



# Pharos CPE Series

Dedicated Long-Range Outdoor  
Wireless Networking Solution

CPE210 / CPE220 / CPE510 / CPE605 / CPE610 / CPE710

## Highlights

- Selectable bandwidth of 20/40/80 MHz for CPE710 and 5/10/20/40 MHz for other models
- Adjustable transmission power by 1 dBm
- 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<sup>2</sup> (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.

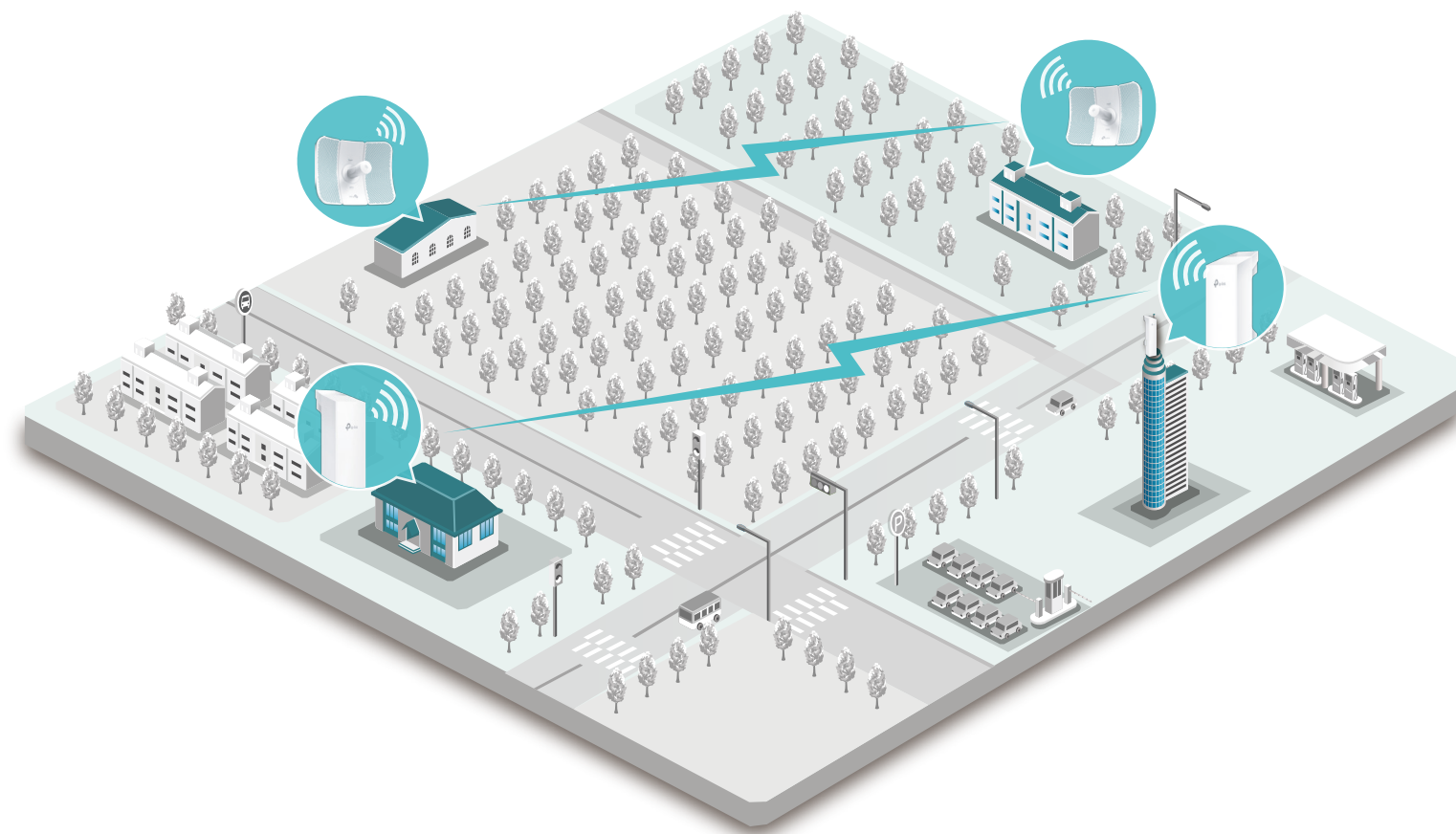
<sup>2</sup> CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.

