

# 2.4GHz/5GHz 300Mbps Outdoor CPE

## Pharos CPE Series Datasheet

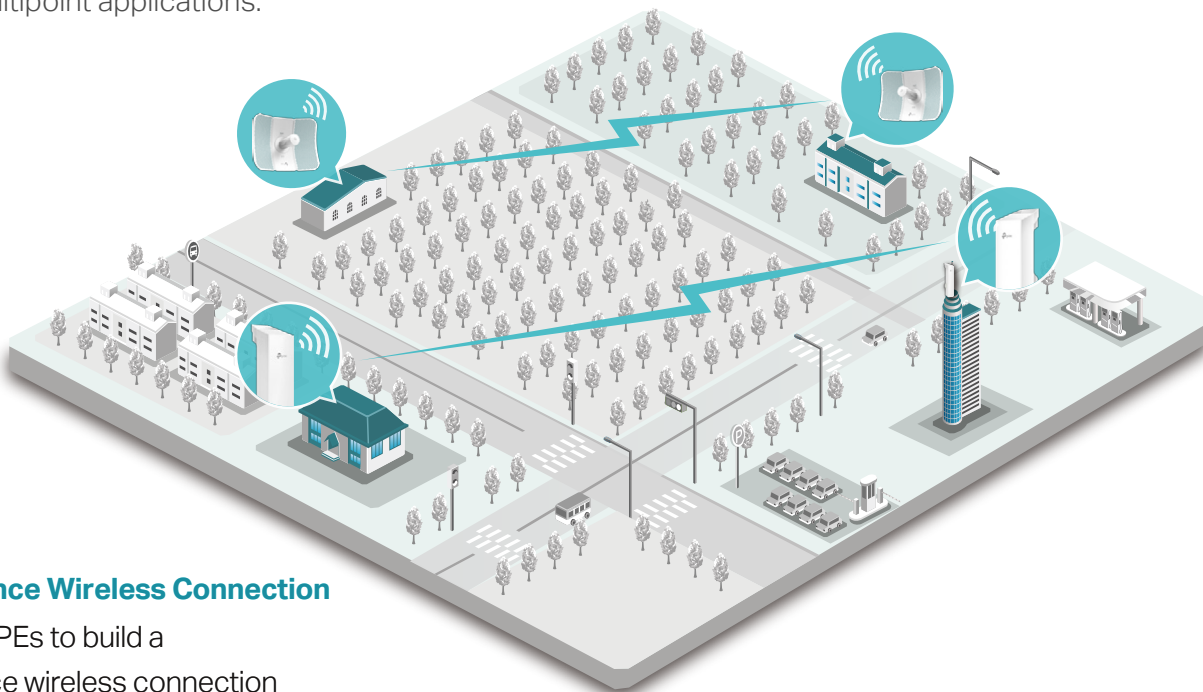
### Highlights

- Wireless N speed up to 300Mbps
- Selectable bandwidth of 5/10/20/40MHz
- Adjustable transmission power by 1dBm
- Broad operating frequency channels ensure less wireless interference
- Built-in 2x2 dual-polarized directional MIMO antenna
- Passive PoE Adapter supports up to 60 meter (200 feet) Power over Ethernet deployment
- 1 10/100Mbps Ethernet port for passive PoE (all CPE products) and 1 10/100Mbps Ethernet port for extended applications (CPE220/CPE520)
- TP-Link Pharos MAXtream (Time-Division-Multiple-Access) technology improves product throughput, capacity and latency performance, ideal for PtMP applications
- Centralized Management System – Pharos Control



