



# Pharos CPE Series

Dedicated Long-Range Outdoor  
Wireless Networking Solution

CPE210/CPE220/CPE510/CPE605/CPE610

## Highlights

- Selectable bandwidth of 5/10/20/40MHz
- Adjustable transmission power by 1dBm
- Broad operating frequency channels ensure less wireless interference
- Passive PoE Adapter supports up to 60 meter<sup>1</sup> (200 feet) Power over Ethernet deployment
- 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



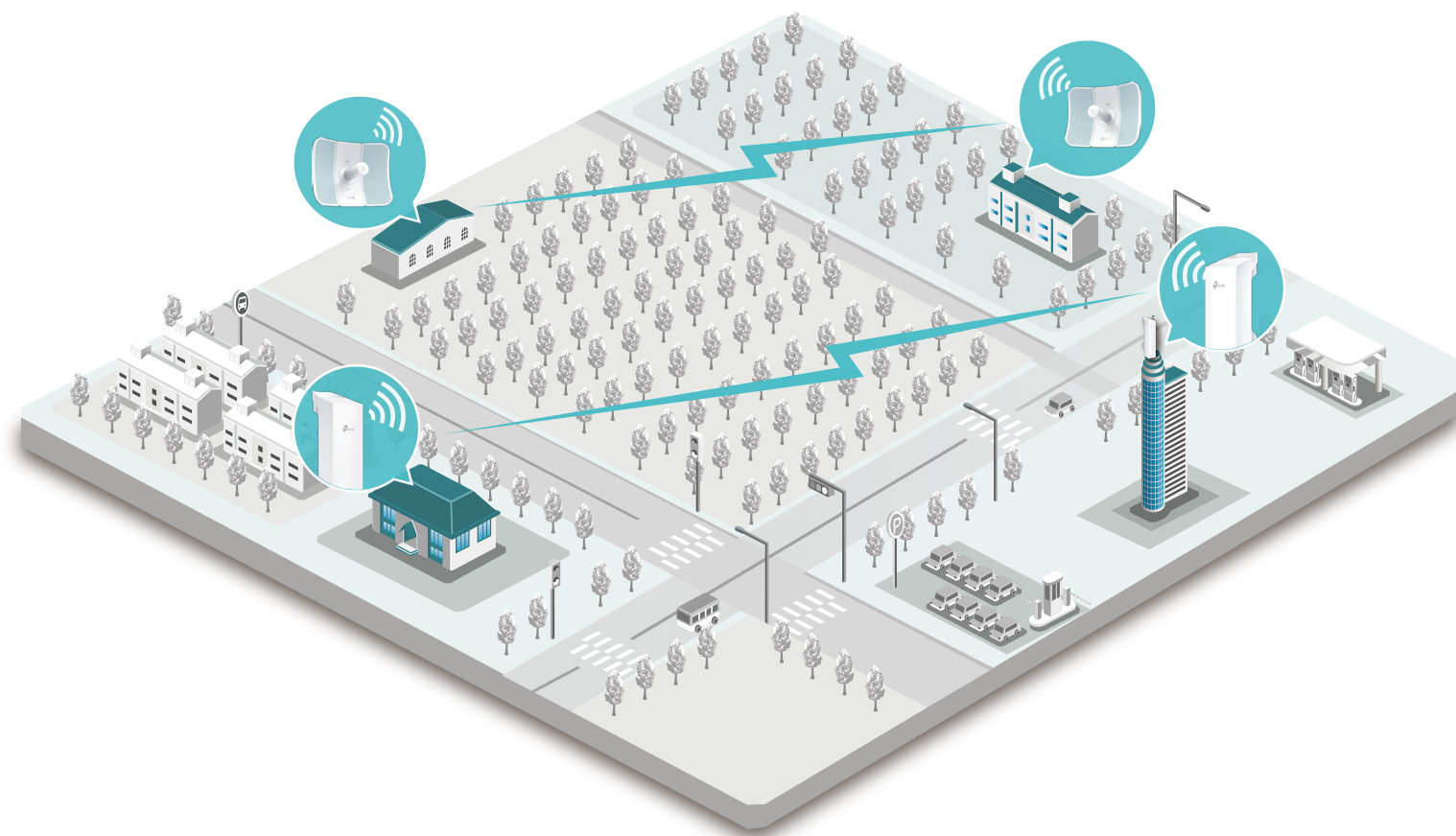
<sup>1</sup> Power supply distances are based on test results under normal usage conditions. Actual power supply distance will vary as a result of 1) AP status, including transmit power, connected devices and network traffic and 2) cable properties, including type and texture.

# Typical Application

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.

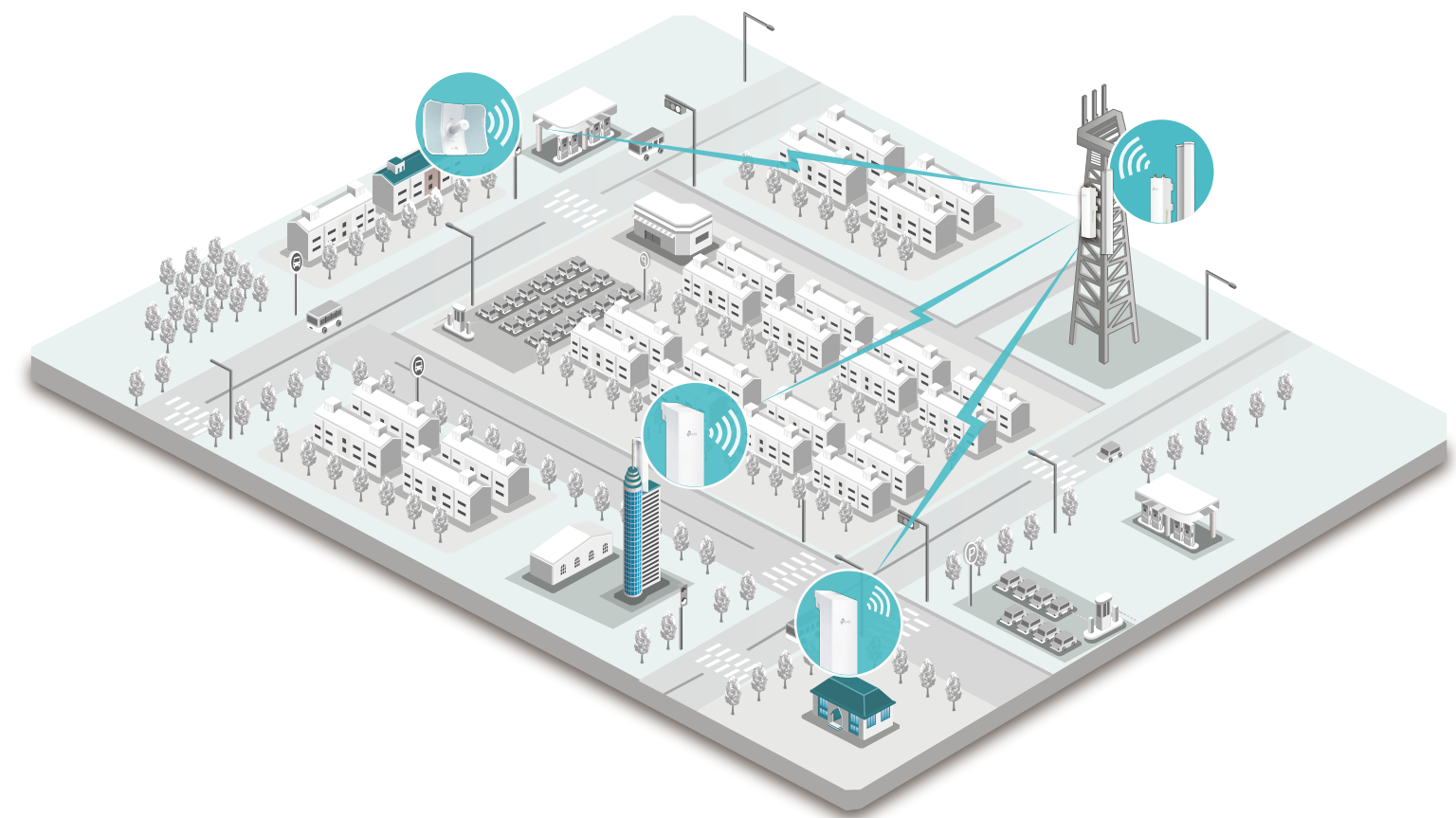
## Long-distance Wireless Connection

Using two CPEs to build a long-distance wireless connection



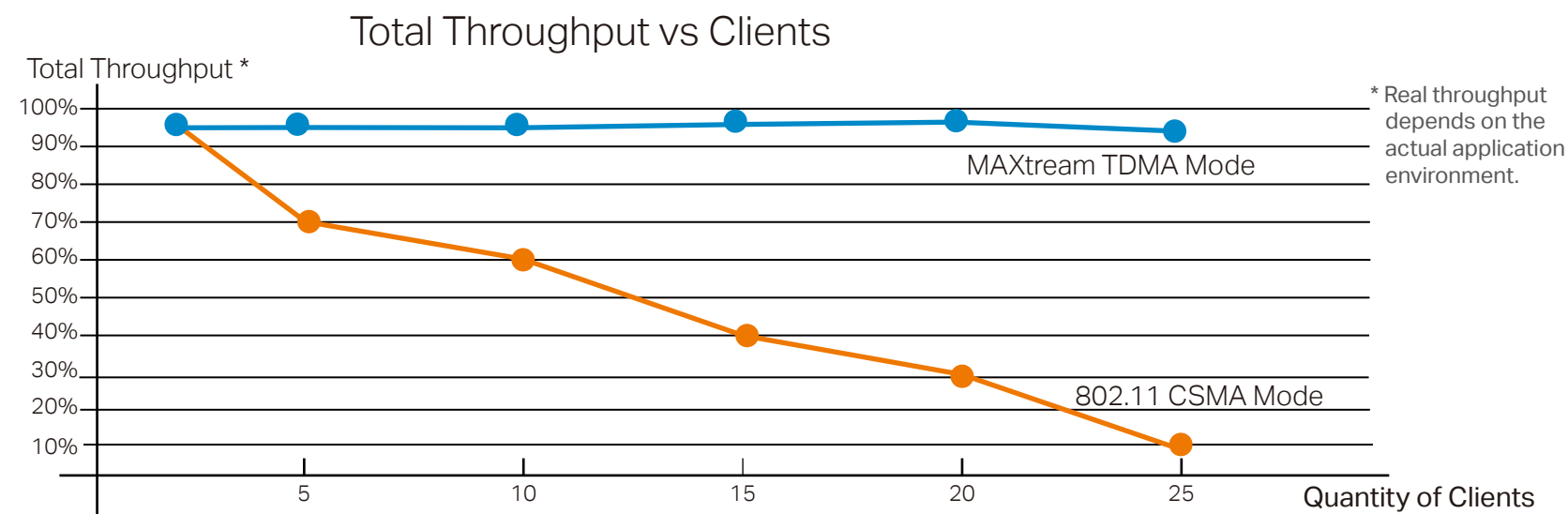
## Large-area Wireless Coverage

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 MAXtream 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 MAXtream TDMA Technology.