# 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.

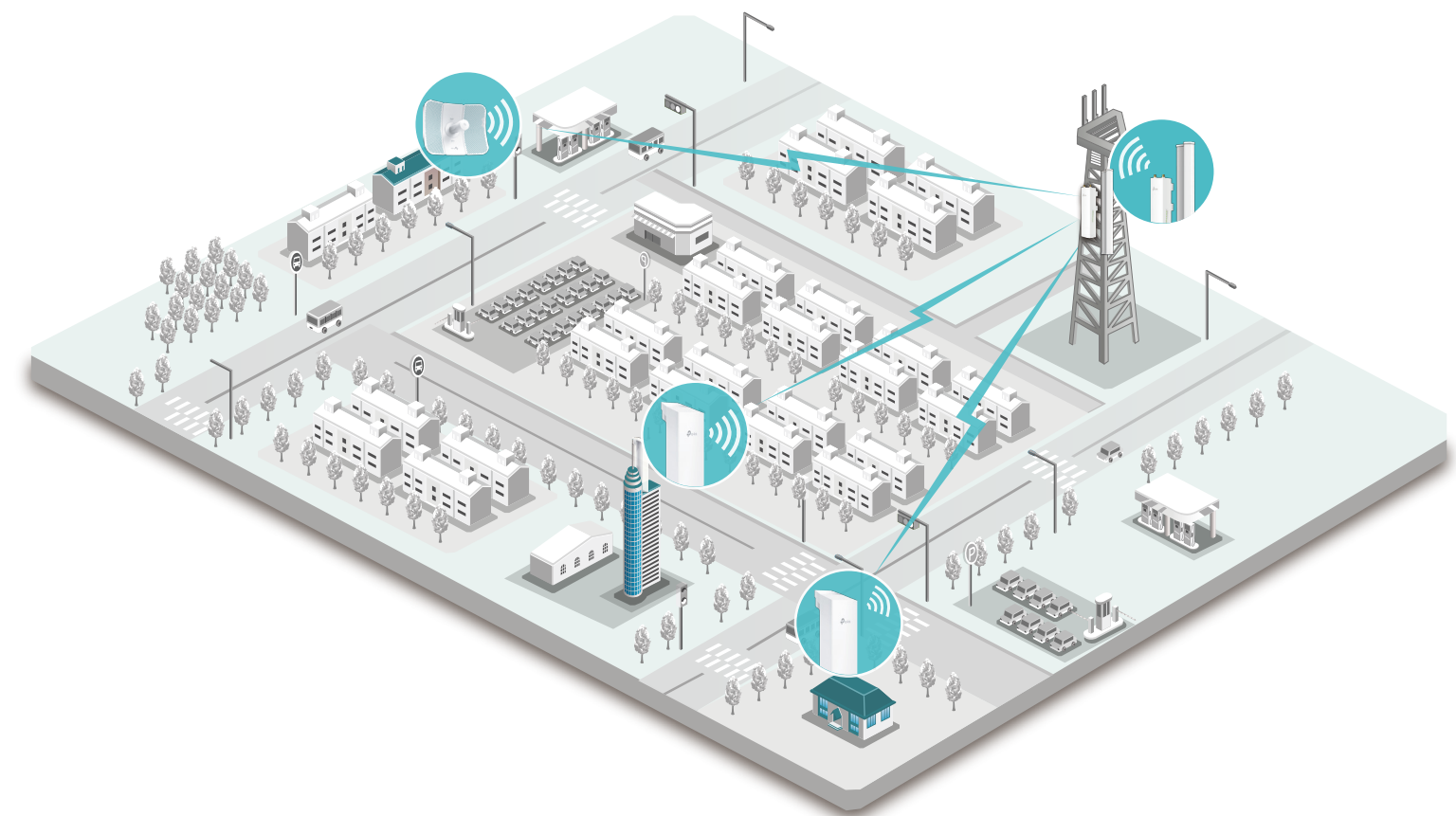
## Long-distance Wireless Connection

Using two CPEs to build a long-distance Point-to-Point wireless connection.



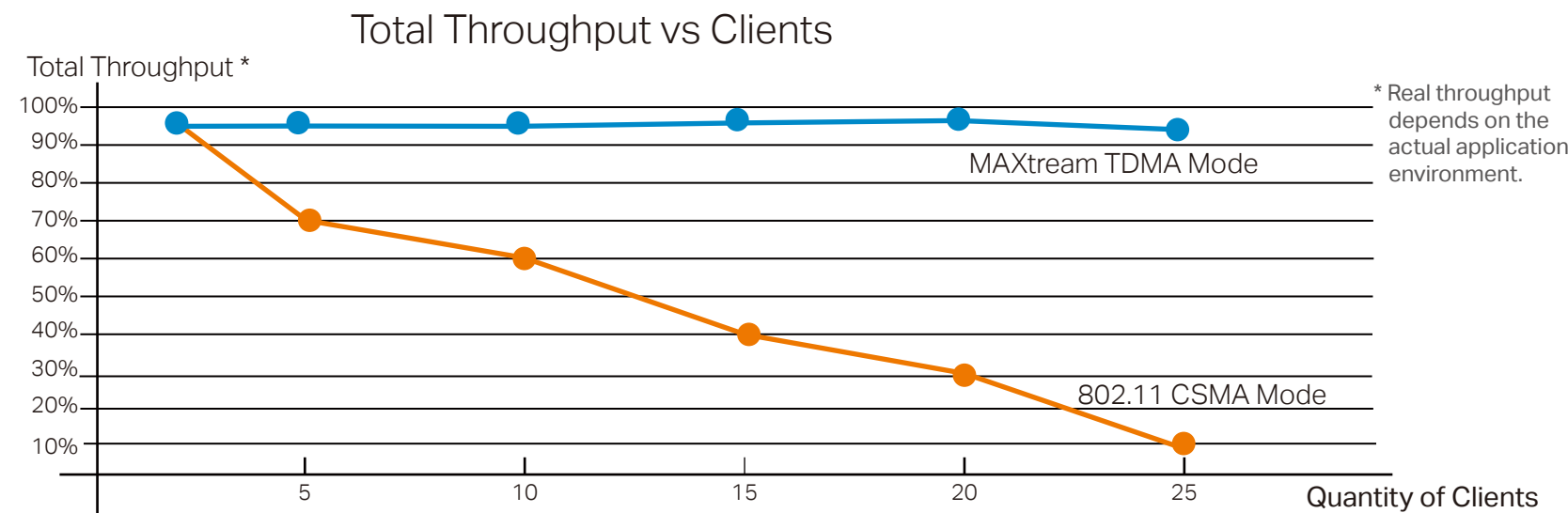
## Large-area Wireless Coverage

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-Multipoint 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<sup>3</sup> TDMA Technology.



<sup>3</sup> CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.

# PharOS

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

**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

# Specification

## Features & Performance

Model	CPE210 V3.2	CPE220 V3.0	CPE510 V3.2	CPE605 V1.0	CPE610 V2.0	CPE710 V1.0	
Name	2.4 GHz 300 Mbps 9 dBi Outdoor CPE	2.4 GHz 300 Mbps 12 dBi Outdoor CPE	5 GHz 300 Mbps 13 dBi Outdoor CPE	5 GHz 150 Mbps 23 dBi Outdoor CPE	5 GHz 300 Mbps 23 dBi Outdoor CPE	5GHz 867Mbps 23dBi Outdoor CPE	
Package Contents	Outdoor CPE 24 V Passive PoE Adapter AC Power Cord Mounting Kits Quick Installation Guide						
Hardware Feature	Processor	Qualcomm 650 MHz CPU, MIPS 24 Kc		Qualcomm 560 MHz CPU, MIPS 74 Kc		Qualcomm 750 MHz CPU, MIPS 74 Kc	
	Memory	64 MB DDR2 RAM, 8 MB Flash				128 MB DDR2 RAM, 16 MB Flash	
	Antenna Gain	9 dBi	12 dBi	13 dBi	23 dBi		
	Beamwidth	65° (Azimuth) / 40° (Elevation)	60° (Azimuth) / 30° (Elevation)	45° (Azimuth) / 45° (Elevation)	7° (Azimuth) / 10° (Elevation)	9° (Azimuth) / 7° (Elevation)	
	Interfaces	1 10/100 Mbps Shielded Ethernet Port (LAN/POE) 1 Grounding Terminal 1 Reset Button	1 10/100 Mbps Shielded Ethernet Port (LAN0/POE) 1 10/100 Mbps Shielded Ethernet Port (LAN1) 1 Grounding Terminal 1 Reset Button	1 10/100 Mbps Shielded Ethernet Port (LAN/POE) 1 Grounding Terminal 1 Reset Button	1 10/100 Mbps Shielded Ethernet Port (LAN/POE) 1 Reset Button		1 10/100/1000 Mbps Shielded Ethernet Port (LAN/POE) 1 Reset Button
	Power Supply	24 VDC / 0.25 A Passive PoE (+4,5 pins; -7,8 pins)	24 VDC / 0.5 A Passive PoE (+4,5 pins; -7,8 pins)		24 VDC / 0.25 A Passive PoE (+4,5 pins; -7,8 pins)	24 VDC / 0.5 A Passive PoE (+4,5 pins; -7,8 pins)	
	Dimensions (L x W x H)	224 × 79 × 60 mm	276 × 79 × 60 mm	224 × 79 × 60 mm	207 × 255 × 350 mm	207 × 280 × 366 mm	
	Protection <sup>4</sup>	15 kV ESD Protection 6 kV Lightning Protection					
Enclosure	Material: Outdoor ASA stabilized plastic Weatherproof: IPX5 water and dust proof design			Material: Outdoor PC stabilized plastic Weatherproof: IP65 water and dust proof design			