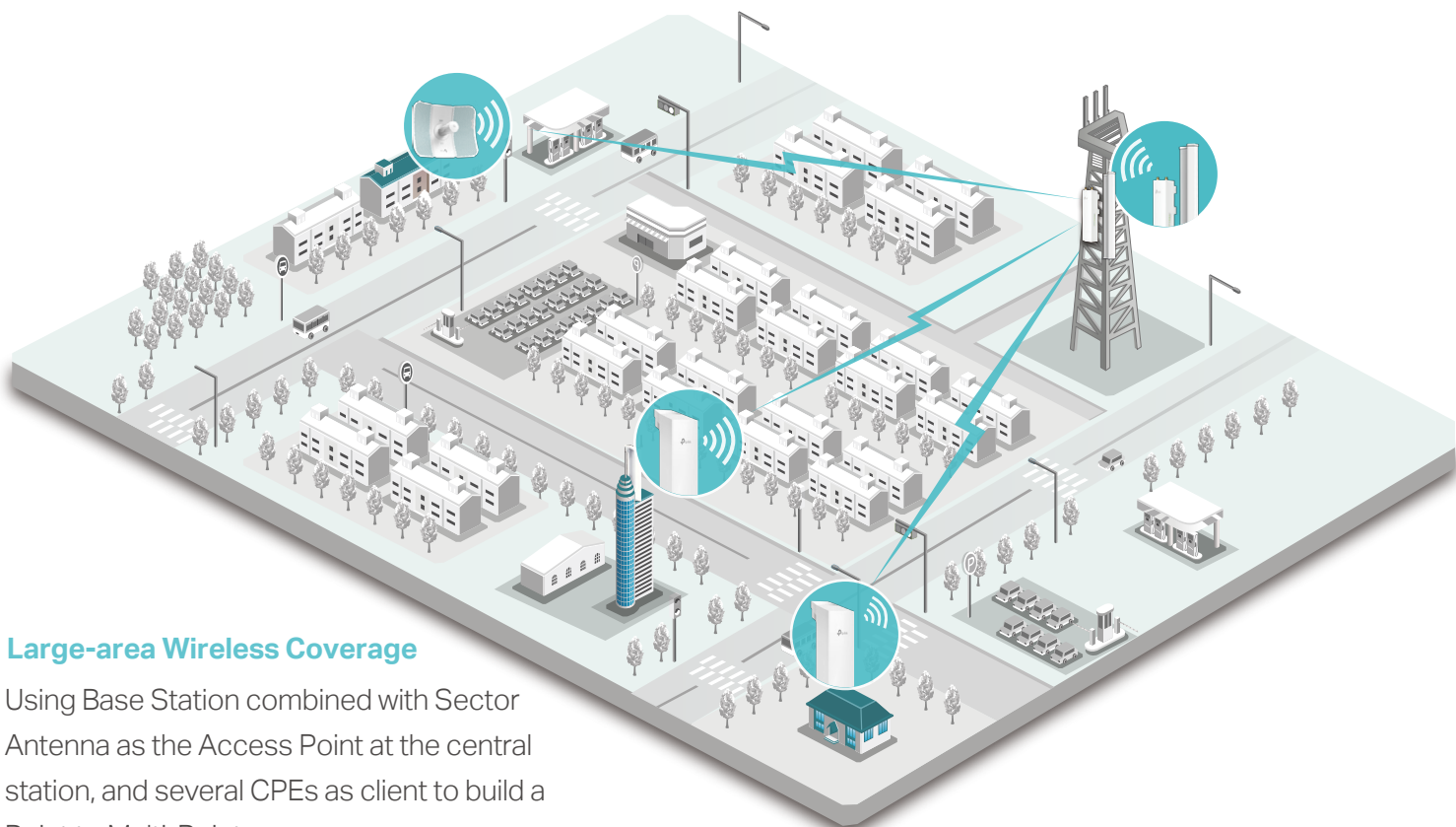
## Typical Applications

TP-Link's Outdoor CPE is dedicated to reliable solutions for outdoor wireless networking applications. With its centralized management application, it is flexible and ideal for point-to-point and point-to-multipoint applications.



- **Long-distance Wireless Connection**

Using two CPEs to build a long-distance wireless connection



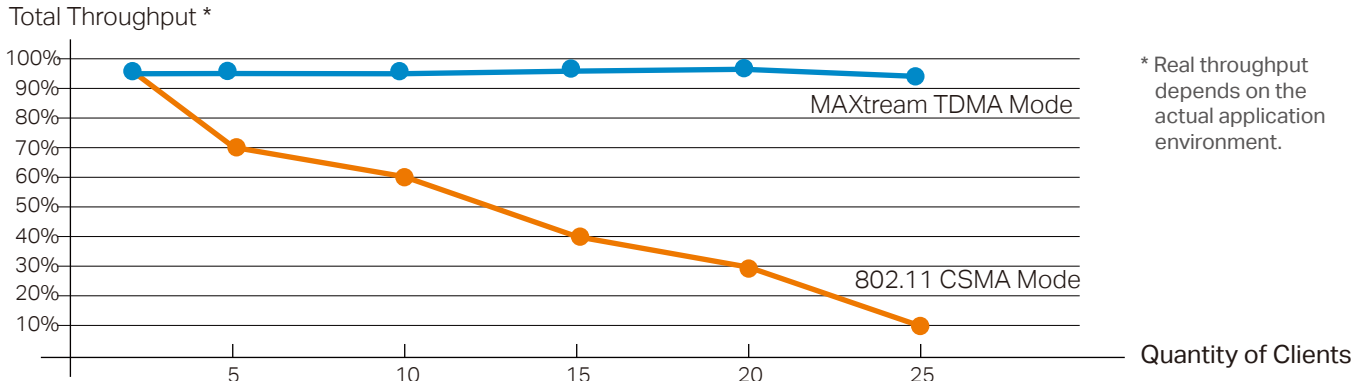
- **Large-area Wireless Coverage**

Using Base Station combined with Sector Antenna as the Access Point at the central station, and several CPEs as client to build a Point to Multi-Point coverage.

# TP-Link MAXstream TDMA Technology

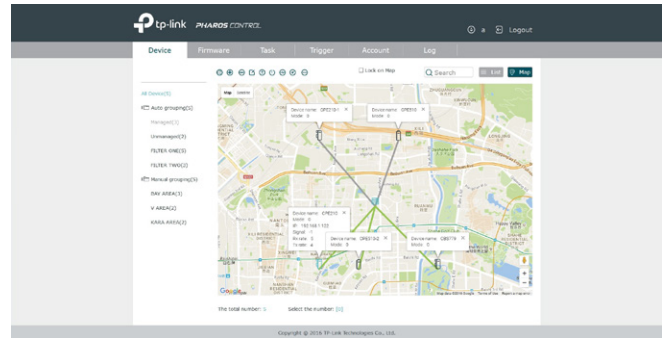
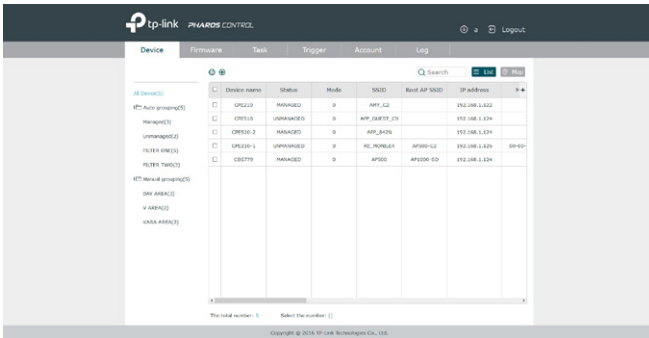
As network scale increases, wireless competition and collisions among outdoor devices will be so fierce that the real throughput of the network will drop, resulting in a serious impact on end-user experience, to mitigate these effects, TP-Link's Pharos series uses MAXstream TDMA Technology.