# Pharos

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

**Device Information:**  
 Device Name: H8553-03  
 Device Model: H8553-03  
 Firmware Version: 2.0.9 Build 20161010 Rev 64956  
 System Time: 2016-04-08 00:03:17  
 License: 0 days 00:03:18  
 CPU: 100%  
 Memory: 5%

**Wireless Settings:**  
 Beacon: OFF  
 Region: Test\_Mode  
 Channel/Bandwidth: 100 / 40MHz

**Wireless Signal Quality:**  
 Signal Strength:  -52dBm  
 Noise Strength:  -98dBm  
 SNR:  46dB  
 Transmit CQ:  96

# 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.

Device name	Status	Mode	SSID	Root AP SSID	IP address
CPE210	MANAGED	0	AMY_C2		192.168.1.122
CPE510	UNMANAGED	0	APP_GUEST_C9		192.168.1.124
CPE510-2	MANAGED	0	APP_842N		192.168.1.124
CPE210-1	UNMANAGED	0	RE_MONILE4	AP500-C2	192.168.1.126
CBS779	MANAGED	0	AP500	AP1000-SD	192.168.1.124

The map view displays the physical locations of the network devices. Markers on the map are labeled with device names and IDs, such as CPE210-1, CPE510, CPE210, and CBS779. The interface includes a search bar and a 'Map' button to toggle between list and map views.

# Specification

## Features & Performance

Model	CPE210/CPE220	CPE605	CPE510/CPE610	
Name	2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 150Mbps 23dBi Outdoor CPE	5GHz 300Mbps 13dBi/23dBi Outdoor CPE	
Hardware Features	Processor	Qualcomm 650MHz CPU, MIPS 24Kc	Qualcomm 560MHz CPU, MIPS 74Kc	
	Memory	64MB DDR2 RAM, 8MB Flash		
	Antenna Gain	CPE210: 9dBi CPE220: 12dBi	CPE605: 23dBi	CPE510: 13dBi CPE610: 23dBi
	Beamwidth	CPE210: 65° (Azimuth)/35° (Elevation) CPE220: 60° (Azimuth)/30° (Elevation)	CPE605: 7° (Azimuth)/10° (Elevation)	CPE510: 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: 1 10/100Mbps Shielded Ethernet Port (LAN0/POE) 1 10/100Mbps Shielded Ethernet Port (LAN1) 1 Grounding Terminal 1 Reset Button		
		CPE605/CPE610: 1 10/100Mbps Shielded Ethernet Port (LAN/POE) 1 Reset Button		
	Power Supply	CPE210/CPE220/CPE510/CPE610: 24VDC/0.5A Passive PoE (+4,5pins; -7,8pins) CPE605: 24VDC/0.25A Passive PoE (+4,5pins; -7,8pins)		
	Dimensions (L x W x H)	CPE210/CPE510: 224×79×60 mm CPE220: 276×79×60 mm CPE605: 207×255×350 mm CPE610: 207×280×366 mm		
Protection <sup>2</sup>	15KV ESD Protection 6KV Lightning Protection			
Enclosure	CPE210/CPE220/CPE510: Material: Outdoor ASA stabilized plastic Weatherproof: IPX5 water and dust proof design		CPE605/CPE610: Material: Outdoor PC stabilized plastic Weatherproof: IP65 water and dust proof design	

<sup>2</sup>Protection against lightning and electro-static discharge may be achieved through proper product setup, grounding and cable shielding. Refer to the instruction manual and consult an IT professional to assist with setting up this product.

# Specification

## Features & Performance

Model		CPE210/CPE220	CPE605	CPE510/CPE610
Name		2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 150Mbps 23dBi Outdoor CPE	5GHz 300Mbps 13dBi/23dBi Outdoor CPE
Wireless Features	Wireless Standards	IEEE 802.11 b/g/n		IEEE 802.11 a/n
	Proprietary Protocol	TDMA Mode (with Pharos MAXstream enabled)		
	Frequency <sup>3</sup>	2.4-2.483GHz	5.15-5.85GHz	
	Wireless Speed <sup>4</sup>	Up to 300Mbps (40MHz, Dynamic) Up to 144.4Mbps (20MHz, Dynamic) Up to 72.2Mbps (10MHz, Dynamic) Up to 36.1Mbps (5MHz, Dynamic)	Up to 150Mbps (40MHz, Dynamic) Up to 72.2Mbps (20MHz, Dynamic) Up to 36.1Mbps (10MHz, Dynamic) Up to 18.05Mbps (5MHz, Dynamic)	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>5</sup>	CPE210: 25dBm (Adjustable power by 1 dBm) CPE220: 30dBm (Adjustable power by 1 dBm) CPE510: 25dBm (Adjustable power by 1 dBm) CPE605: 23dBm (Adjustable power by 1 dBm) CPE610: 25dBm (Adjustable power by 1 dBm)		
Software Feature	Operation Mode	AP/Client/Bridge/Repeater/AP Router/AP Client Router (WISP Client)		
	Network Configurations	WAN: Static/Dynamic/PPPoE/L2TP/PPTP LAN: Static/Dynamic/DHCP IPv6 Forwarding: ALG/UPnP/Virtual Server/Port Trigger Security: SPI Firewall/ Ping Forbidden/DoS Protection Access Control Static Routing Bandwidth Control IP & MAC Binding		

<sup>3</sup> Available operation frequency may vary depending on the limitation of the countries or regions in which the device is used.

<sup>4</sup> Maximum wireless transmission rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless transmission rate will vary as a result of 1) environmental factors, including building materials, physical objects and obstacles, 2) network conditions, including local interference, volume and density of traffic, product location, network complexity, and network overhead and 3) client limitations, including rated performance, location, connection quality, and client condition.

<sup>5</sup> Maximum transmit power is limited by local regulatory settings.

# Specification

## Features & Performance

Model	CPE210/CPE220	CPE605	CPE510/CPE610
Name	2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 150Mbps 23dBi Outdoor CPE	5GHz 300Mbps 13dBi/23dBi Outdoor CPE
Software Feature	Wireless Configurations	Pharos MAXtream TDMA Technology Long Range PtP 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 Antenna Alignment	
	System-level Optimizations	IGMP Snooping/Proxy for multicast applications	