<sup>4</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.

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Wireless Features	Wireless Standards	IEEE 802.11 b/g/n		IEEE 802.11a/n		IEEE 802.11a/n/ac	
	Proprietary Protocol	TDMA Mode (with Pharos MAXtream enabled)					/
	Frequency <sup>5</sup>	2.4-2.483 GHz		5.15-5.85 GHz			
	Wireless Speed <sup>6</sup>	Up to 300 Mbps (40 MHz, Dynamic) Up to 144.4 Mbps (20 MHz, Dynamic) Up to 72.2 Mbps (10 MHz, Dynamic) Up to 36.1 Mbps (5 MHz, Dynamic)			Up to 150 Mbps (40 MHz, Dynamic) Up to 72.2 Mbps (20 MHz, Dynamic) Up to 36.1 Mbps (10 MHz, Dynamic) Up to 18.05 Mbps (5 MHz, Dynamic)	Up to 300 Mbps (40 MHz, Dynamic) Up to 144.4 Mbps (20 MHz, Dynamic) Up to 72.2 Mbps (10 MHz, Dynamic) Up to 36.1 Mbps (5 MHz, Dynamic)	Up to 867 Mbps (80 MHz, Dynamic) Up to 400 Mbps (40 MHz, Dynamic) Up to 173.4 Mbps (20 MHz, Dynamic)
	Maximum Transmit Power <sup>7</sup>	25 dBm (Adjustable power by 1 dBm)	30 dBm (Adjustable power by 1 dBm)	26 dBm (Adjustable power by 1 dBm)	23 dBm (Adjustable power by 1 dBm)	25 dBm (Adjustable power by 1 dBm)	27 dBm (Adjustable power by 1 dBm)
Software Feature	Operation Mode	AP / Client / AP Router / AP Client Router (WISP Client)					
	Network Configurations	WAN: Static / Dynamic / PPPoE / L2TP / PPTP (CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports 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>5</sup> Available operating frequency may vary depending on the limitation of the countries or regions in which the device is used.

<sup>6</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>7</sup> Maximum transmit power is limited by local regulatory settings.

# Specification

## Features & Performance

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Software Feature	Wireless Configurations	<p>Pharos MAXtream TDMA Technology (CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.)</p> <p>Long Range PtP</p> <p>Selectable Channel Width: 20/40/80 MHz for CPE710, 5/10/20/40 MHz for other models</p> <p>Auto Channel Selection</p> <p>Transmit Power Control</p> <p>Dynamic Frequency Selection (DFS) (CPE510 / CPE605 / CPE610 / CPE710 supports DFS.)</p> <p>WDS Enable/Disable</p> <p>Security: WPA / WPA2, WPA-PSK / WPA2-PSK (AES / TKIP) Encryption</p> <p>SSID Broadcast Enable/Disable</p> <p>Multi-SSID with VLAN Tagging (AP mode only)</p> <p>Distance / ACK Timeout Setting</p> <p>Wireless MAC Address Filter</p> <p>Wireless Advanced:</p> <p>Beacon Inteval / RTS Threshold / Fragmentation Threshold / DTIM Inteval / AP Isolation / Short GI / Wi-Fi Multimedia</p>				
	Management	<p>Discovery and Remote Management via Pharos Control application</p> <p>HTTP / HTTPS Web-based management</p> <p>System Log SNMP Agent (v2c)</p> <p>Ping Watch Dog Dynamic DDNS</p> <p>SSH Server</p>				
	System Tools	<p>Indicators: Signal Strength / Noise / Transmit CCQ / CPU / Memory</p> <p>Monitors: Throughput / Stations / Interfaces / ARP / Routes / WAN / DHCP</p> <p>Spectrum Analysis</p> <p>Speed Test</p> <p>Ping</p> <p>Traceroute</p> <p>Antenna Alignment</p>				