## Total Throughput vs Clients



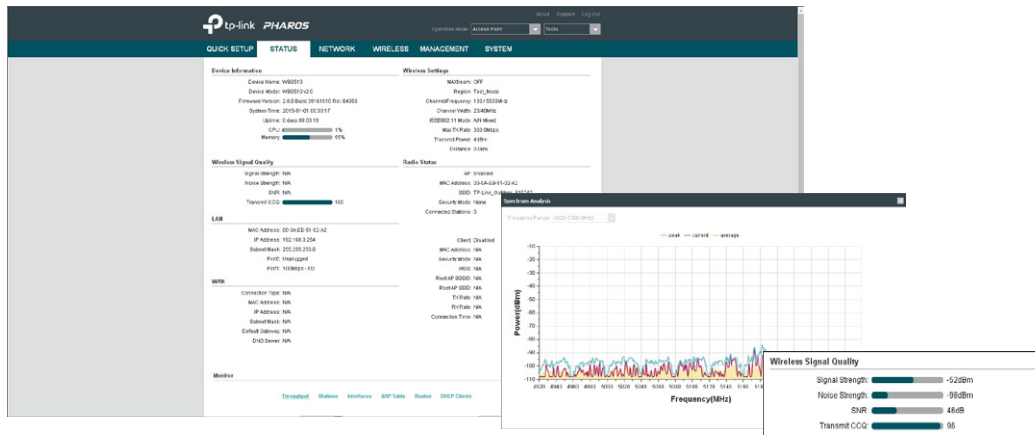
# Pharos Control – Centralized Management System

Pharos also comes equipped with centralized management software that helps users easily manage all the devices in their network from a single PC - Pharos Control. Functions like device discovery, status monitoring, firmware upgrading, and network maintenance can be managed using Pharos Control.



# PharosOS

User-friendly web-based management system allows professionals to do more specific configurations.



# Specifications

Features & Performance			
Model	CPE210/CPE220	CPE510/CPE520/CPE610	
Name	2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 300Mbps 13dBi/16dBi/23dBi Outdoor CPE	
Hardware Features	Processor	Qualcomm 650MHz CPU, MIPS 24Kc (CPE210, CPE220) Qualcomm 560MHz CPU, MIPS 74Kc (CPE510, CPE520, CPE610)	
	Memory	64MB DDR2 RAM, 8MB Flash	
	Antenna Gain	CPE210: 9dBi CPE220: 12dBi	CPE510: 13dBi CPE520: 16dBi CPE610: 23dBi
	Beamwidth	CPE210: 65° (Azimuth)/35° (Elevation) CPE220: 60° (Azimuth)/30° (Elevation)	CPE510: 45° (Azimuth)/30° (Elevation) CPE520: 45° (Azimuth)/30° (Elevation) CPE610: 9° (Azimuth)/7° (Elevation)
	Interfaces	CPE210/CPE510: 1 10/100Mbps Shielded Ethernet Port (LAN/POE) 1 Grounding Terminal 1 Reset Button	
		CPE220/CPE520: 1 10/100Mbps Shielded Ethernet Port (LAN0/POE) 1 10/100Mbps Shielded Ethernet Port (LAN1) 1 Grounding Terminal 1 Reset Button	
		CPE610: 1 10/100Mbps Shielded Ethernet Port (LAN/POE) 1 Reset Button	
	Power Supply	24VDC/0.5A Passive PoE (+4,5pins; -7,8pins)	
	Dimensions(L x W x H)	CPE210/CPE510: 224×79×60 mm CPE220/CPE520: 276×79×60 mm CPE610: 207×280×366 mm (No Mount)	
	Protection	15KV ESD Protection 6KV Lightning Protection	
Enclosure	CPE210/CPE220/CPE510/CPE520: Material: Outdoor ASA stabilized plastic Weatherproof: IPX5 water and dust proof design		
	CPE610: Material: Outdoor PC stabilized plastic Weatherproof: IP65 water and dust proof design		
Wireless Features	Wireless Standards	IEEE 802.11b/g/n	IEEE 802.11a/n
	Proprietary Protocol	TDMA Mode (with Pharos MAXstream enabled)	
	Frequency <sup>1</sup>	2.4~2.483GHz	5.15~5.85GHz
	Wireless Speed	Up to 300Mbps (40MHz,Dynamic) Up to 144.4Mbps (20MHz,Dynamic) Up to 72.2Mbps (10MHz,Dynamic) Up to 36.1Mbps (5MHz,Dynamic)	
	Maximum Transmit Power <sup>2</sup>	CPE210: 25dBm/500mW (Adjustable power by 1dBm) CPE220: 30dBm/1000mW (Adjustable power by 1dBm) CPE510: 25dBm/200mW (Adjustable power by 1dBm) CPE520: 27dBm/500mW (Adjustable power by 1dBm) CPE610: 27dBm/500mW (Adjustable power by 1dBm)	

<sup>1</sup> Available operation frequency may vary depending on the limitaion of the countries or regions in which the device is used.

<sup>2</sup> Maximum transmit power is limited by local regulatory settings

## Features & Performance

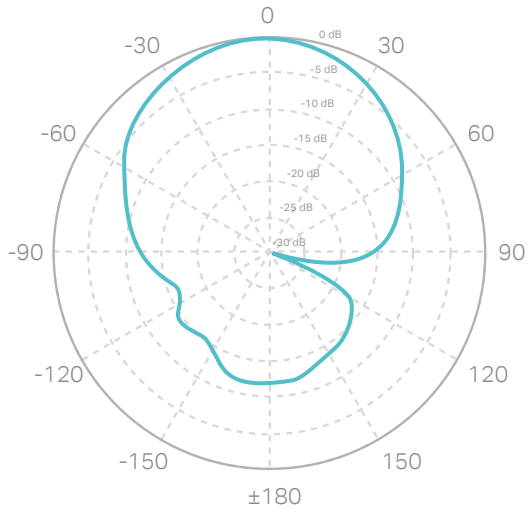
Model		CPE210/CPE220	CPE510/CPE520/CPE610
Name		2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 300Mbps 13dBi/16dBi/23dBi Outdoor CPE
Software Features	Operation Modes	AP/Client/Bridge/Repeater/AP Router/AP Client Router (WISP Client)	
	Network Configurations	WAN: Static/Dynamic/PPPoE/L2TP/PPTP LAN: Static/Dynamic/DHCP Forwarding: ALG/UPnP/Virtual Server/Port Trigger Security: SPI Firewall/ Ping Forbidden/DoS Protection Access Control Static Routing Bandwidth Control IP & MAC Binding	
	Wireless Configurations	Pharos MAXstream TDMA Technology Selectable Channel Width: 5/10/20/40MHz Auto Channel Selection Transmit Power Control Dynamic Frequency Selection(DFS) WDS Enable/Disable Security: WPA/WPA2, WPA-PSK/WPA2-PSK (AES/TKIP) Encryption 64/128/152-bit WEP Encryption SSID Broadcast Enable/Disable Multi-SSID with VLAN Tagging (AP mode only) Distance/ACK Timeout Setting Wireless MAC Address Filter Wireless Advanced: Beacon Inteval/RTS Threshold/Fragmentation Threshold/DTIM Inteval/AP Isolation/Short GI/Wi-Fi Multimedia	
	Management	Discovery and Remote Management via Pharos Control application HTTP/HTTPS Web-based management System Log SNMP Agent (v2c) Ping Watch Dog Dynamic DDNS SSH Server	
	System Tools	Indicators: Signal Strength/Noise/Transmit CCQ/CPU/Memory Monitors: Throughput/Stations/Interfaces/ARP/Routes/WAN/DHCP Spectrum Analysis Speed Test Ping Traceroute	
	System-level Optimizations	IGMP Snooping/Proxy for multicast applications Hardware watch dog	