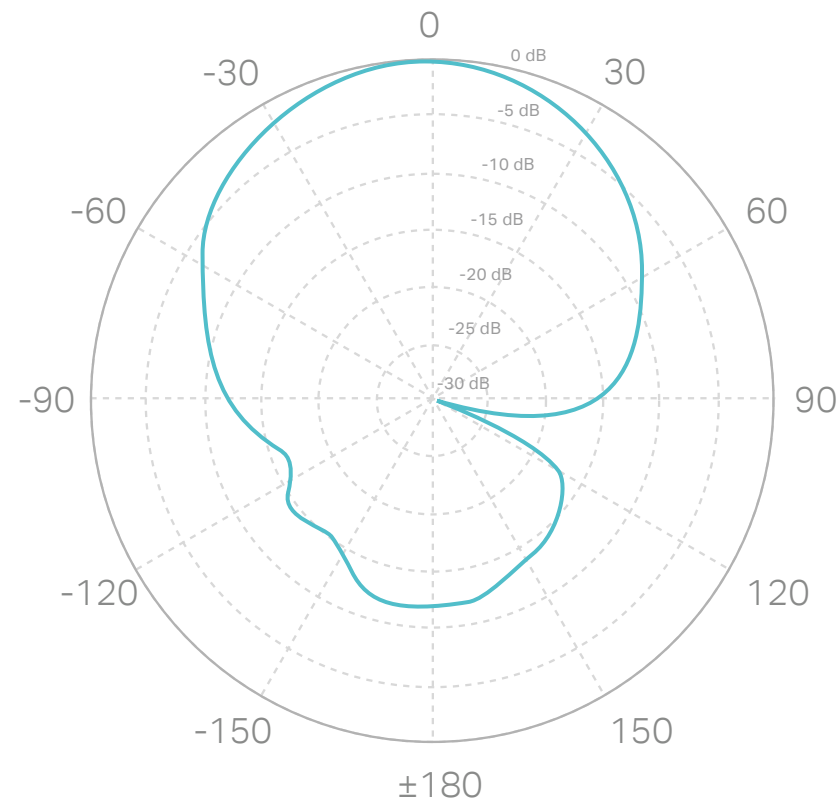
# Specification

## Features & Performance

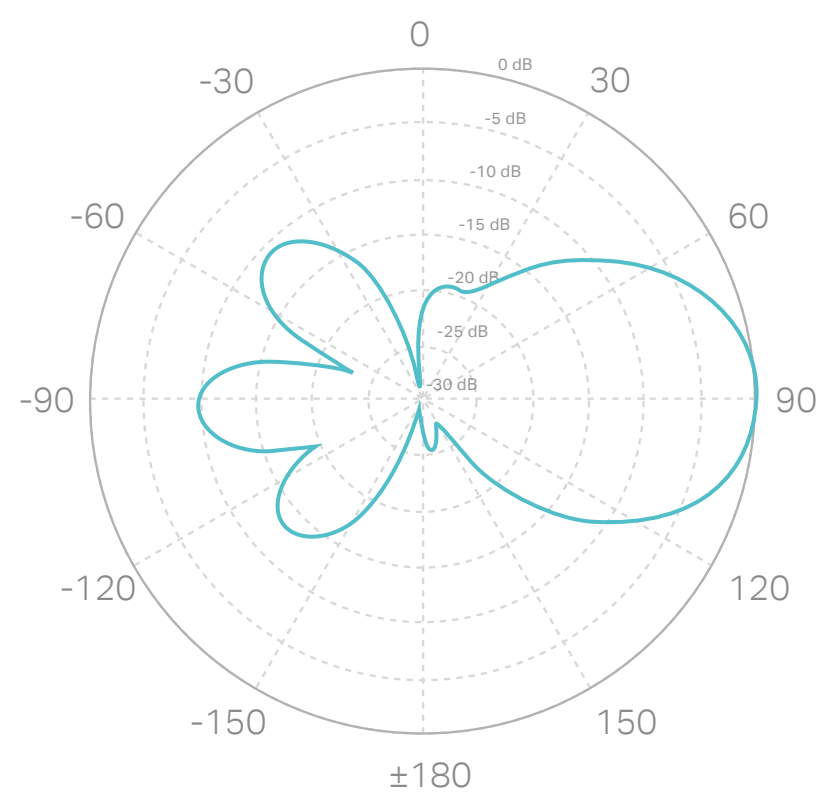
Model	CPE210/CPE220	CPE605	CPE510/CPE610
Name	2.4GHz 300Mbps 9dBi/12dBi Outdoor CPE	5GHz 150Mbps 23dBi Outdoor CPE	5GHz 300Mbps 13dBi/23dBi Outdoor CPE
Software Feature	Certification CPE210/CPE220/CPE510: CE, FCC, RoHS, IPX5 CPE605: CE, FCC, RoHS, IP65 CPE610: CE, FCC, RoHS, IP65, IC		
	Package Contents Outdoor CPE 24V Passive PoE Adapter AC Power Cord Mounting Kits 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		