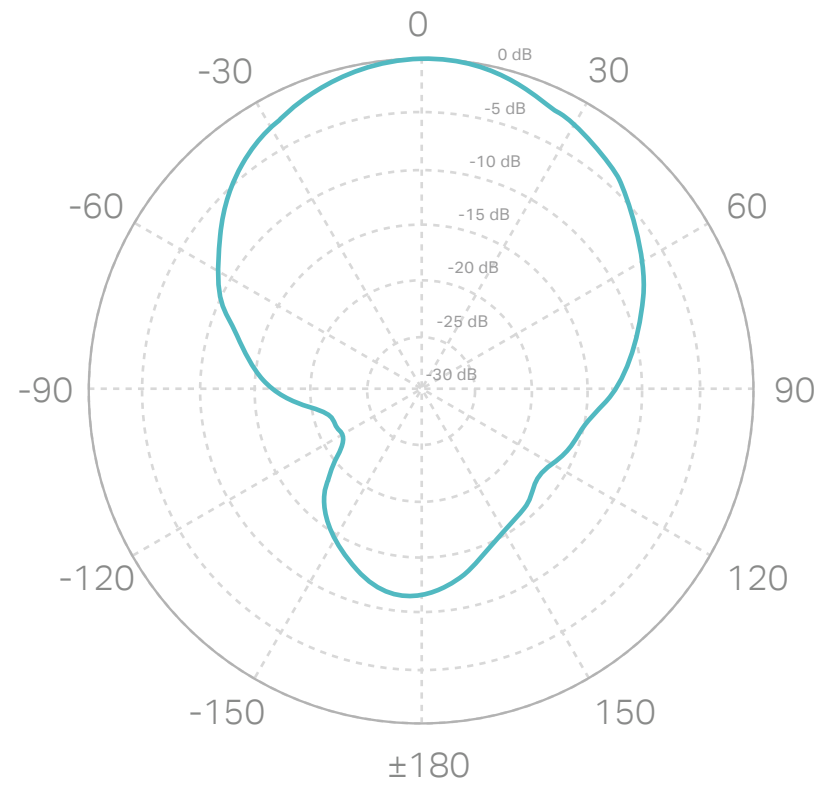
# Specification

## Features & Performance

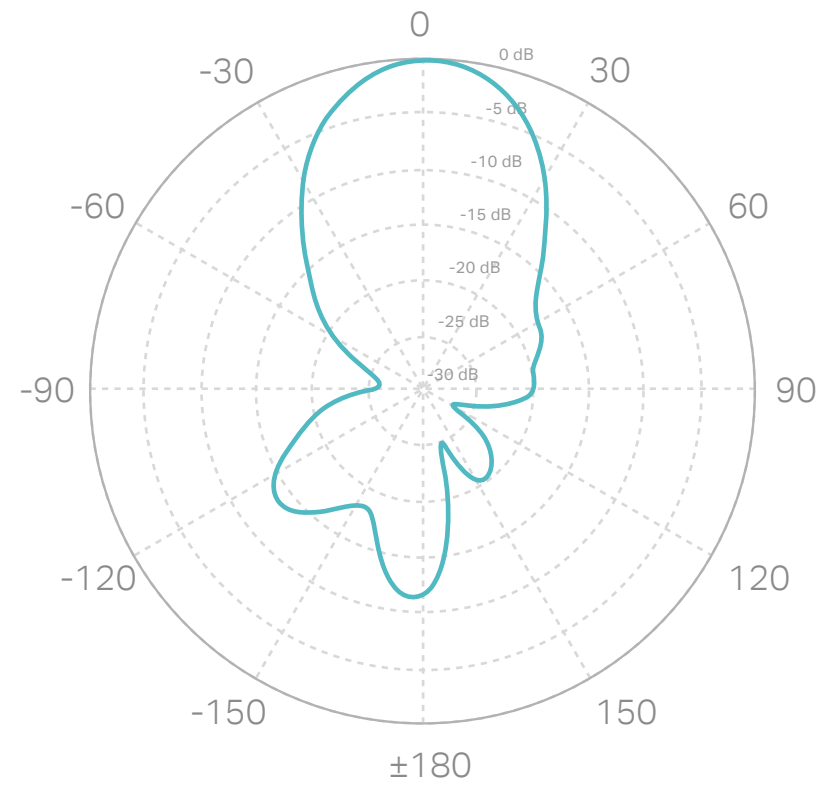
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Name	2.4 GHz 300 Mbps 9 dBi / 12 dBi Outdoor CPE		5 GHz 300 Mbps 13 dBi Outdoor CPE	5 GHz 150 Mbps 23 dBi Outdoor CPE	5 GHz 300 Mbps 23 dBi Outdoor CPE	5GHz 867Mbps 23dBi Outdoor CPE
Software Feature	System-level Optimizations	IGMP Snooping / Proxy for multicast applications				
	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.				
Others	Certification	CE, FCC, RoHS, IPX5		CE, FCC, RoHS, IP65	CE, FCC, RoHS, IP65, IC	
	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