## Features & Performance

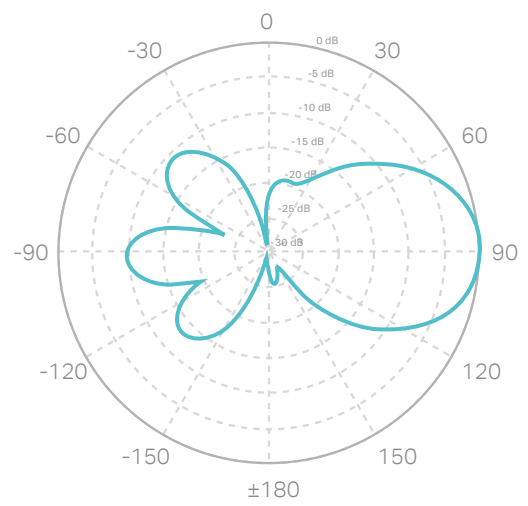
Model		CPE210/CPE220	CPE510/CPE520/CPE610
Name		2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 300Mbps 13dBi/16dBi/23dBi Outdoor CPE
Others	Certification	CPE210/CPE220/CPE510/CPE520: CE, FCC, RoHS, IPX5 CPE610: CE, FCC, RoHS,IP65	
	Package Contents	Outdoor CPE 24V 0.5A Passive PoE Adapter Pole Mounting Strap AC Power Cord Quick Installation Guide	
	System Requirements	Microsoft Windows 98SE, NT, 2000, XP, Vista™ or Windows 10, Windows 8, Windows 7, MAC OS, NetWare, UNIX or Linux. Note: We recommend you to use one of following Web browsers for better experience: Google Chrome, Safari, Firefox. IE browsers are not recommended..	
	Environment	Operating Temperature: -40°C~70°C (-40°F~158°F) Storage Temperature: -40°C~70°C (-40°F~158°F) Operating Humidity: 10%~90% non-condensing Storage Humidity: 5%~95% non-condensing	
POE Adapter Features	Dimensions(WxDxH)	85.8×43.9×29.7mm	
	Input Voltage	100VAC~240VAC@50Hz-60Hz	
	Input Current	0.4A Max @ 100VAC	
	Output Voltage	24VDC(+4,5pins; -7,8pins)	
	Output Current	0.5A Max	
	Efficiency	>84.29%	
	Interfaces	1 AC Jack with Earth Ground 1 10/100/1000Mbps Shielded Ethernet Port (Power + Data) 1 10/100/1000Mbps Shielded Ethernet Port (Data)	
	Power LED	Green	
	Certifications	CE/FCC/BSMI/UL/CB/CEC/DOE/NRCAN/SAA/KC/ERP/MEPS/S-mark/PSB/PSE/GS	