# CPE210 Antenna Patterns

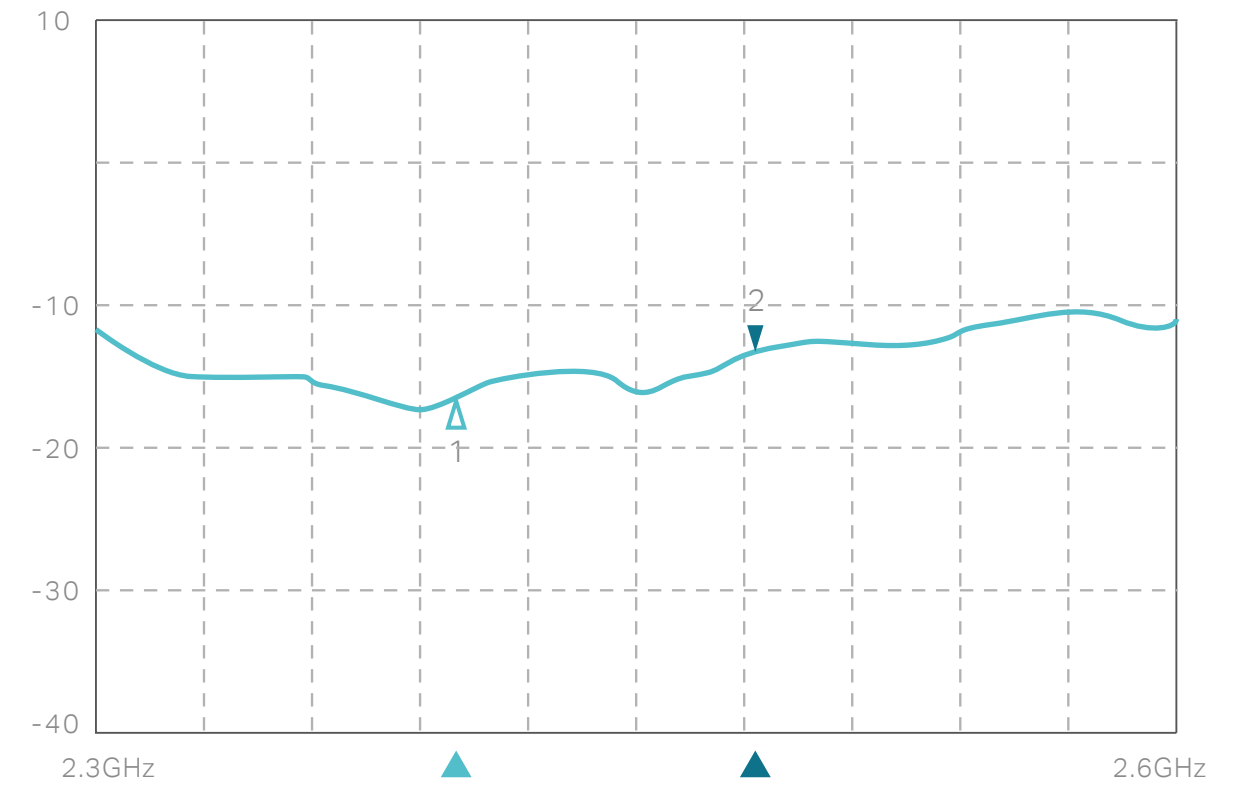
## Vertical Azimuth



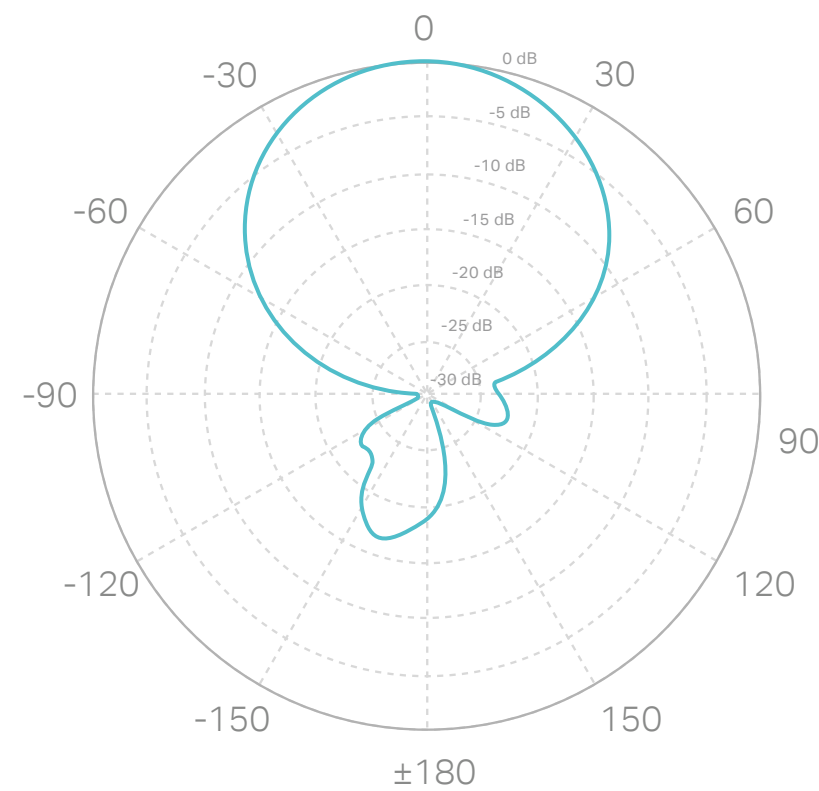
## Vertical Elevation



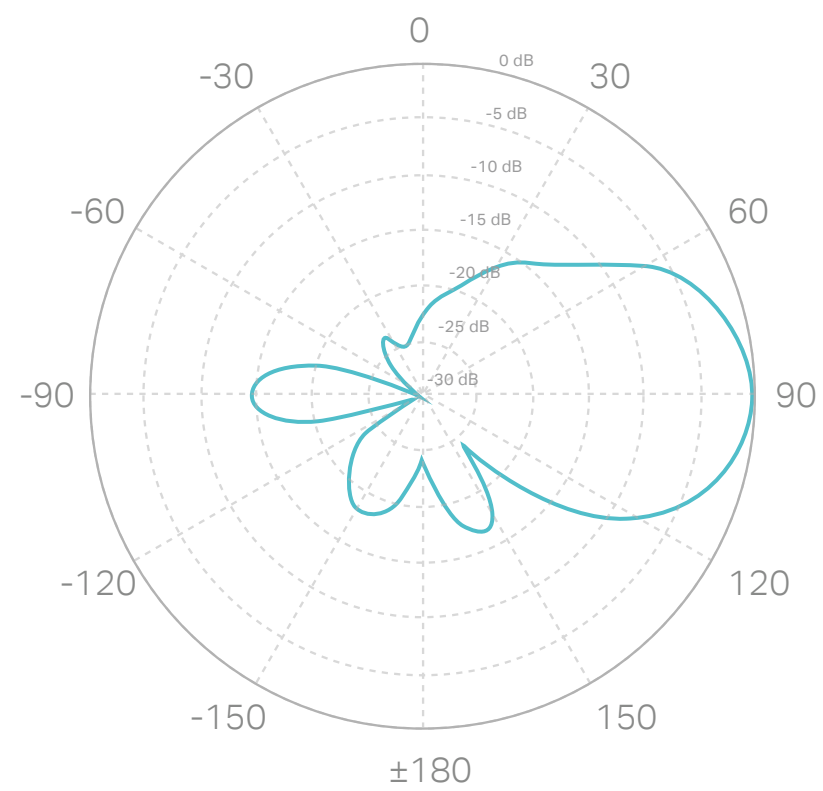
## Return Loss – Vertical Polarization



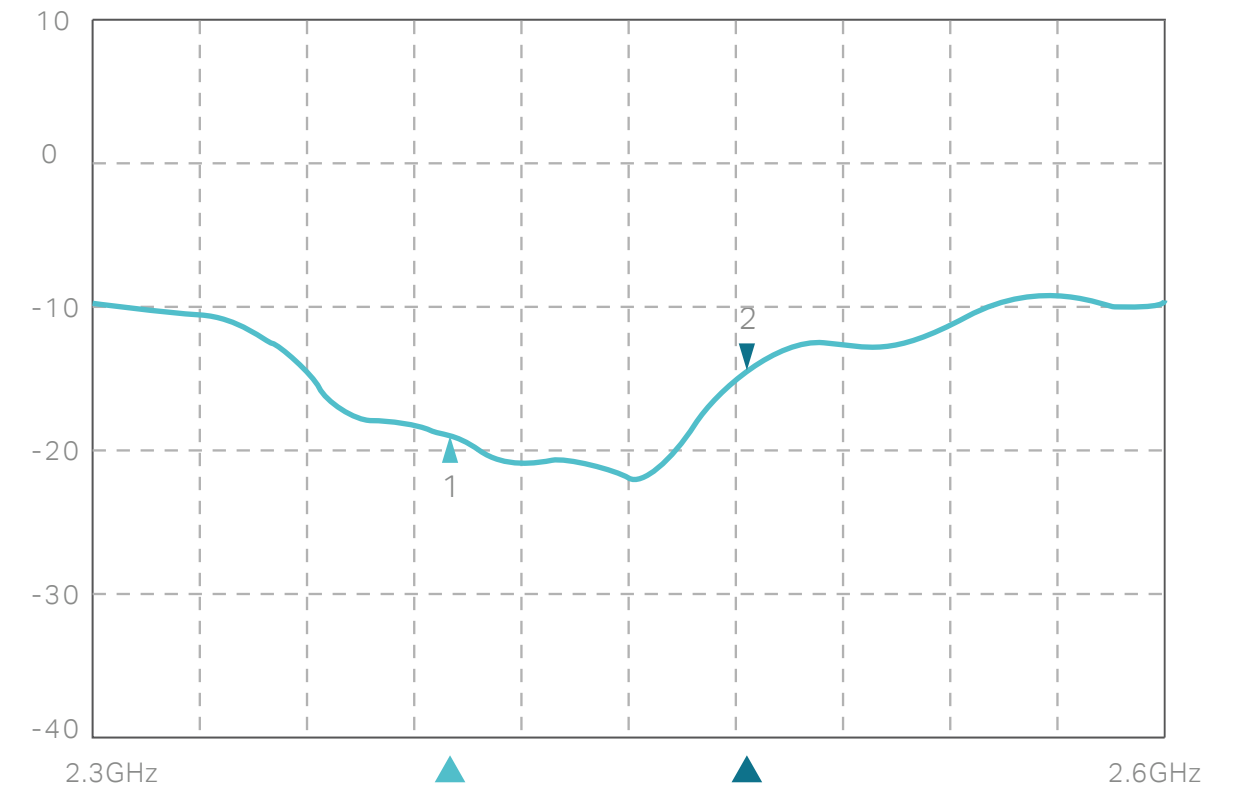
## Horizontal Azimuth



## Horizontal Elevation



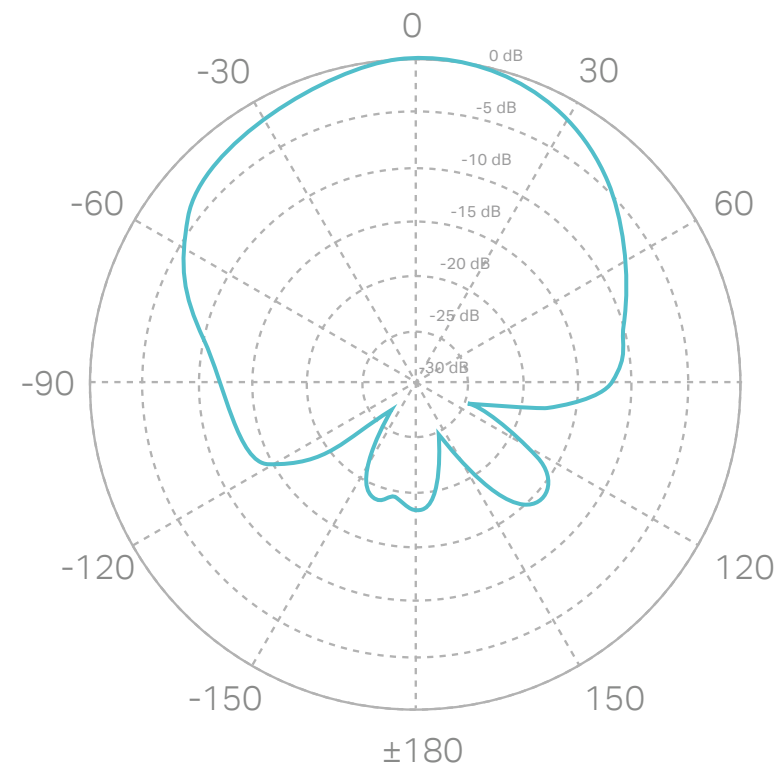
## Return Loss – Horizontal Polarization