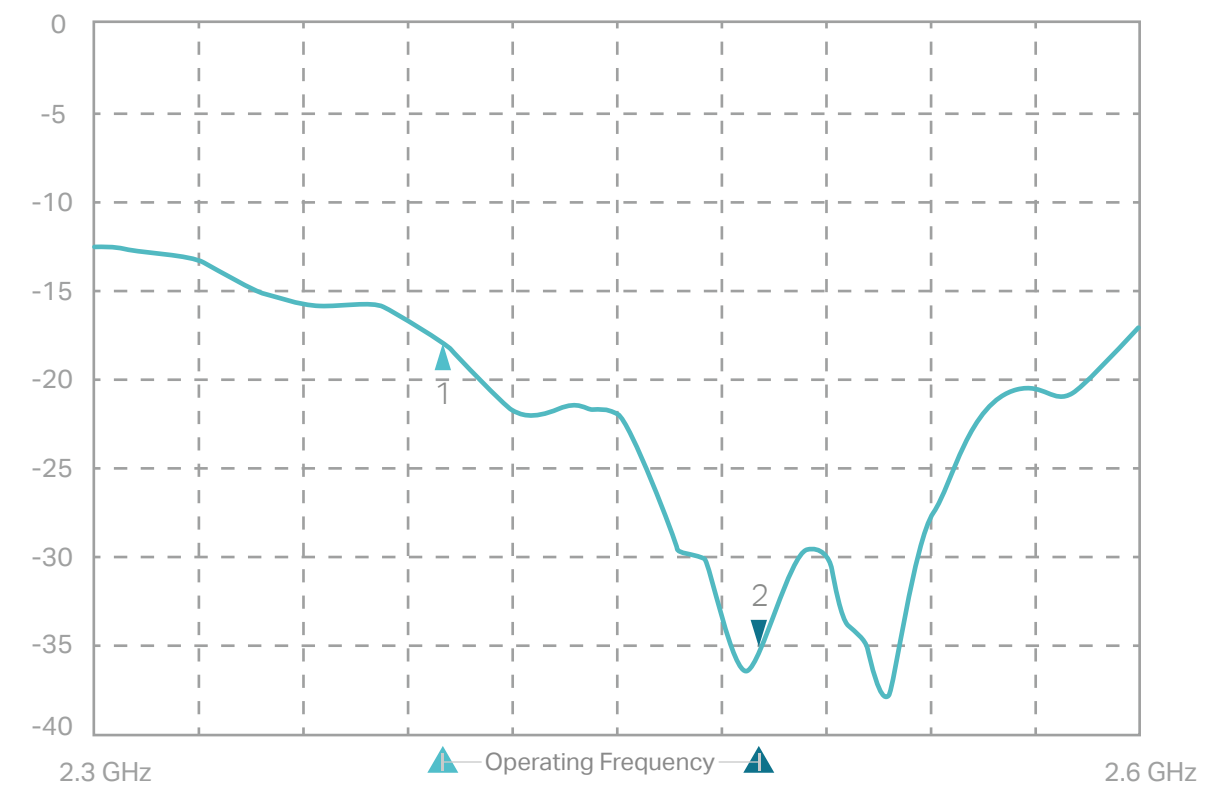
## Vertical Azimuth



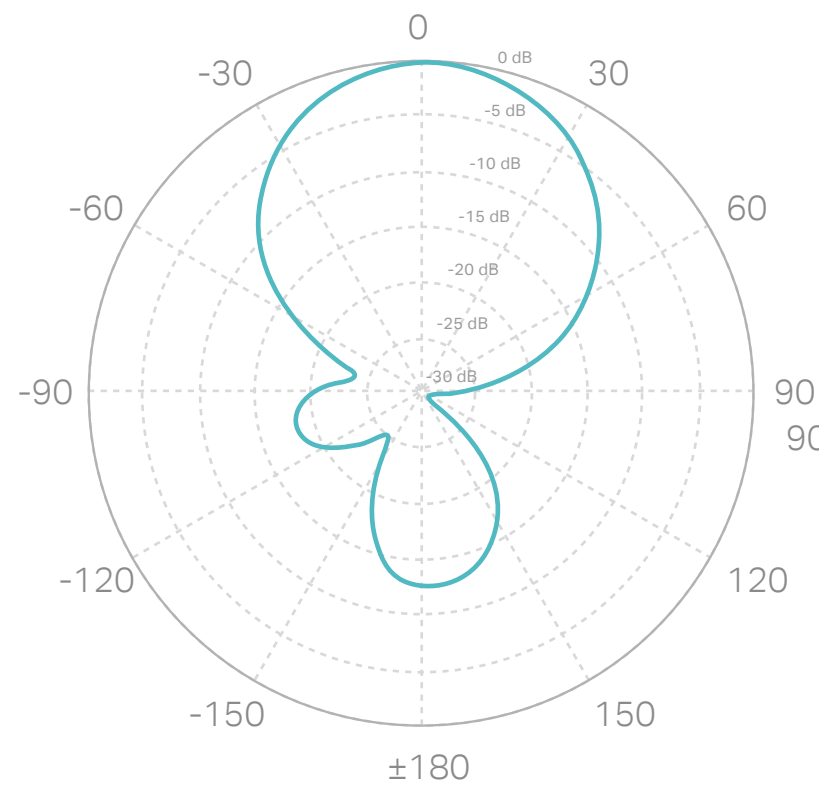
## Vertical Elevation



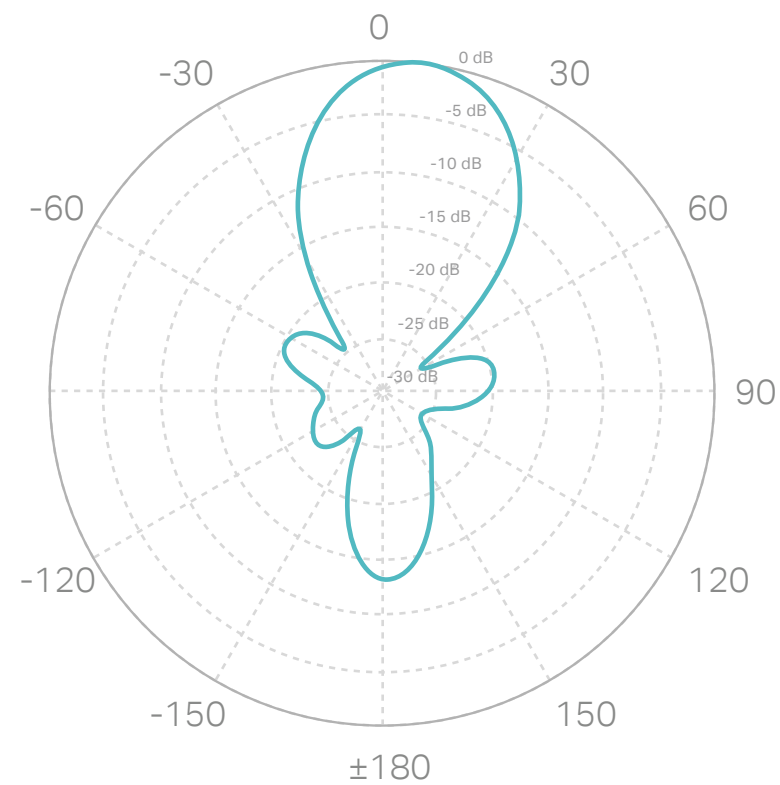