# CPE210 Antenna Patterns

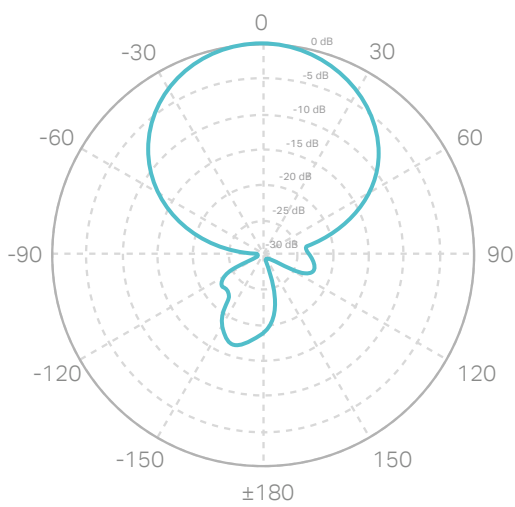
### Vertical Azimuth



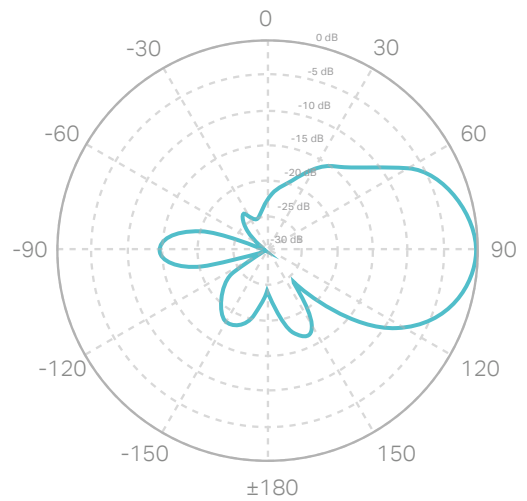
### Vertical Elevation



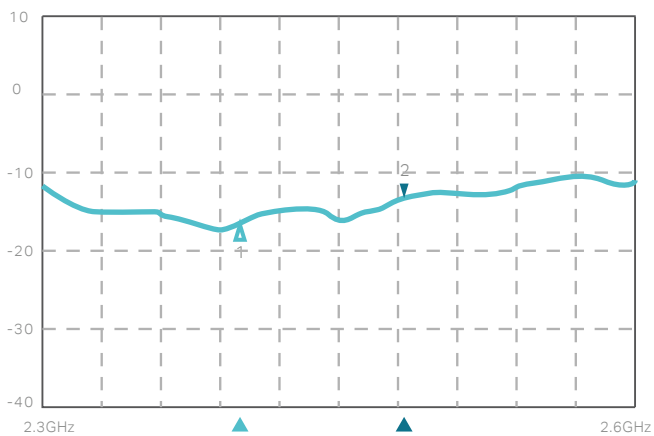
### Horizontal Azimuth



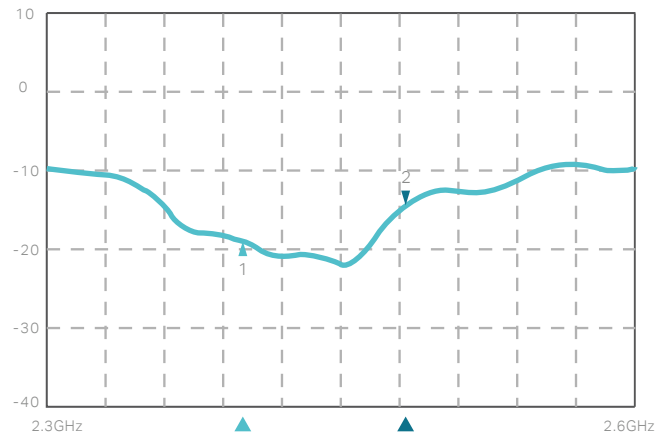
### Horizontal Elevation



### Return Loss – Vertical Polarization

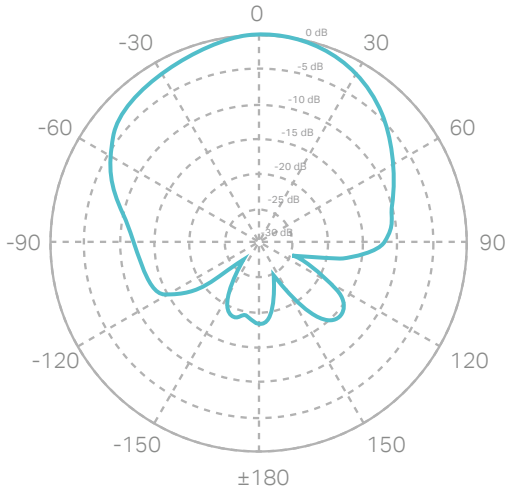


### Return Loss – Horizontal Polarization

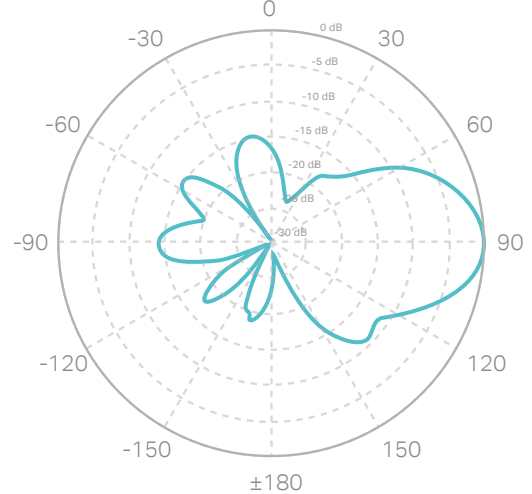