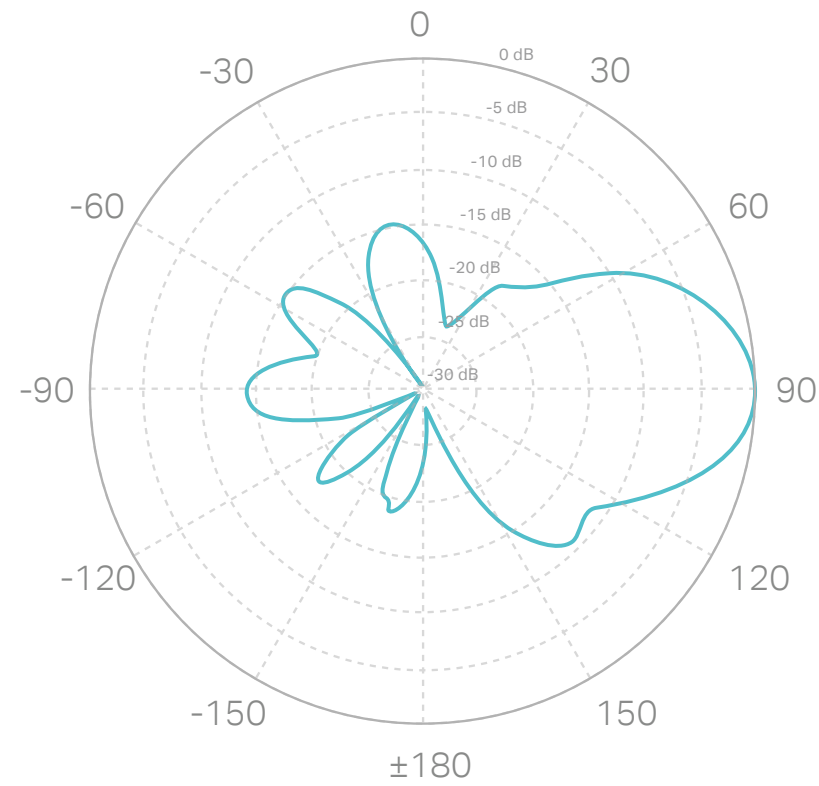


# CPE220 Antenna Patterns

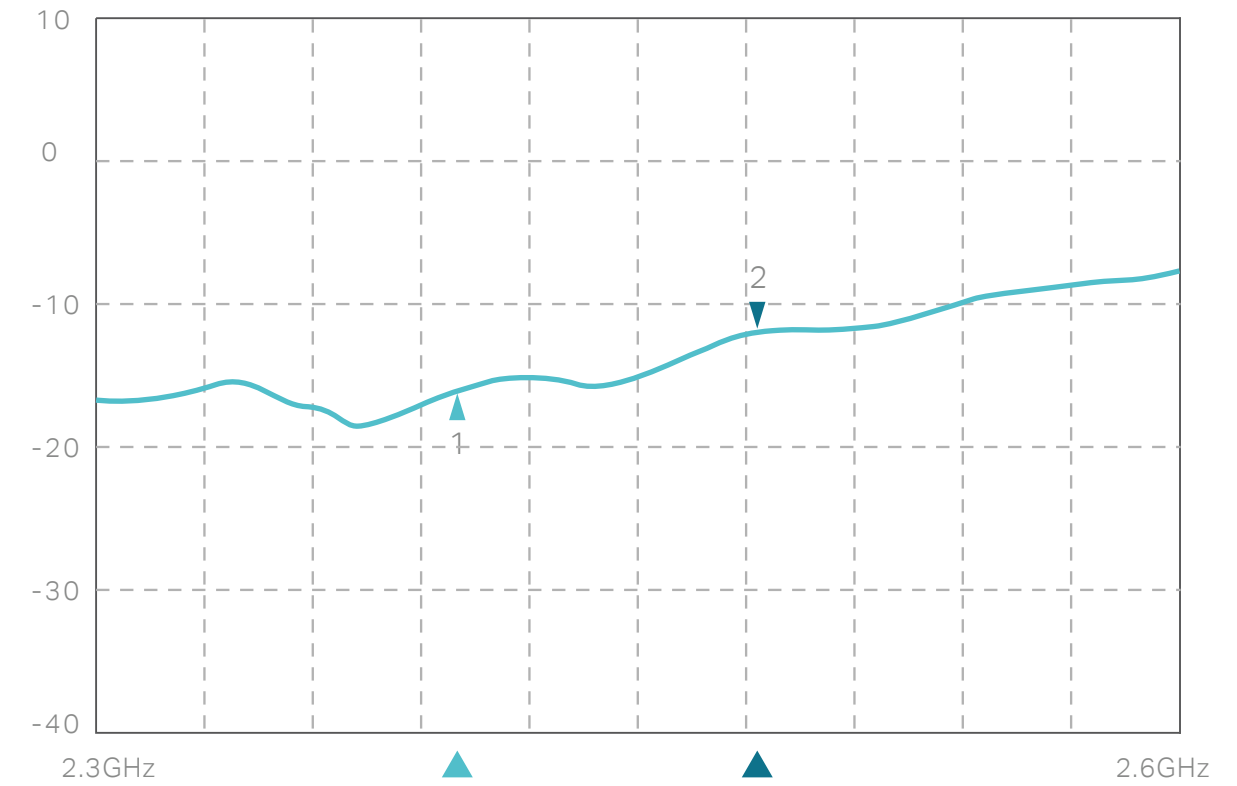
## Vertical Azimuth



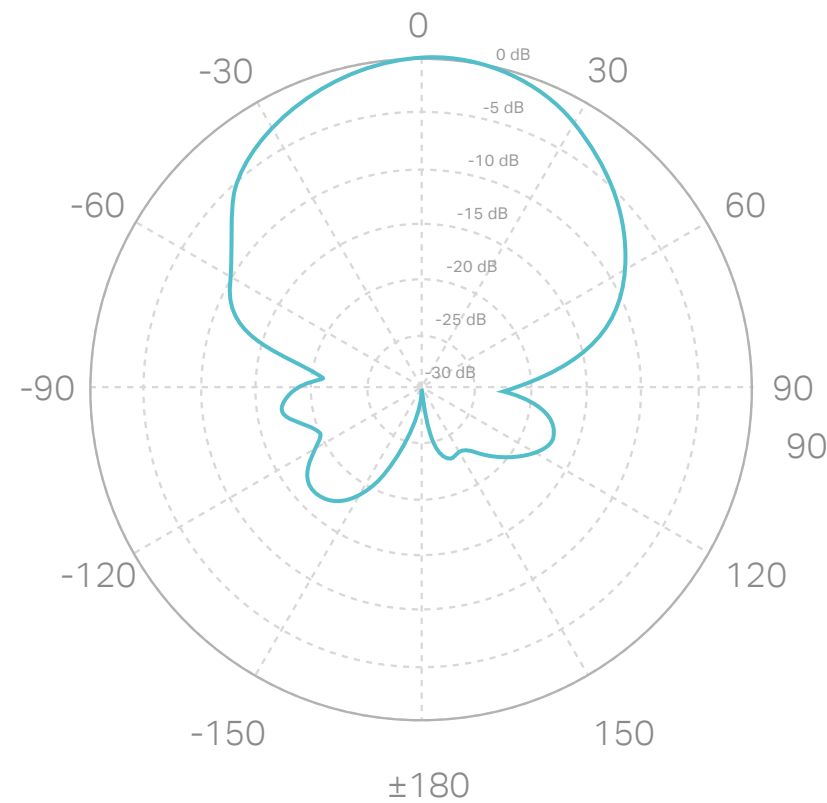
## Vertical Elevation



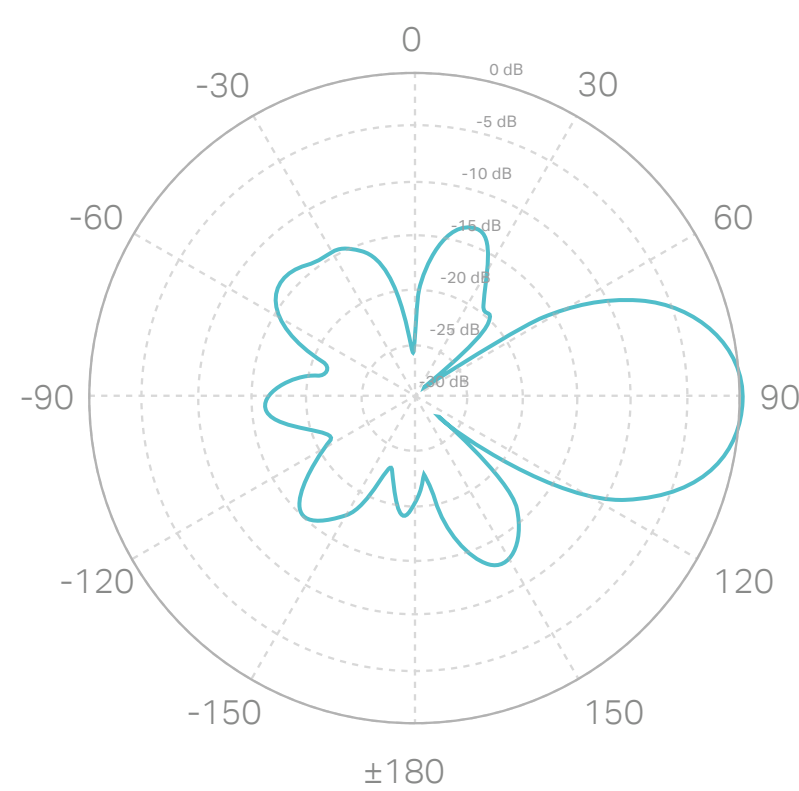
## Return Loss – Vertical Polarization



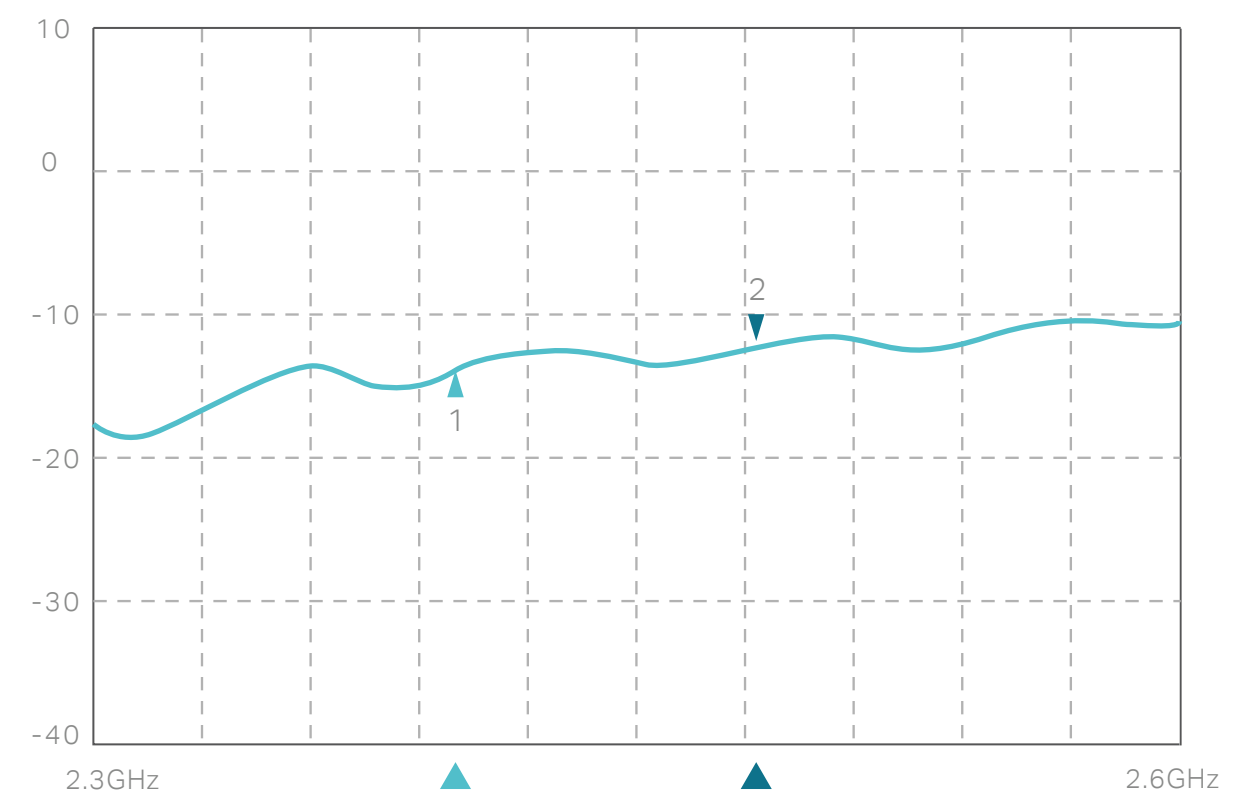