## Return Loss – Vertical Polarization



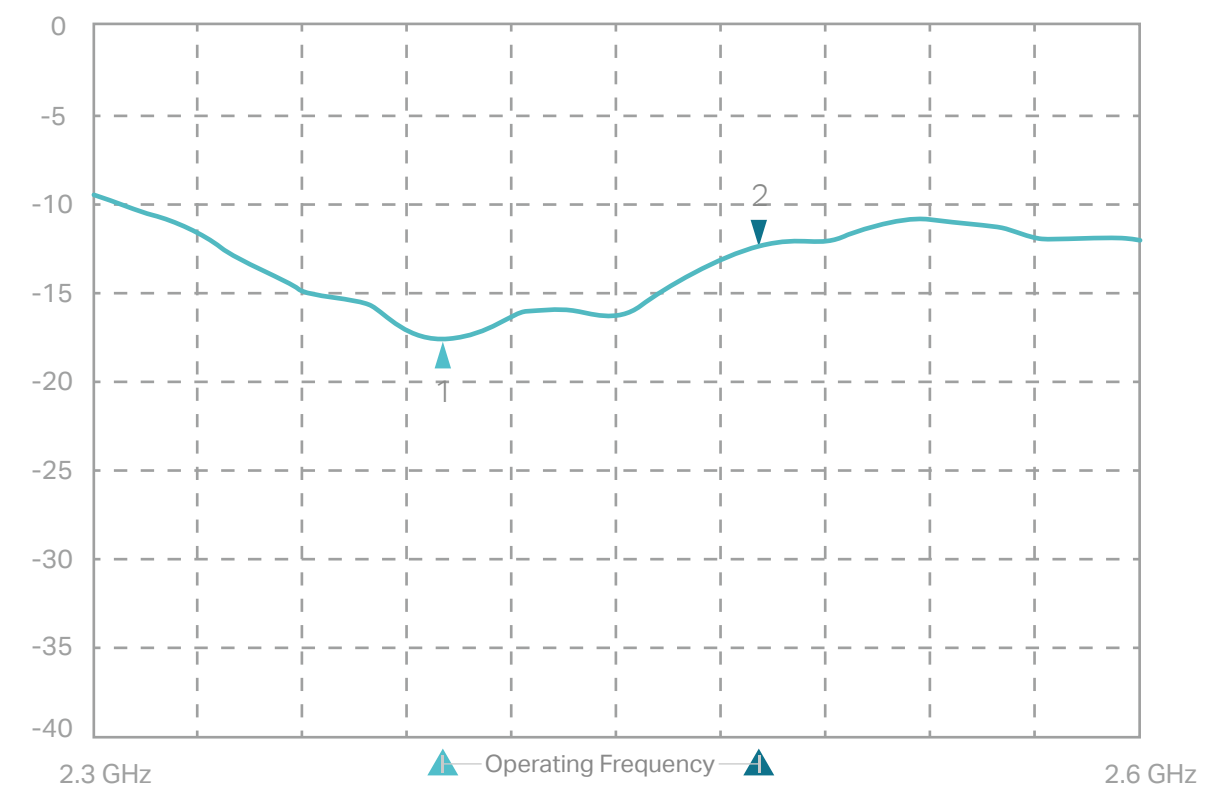
## Horizontal Azimuth



## Horizontal Elevation



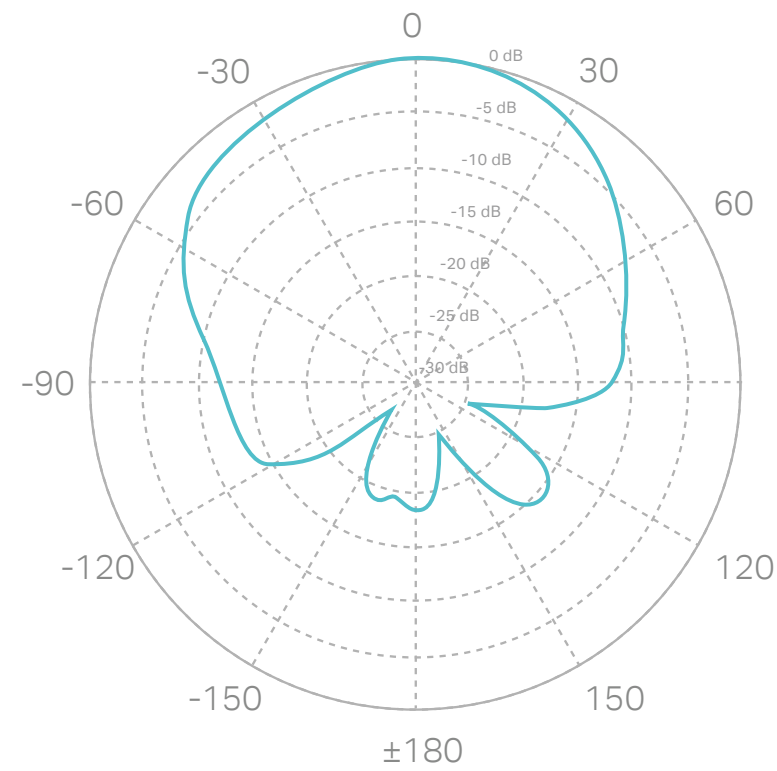
## Return Loss – Horizontal Polarization