# CPE220 Antenna Patterns

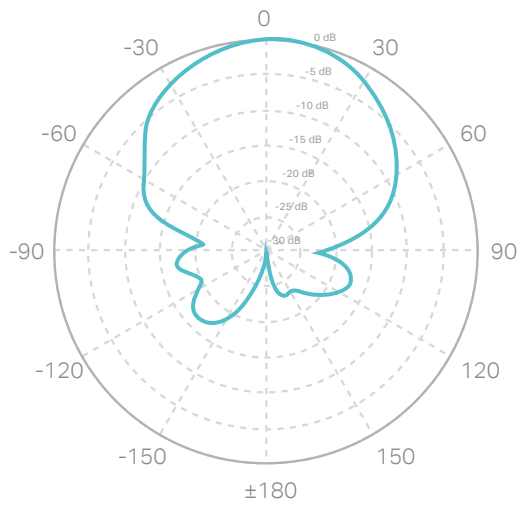
### Vertical Azimuth



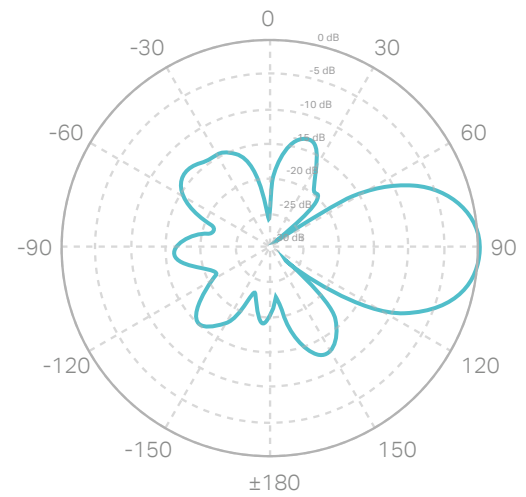
### Vertical Elevation



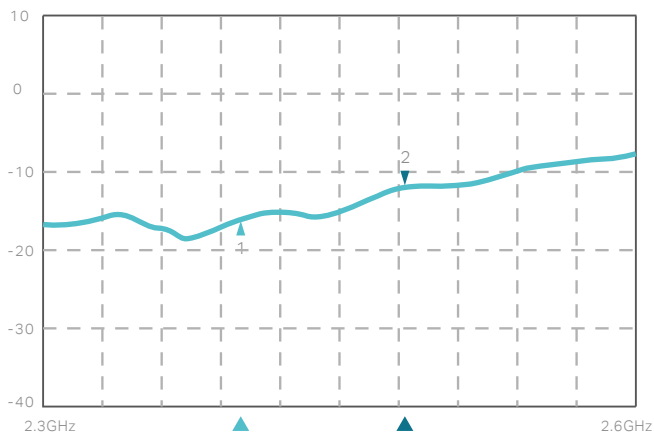
### Horizontal Azimuth



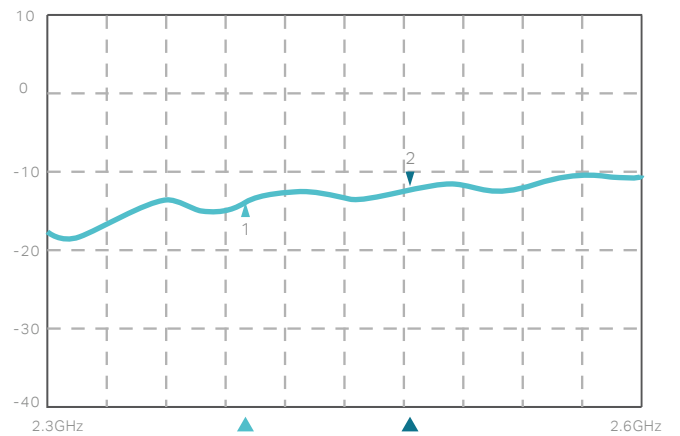
### Horizontal Elevation



### Return Loss – Vertical Polarization



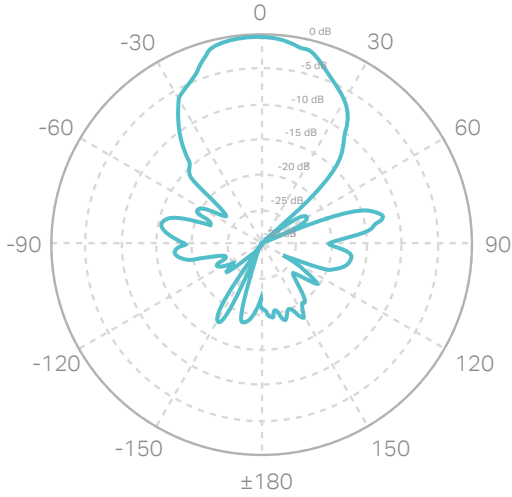
### Return Loss – Horizontal Polarization



