li>Output Power Full</li> </ul> </li> <li>Upgrade Selected</li> <li>Upgrade All</li> </ol>
System Settings:	<ol style="list-style-type: none"> <li>Device Settings <ul style="list-style-type: none"> <li>Device Mode</li> <li>Device Name apXXXXXX</li> <li>Ethernet DataRate Auto</li> <li>Spanning Tree (STP) Enable</li> <li>STP Forward Delay 1 (second)</li> </ul> </li> <li>IP Address Settings <ul style="list-style-type: none"> <li>(AC) Device's IP Address (Manual or DHCP, In DHCP mode, if DHCP server is not available, then use manually set IP address) Manual, 192.168.1.1</li> <li>DHCP Server for configuring IP Addresses of Thin APs Disabled</li> </ul> </li> </ol>
Time Settings	<ul style="list-style-type: none"> <li>Current Time</li> <li>Time Zone Select GMT</li> <li>Enable NTP client update Disabled</li> </ul>
Firmware Upload	Upgrade Device's Firmware <ul style="list-style-type: none"> <li>AC Firmware</li> <li>TAP Firmware</li> </ul>
Configuration File	<ul style="list-style-type: none"> <li>Backup and Restore Configuration</li> <li>Reset Settings to Factory Default</li> <li>Reboot Device</li> </ul>
Password Settings	Change Password password
Syslog Settings	<ul style="list-style-type: none"> <li>Syslog (RFC 3164) Support Disabled</li> <li>E-Mail (SMTP) Support Disabled</li> </ul>
System Log	Display System Log
System Alert	Display System Alert
<b>Tools</b>	
Ping	Perform ICMP 'ping' Test
Trace Route	Perform 'traceroute' Test



**Physical Specifications**

<b>Dimension</b>	205mm(L)×64mm(W) ×61mm(H)
<b>Weight</b>	≤ 500g
<b>Enclosure</b>	IP55

**Environmental Specifications**

	Device	Power Adapter
<b>Operating Temperature(Max)</b>	-20° ~ +70°C	0° ~ +40°C
<b>Operating Humidity (non-condensing)</b>	10 to 95% RH	20 to 85% RH
<b>Storage Temperature</b>	-40 ~ +70°C	-20 ~ +60°C
<b>Storage Humidity (non-condensing)</b>	10 to 95% RH	5 to 95% RH

**Certifications**

<b>FCC</b>	Part15 sub B Part15 sub C
<b>CE</b>	EN300 328 EN301 489-1/17 EN60950
<b>CCC</b>	For China