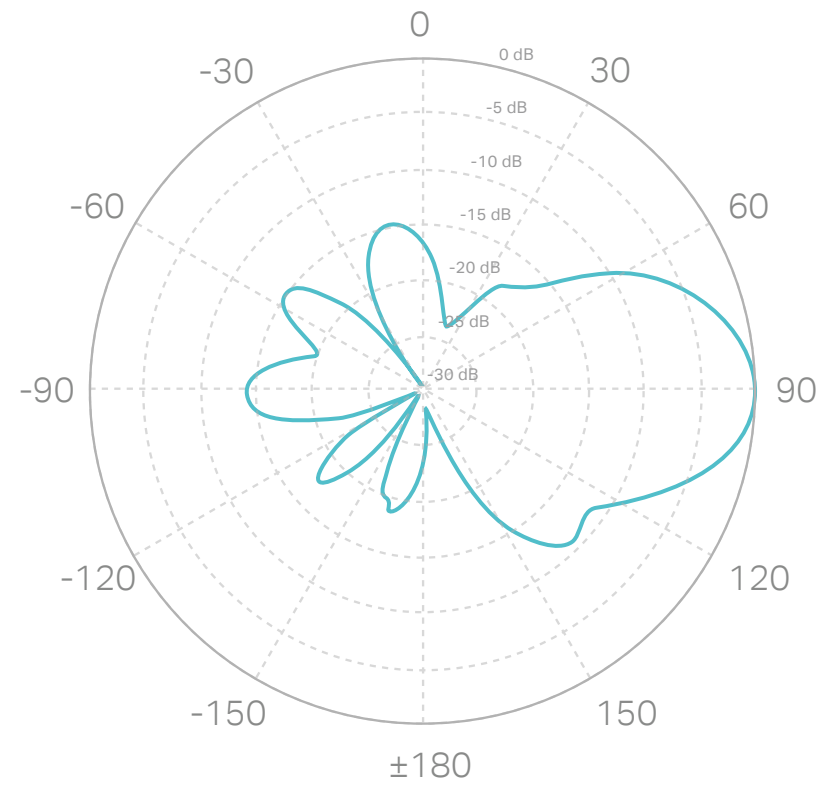


# CPE220 Antenna Patterns

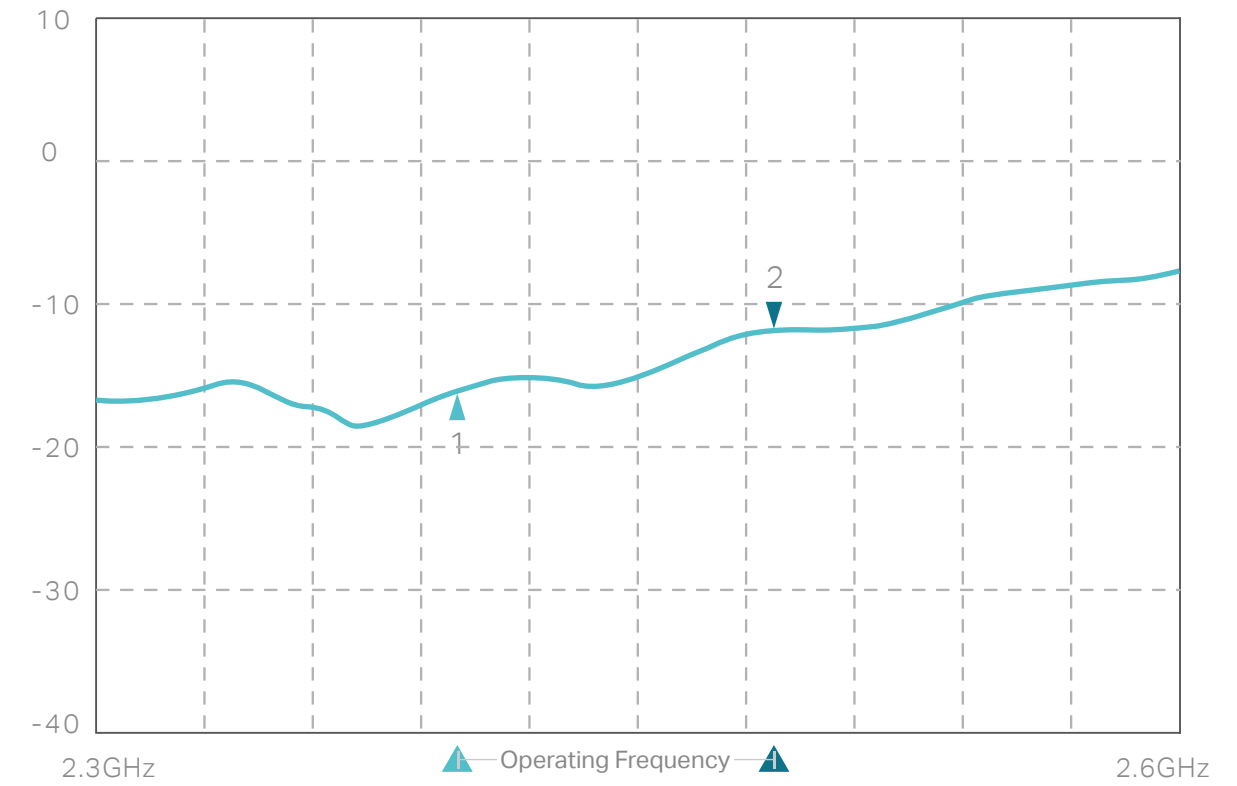
## Vertical Azimuth



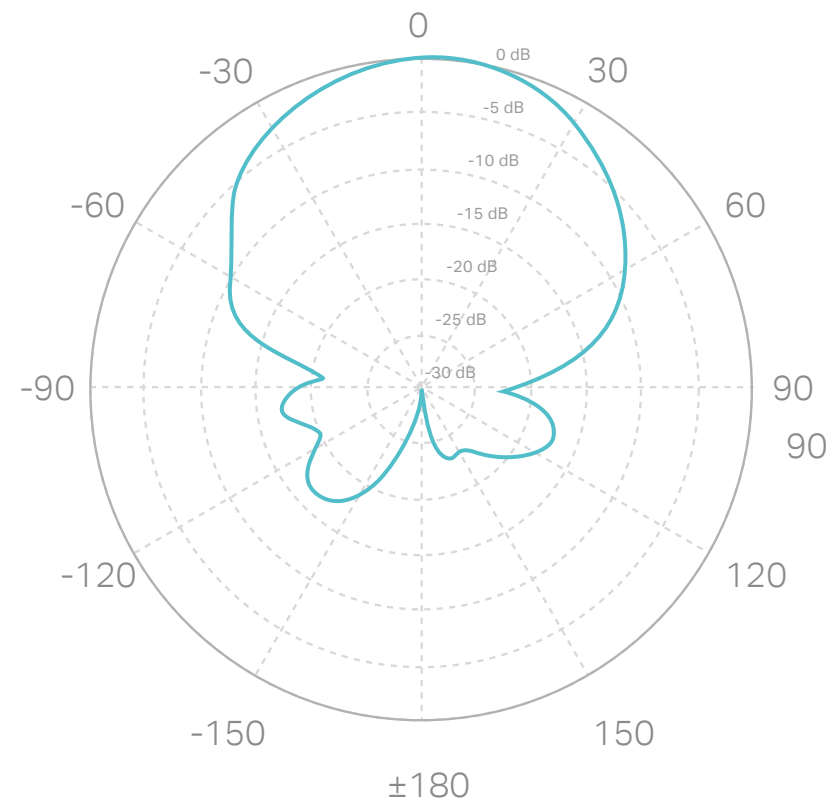
## Vertical Elevation



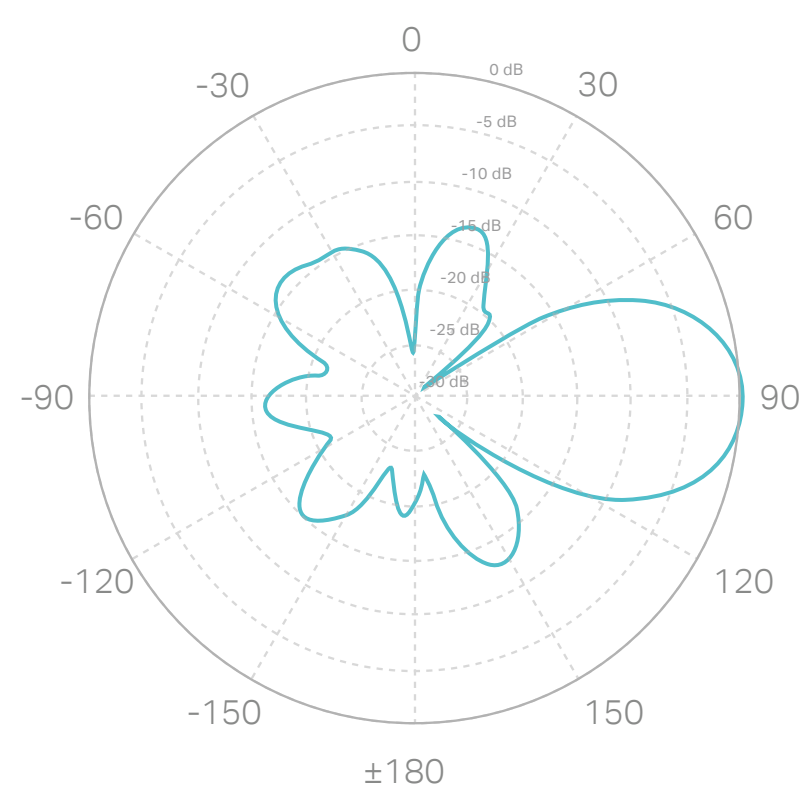