## Horizontal Azimuth



## Horizontal Elevation

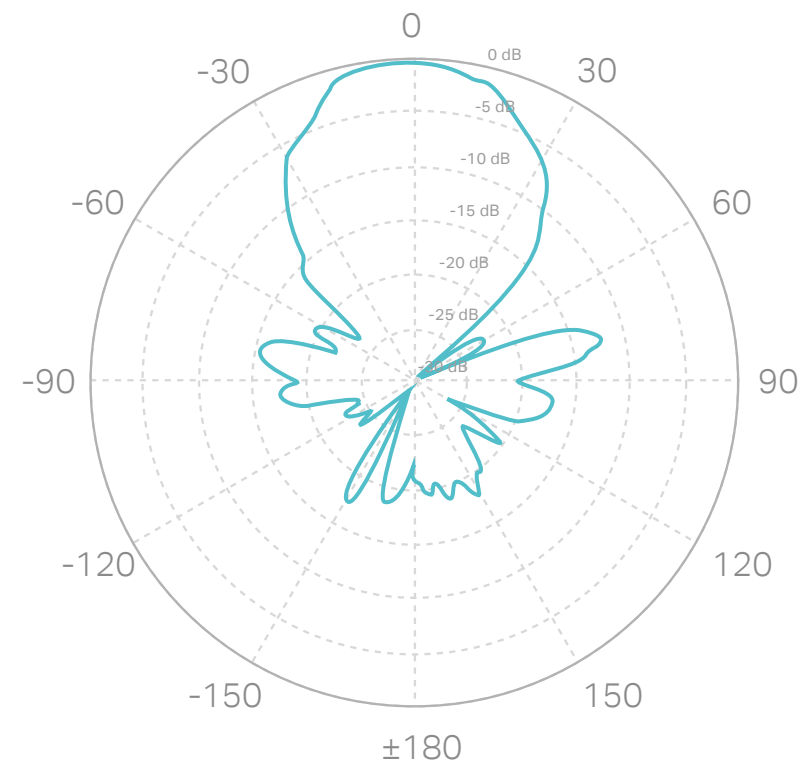


## Return Loss – Horizontal Polarization

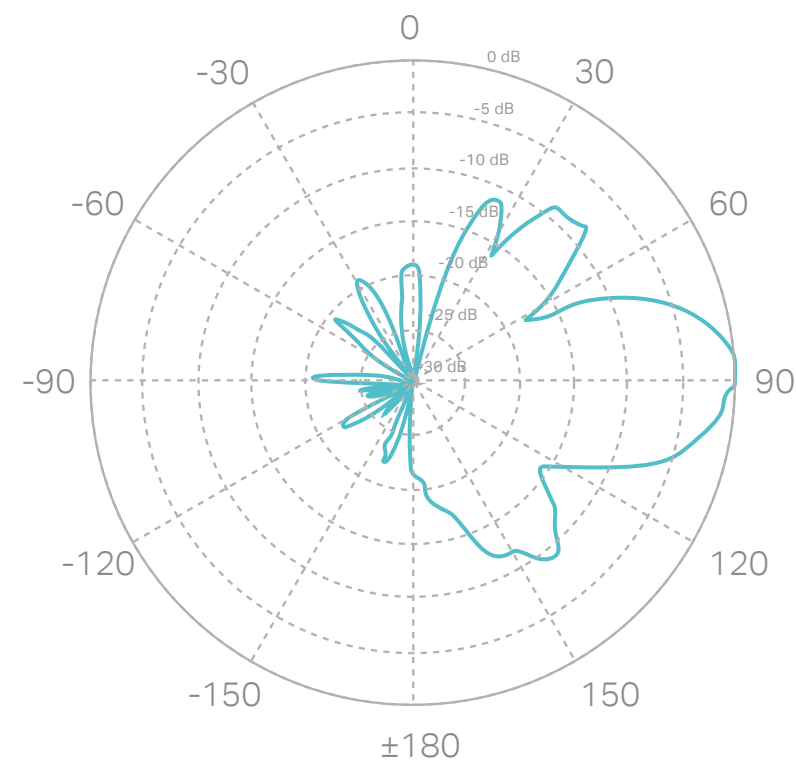


# CPE510 Antenna Patterns

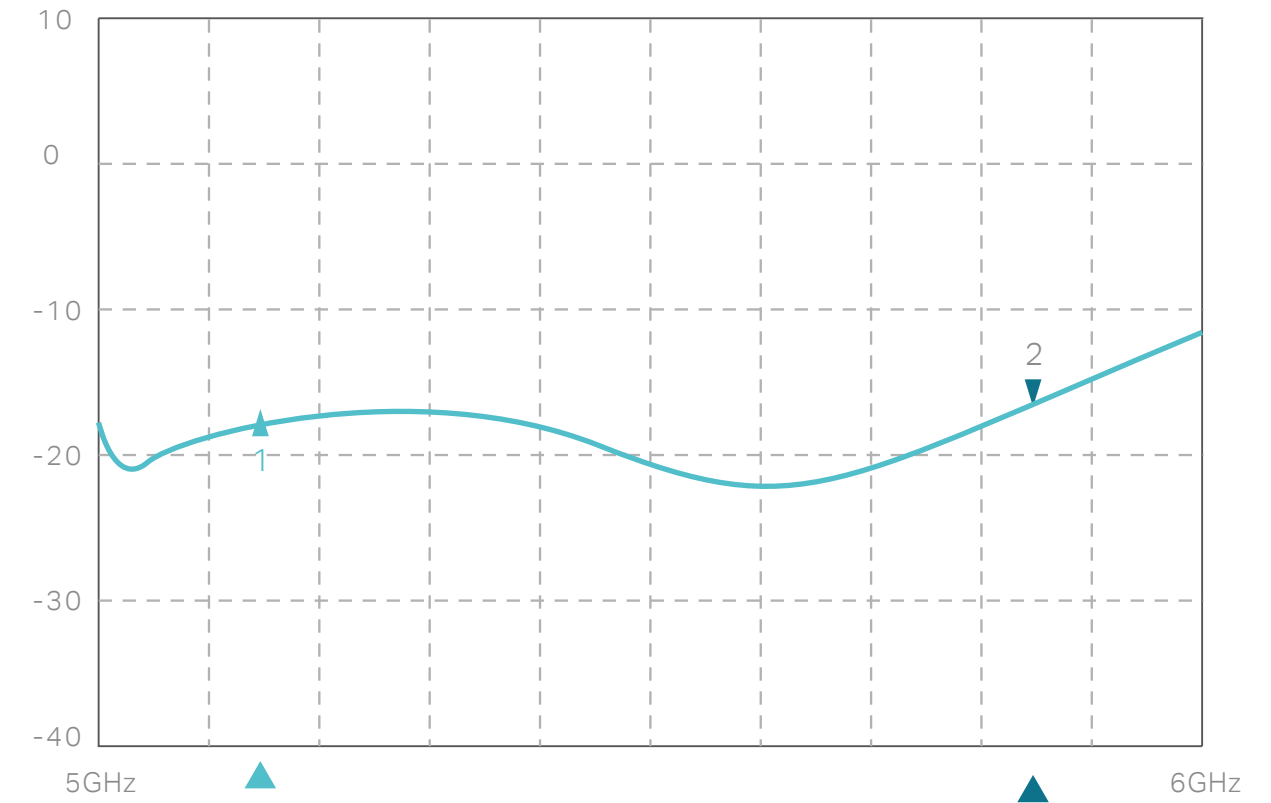
## Vertical Azimuth



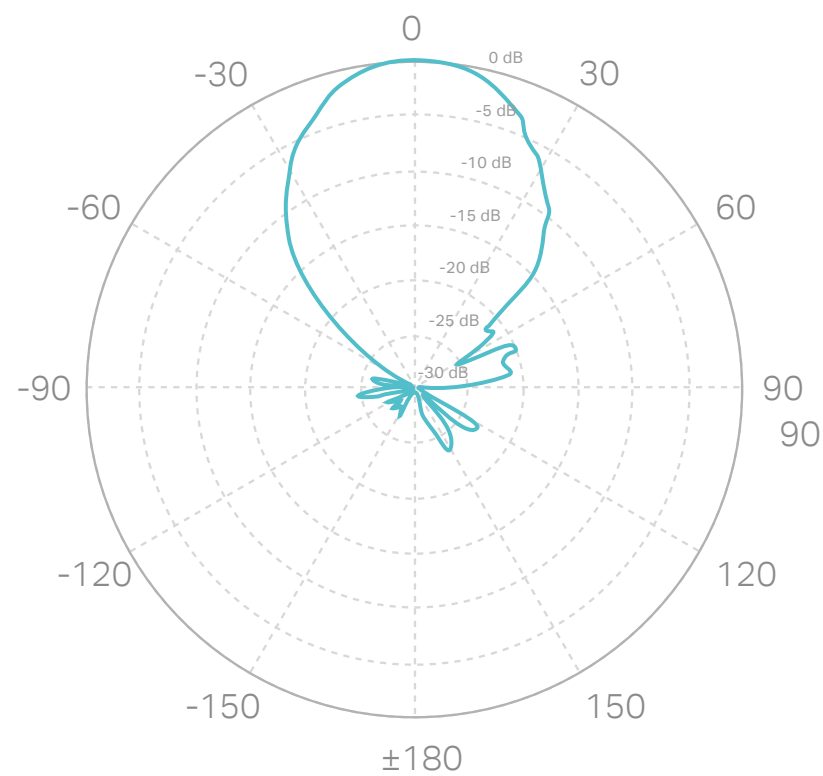