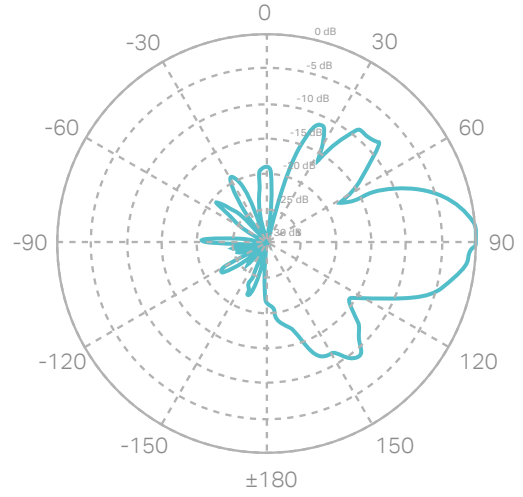


# CPE510 Antenna Patterns

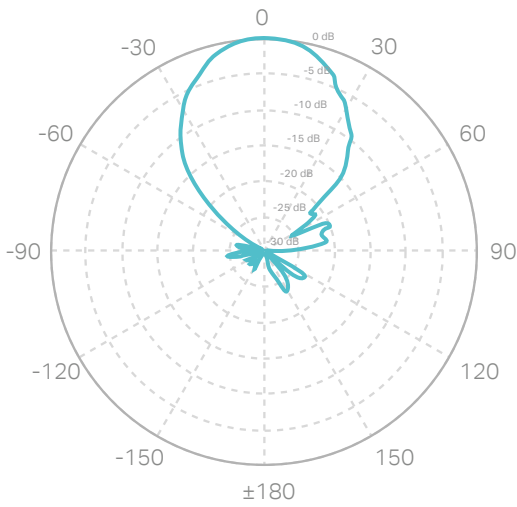
**Vertical Azimuth**



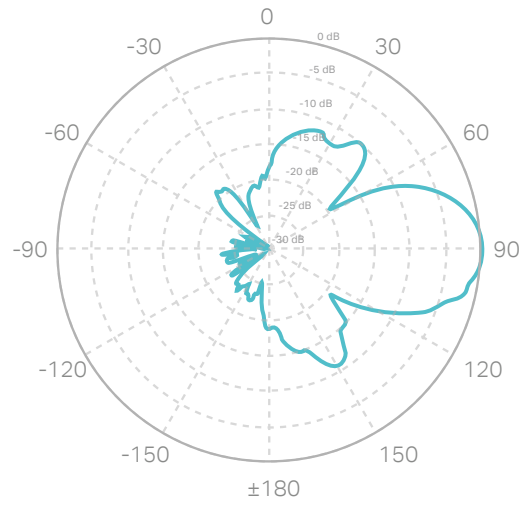
**Vertical Elevation**



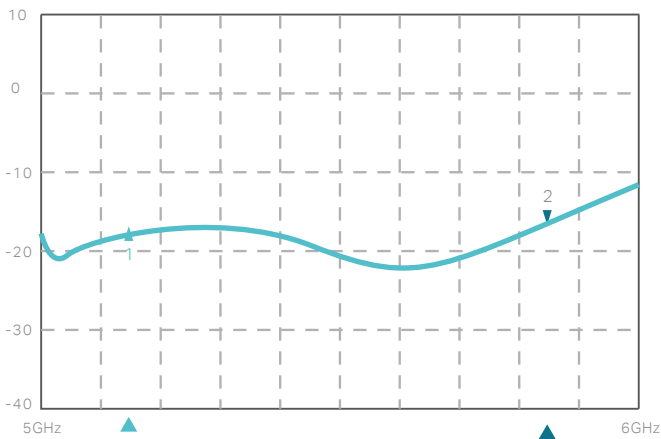
**Horizontal Azimuth**



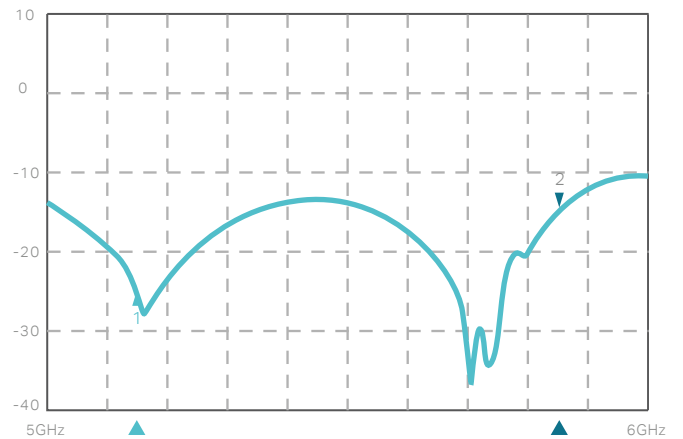
**Horizontal Elevation**



**Return Loss – Vertical Polarization**

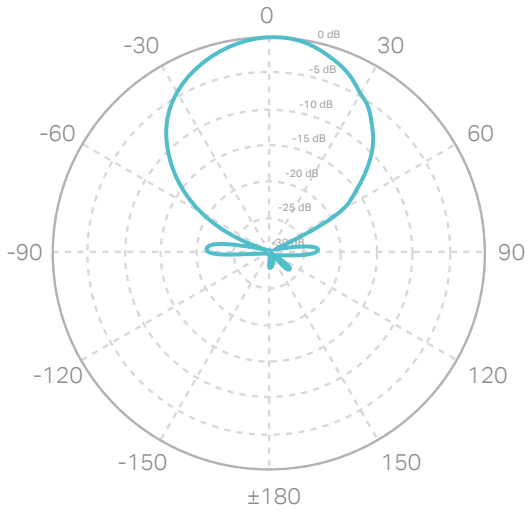


**Return Loss – Horizontal Polarization**

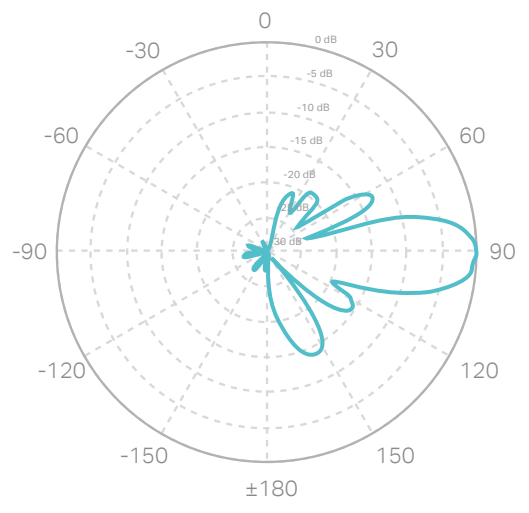


# CPE520 Antenna Patterns

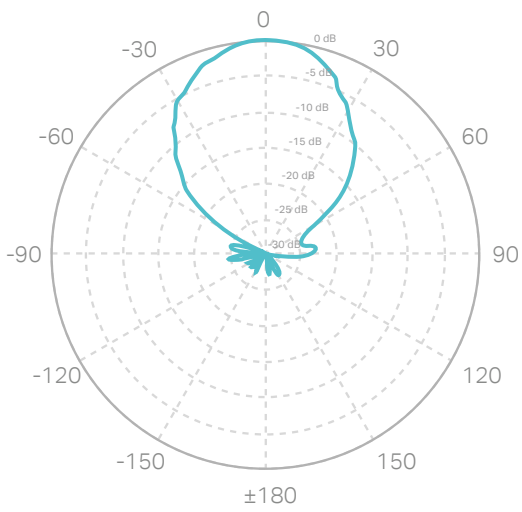
**Vertical Azimuth**



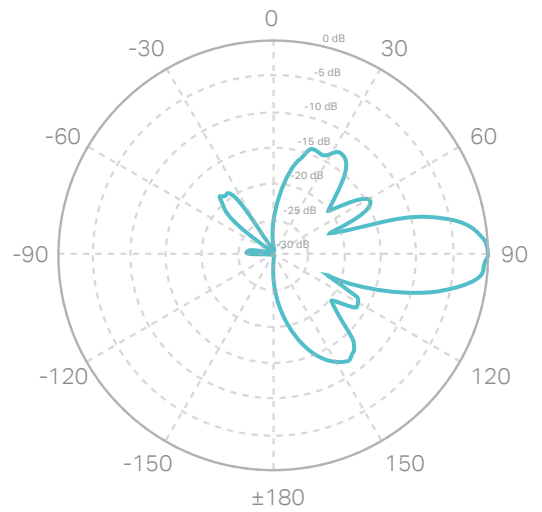
**Vertical Elevation**



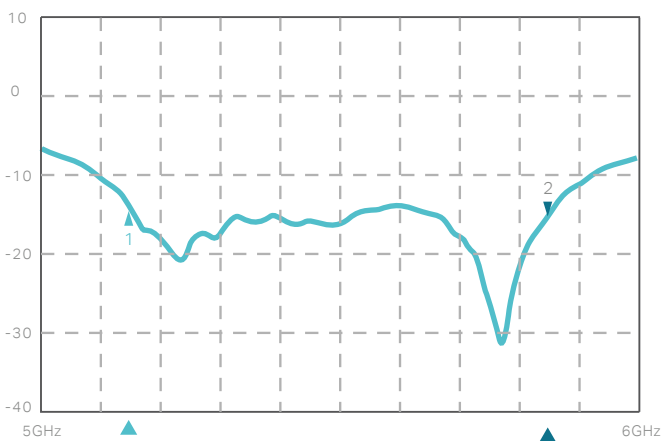