## Vertical Elevation



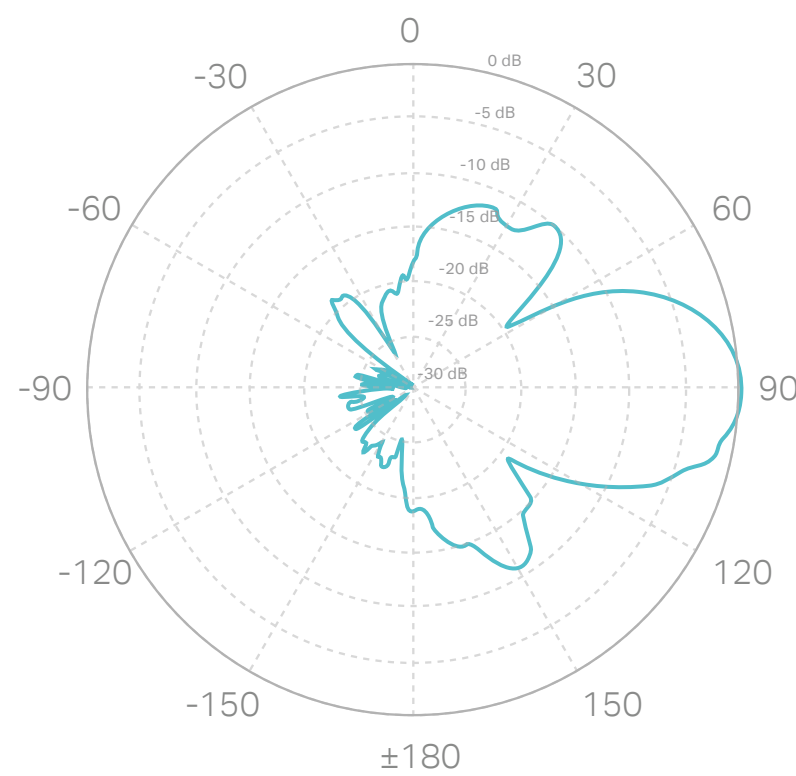
## Return Loss – Vertical Polarization



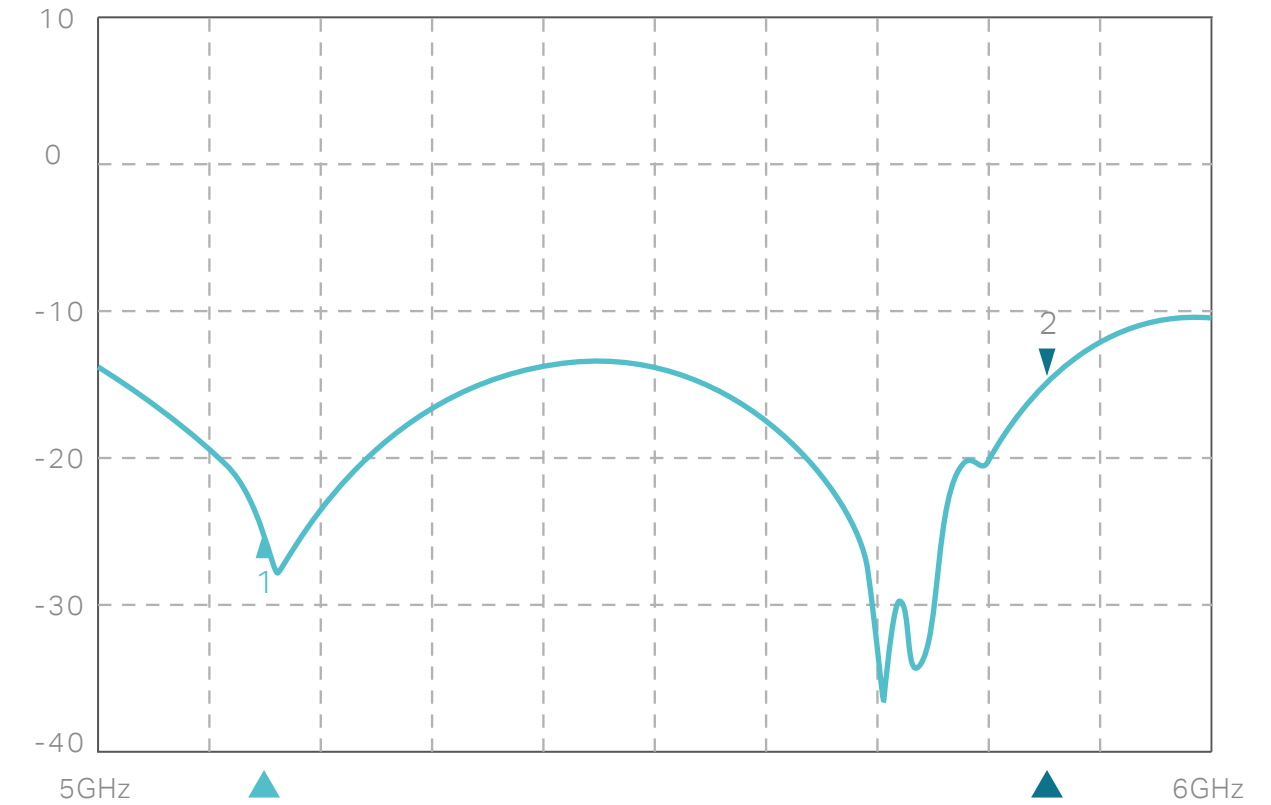
## Horizontal Azimuth



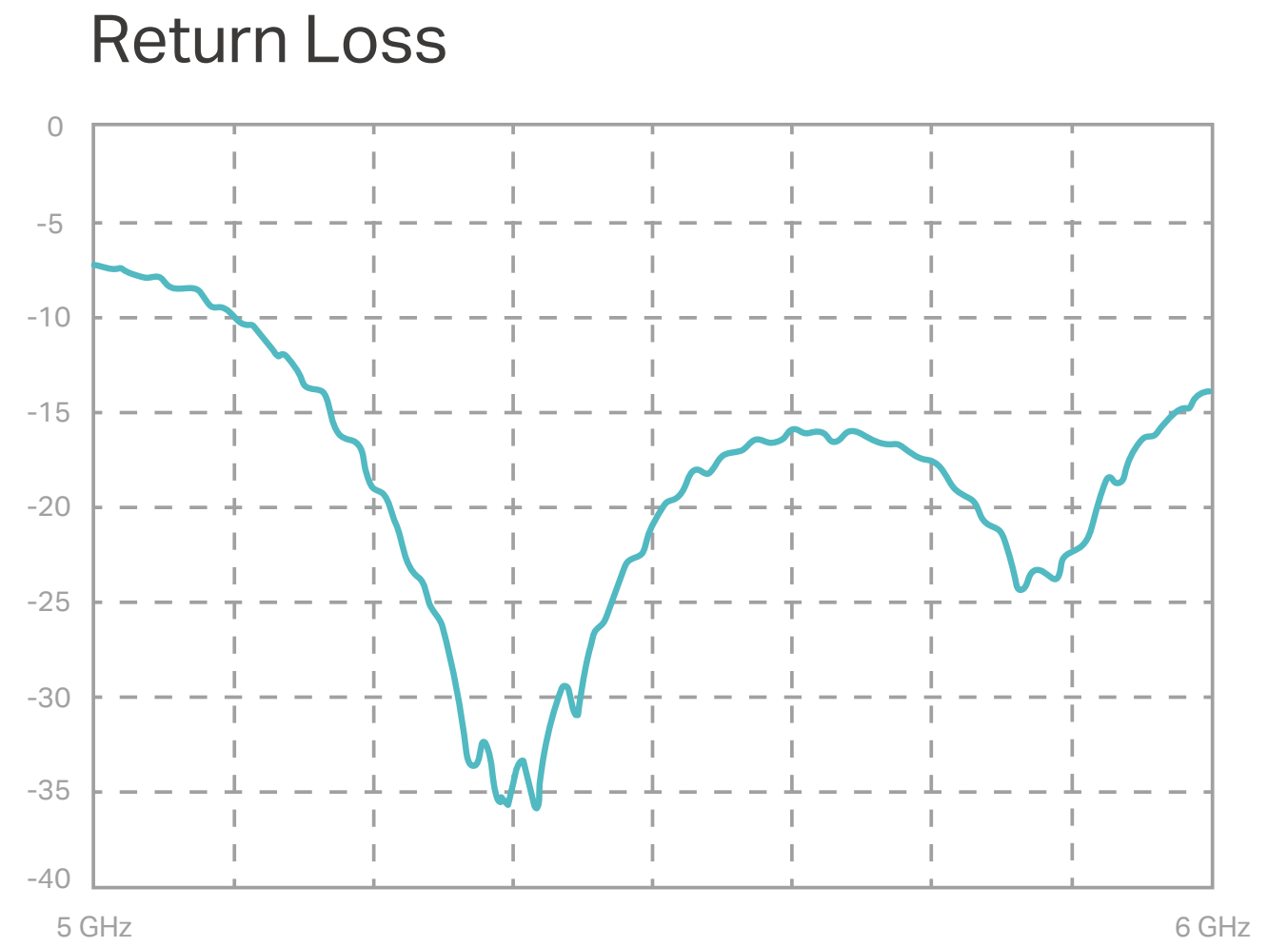
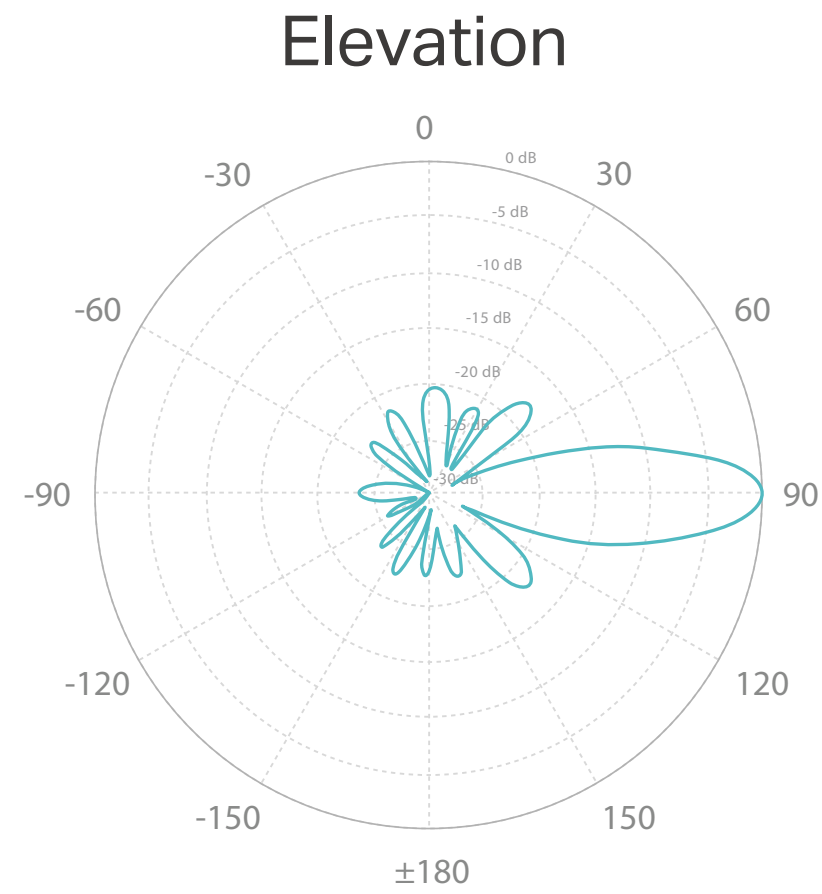
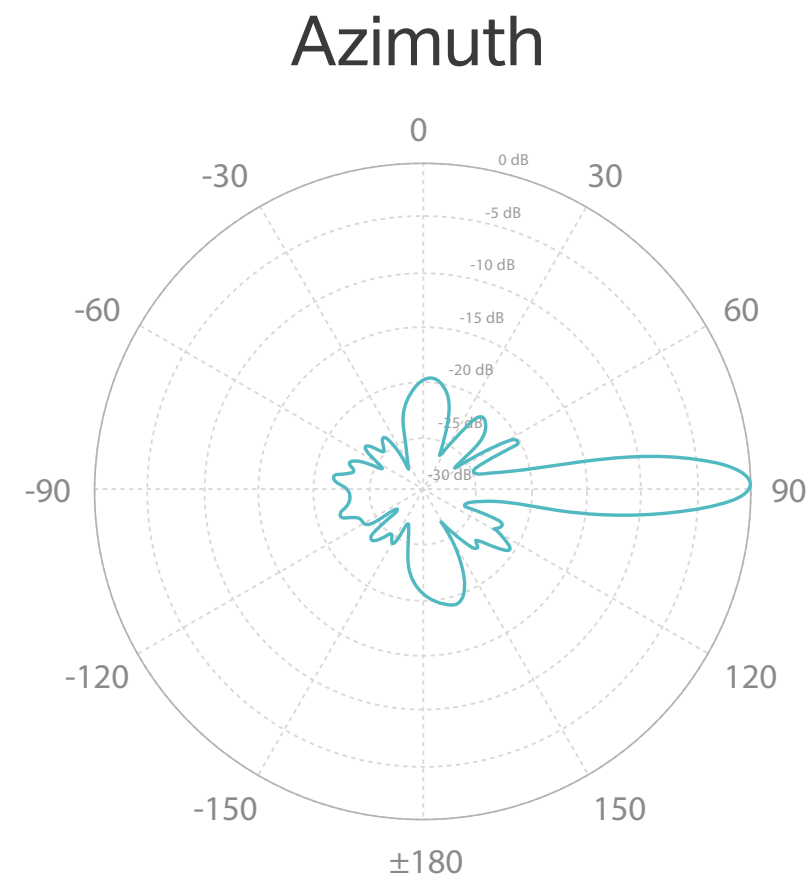
## Horizontal Elevation



## Return Loss – Horizontal Polarization

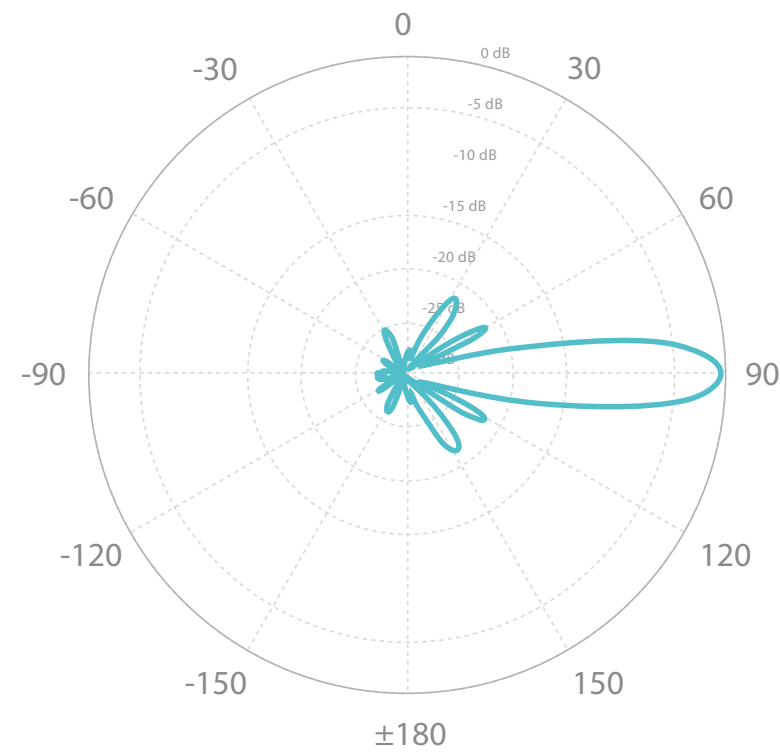


# CPE605 Antenna Patterns

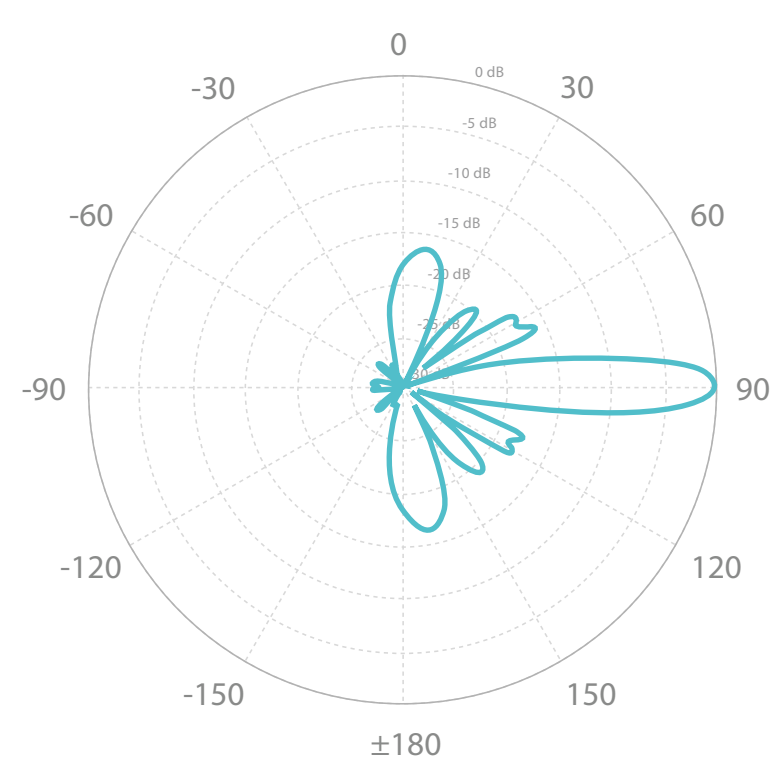


# CPE610 Antenna Patterns

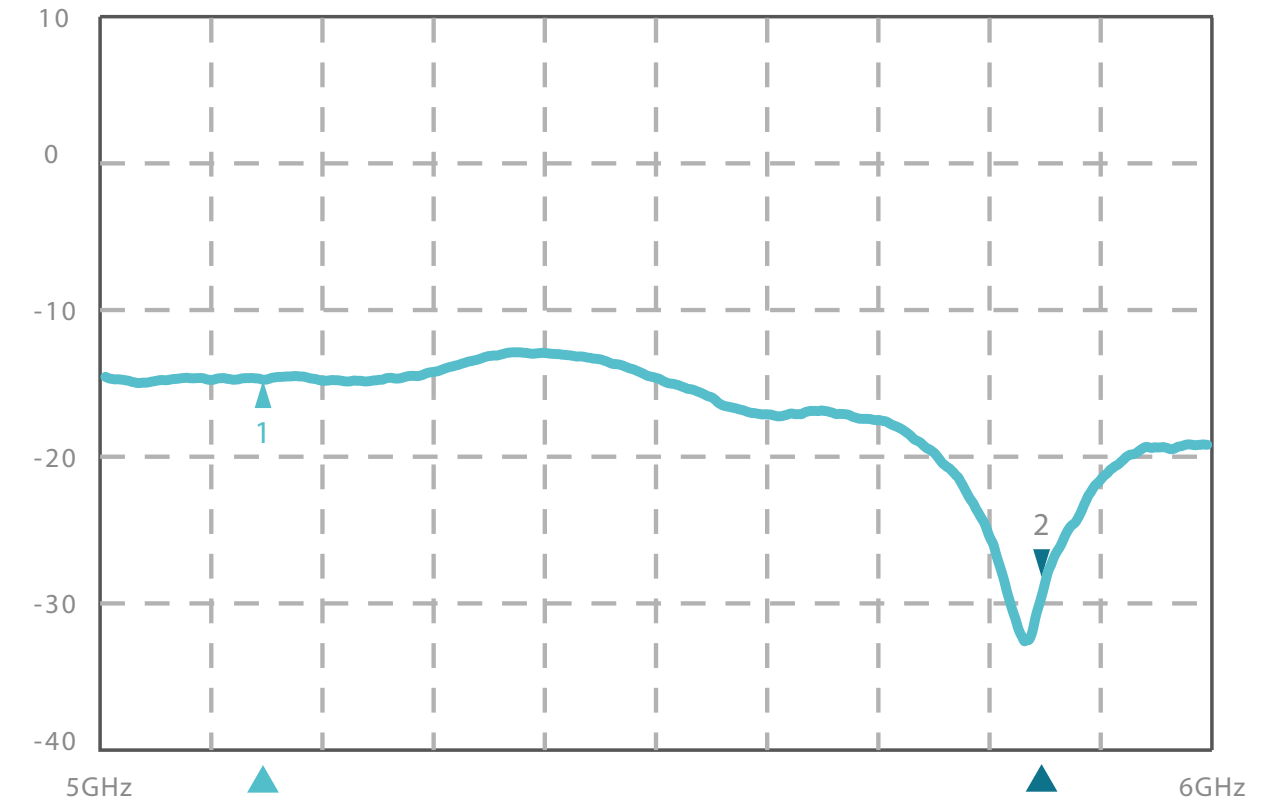
## Vertical Azimuth



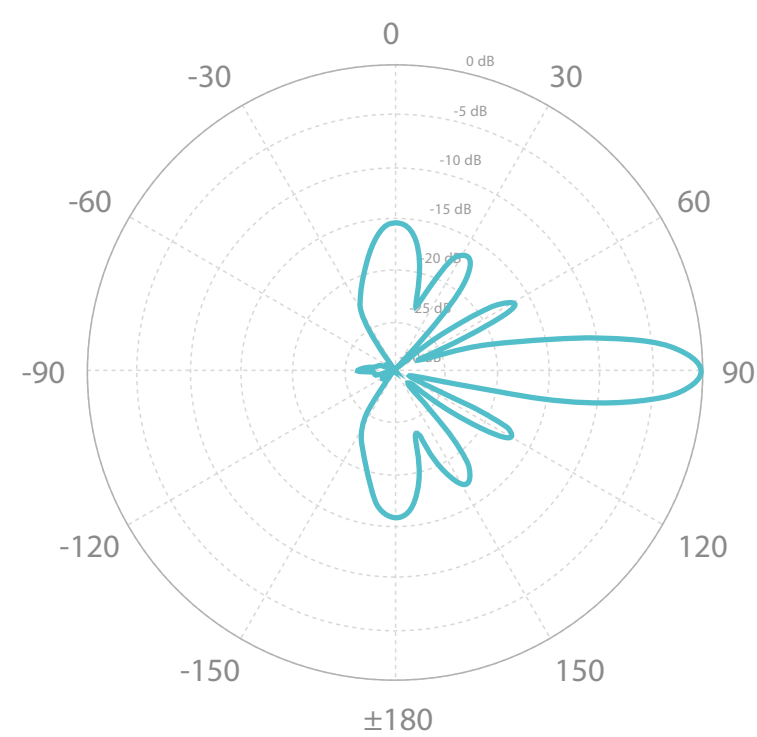
## Vertical Elevation



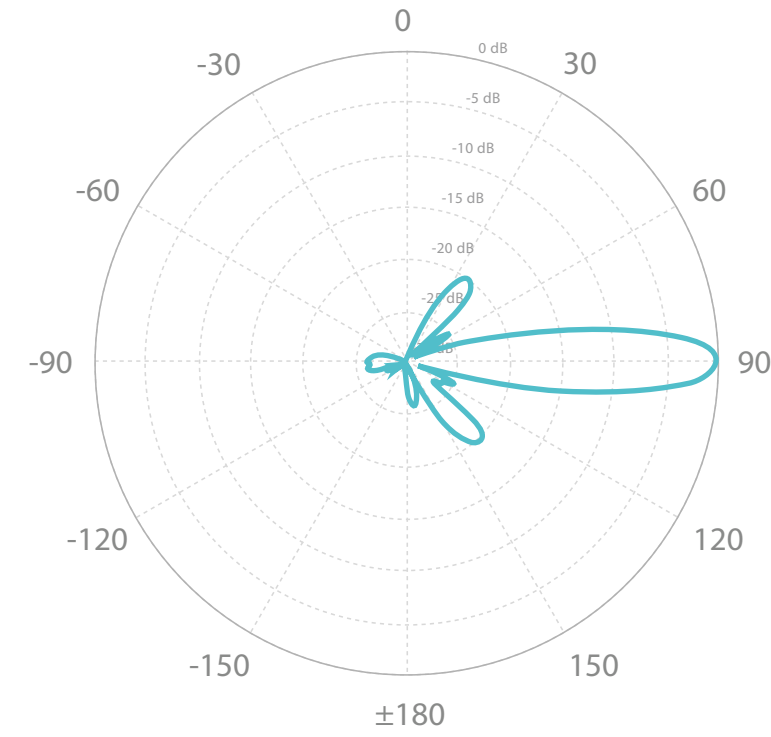
## Return Loss – Vertical Polarization



## Horizontal Azimuth



## Horizontal Elevation



## Return Loss – Horizontal Polarization