**Horizontal Azimuth**



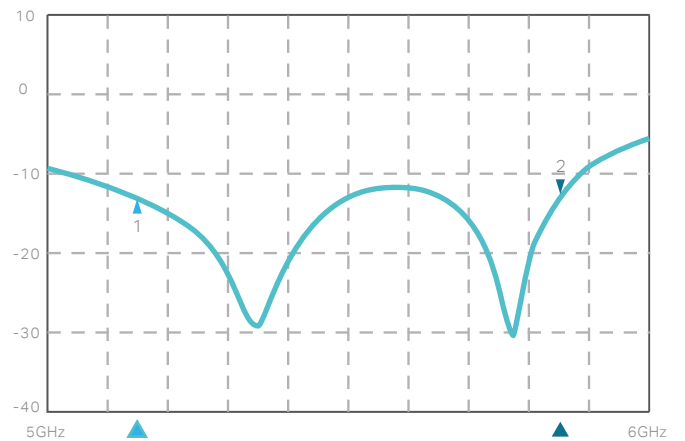
**Horizontal Elevation**



**Return Loss – Vertical Polarization**

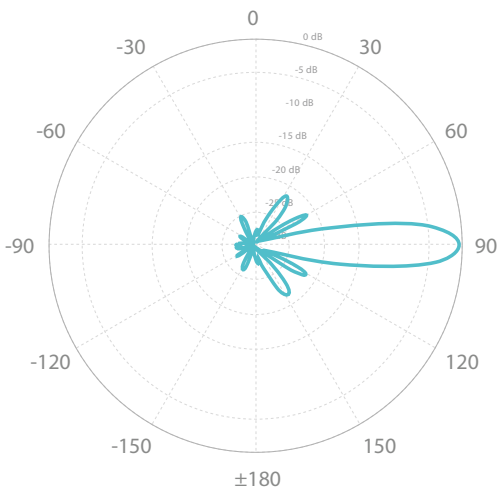


**Return Loss – Horizontal Polarization**

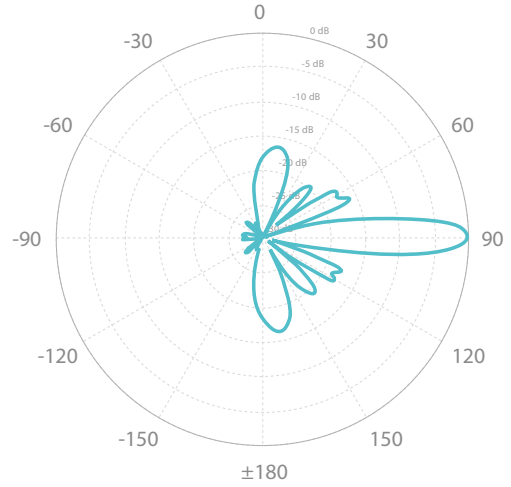


# CPE610 Antenna Patterns

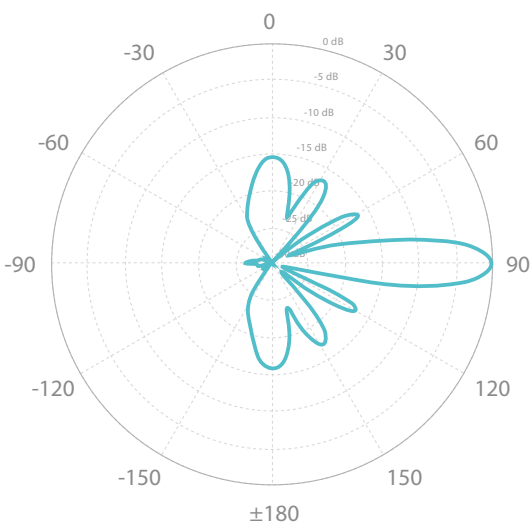
### Vertical Azimuth



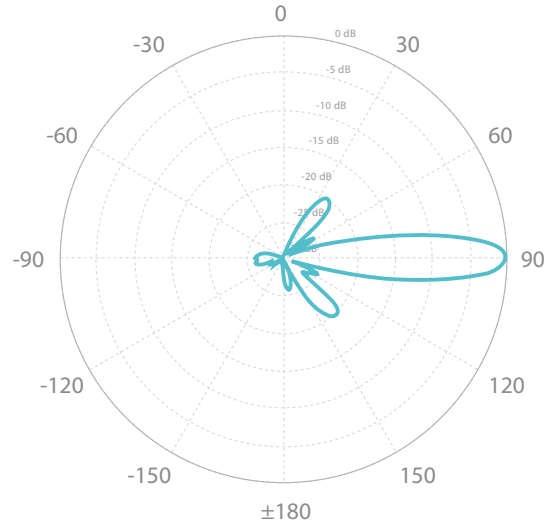
### Vertical Elevation



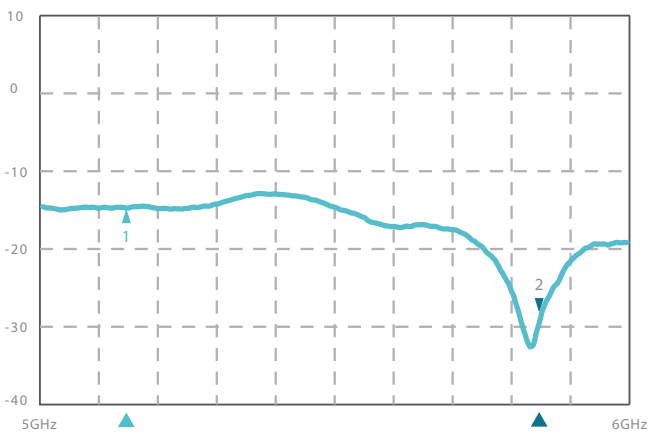
### Horizontal Azimuth



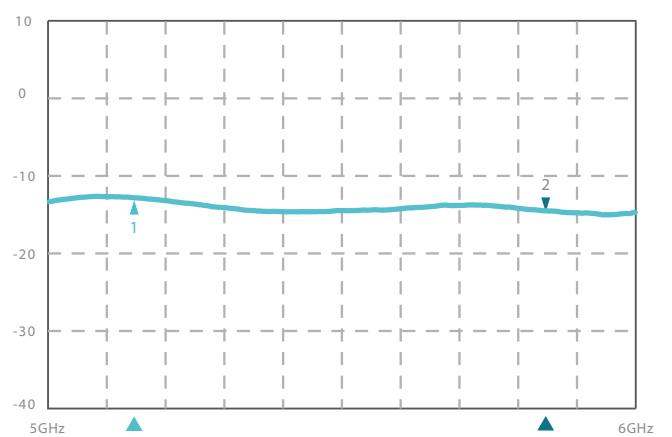
### Horizontal Elevation



### Return Loss – Vertical Polarization



### Return Loss – Horizontal Polarization



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