## Return Loss – Vertical Polarization



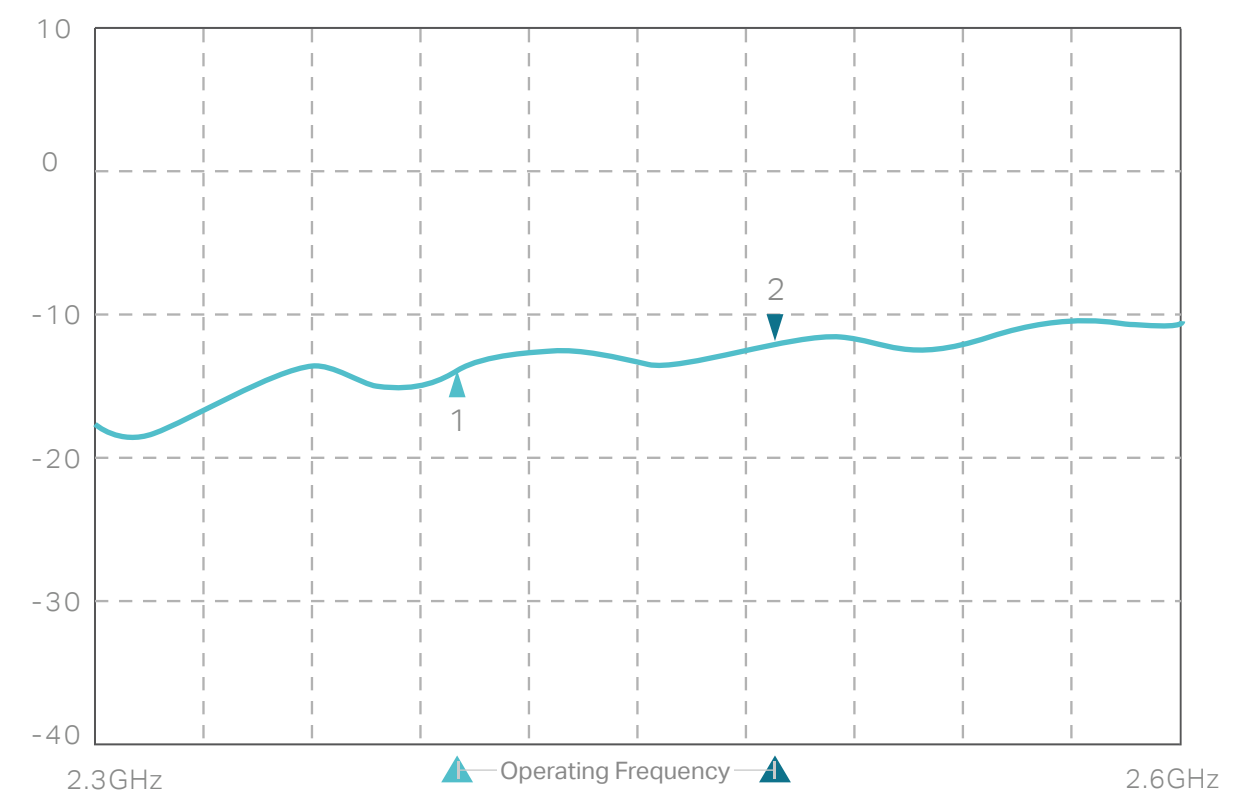
## Horizontal Azimuth



## Horizontal Elevation

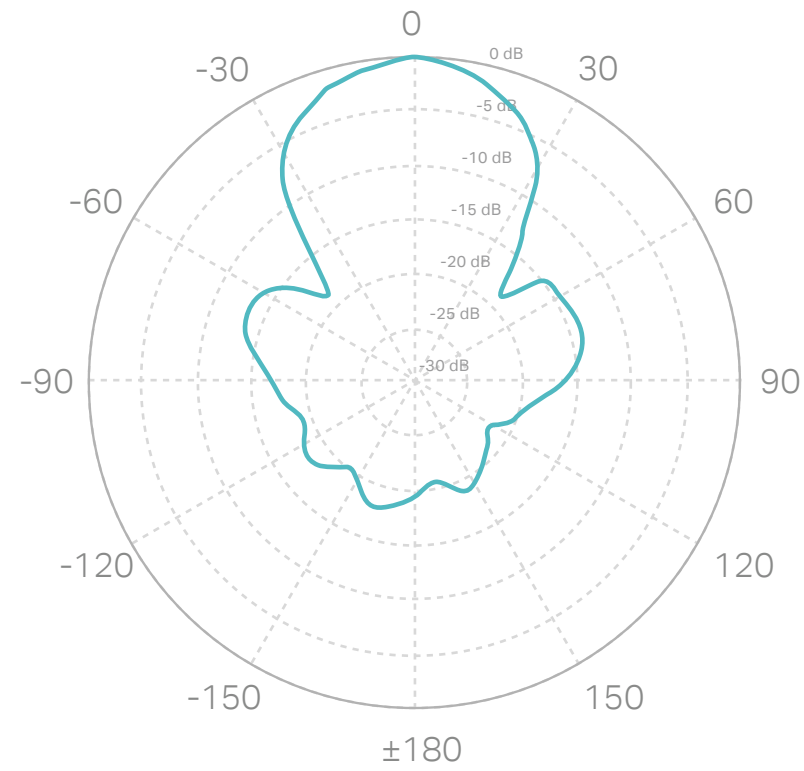


## Return Loss – Horizontal Polarization

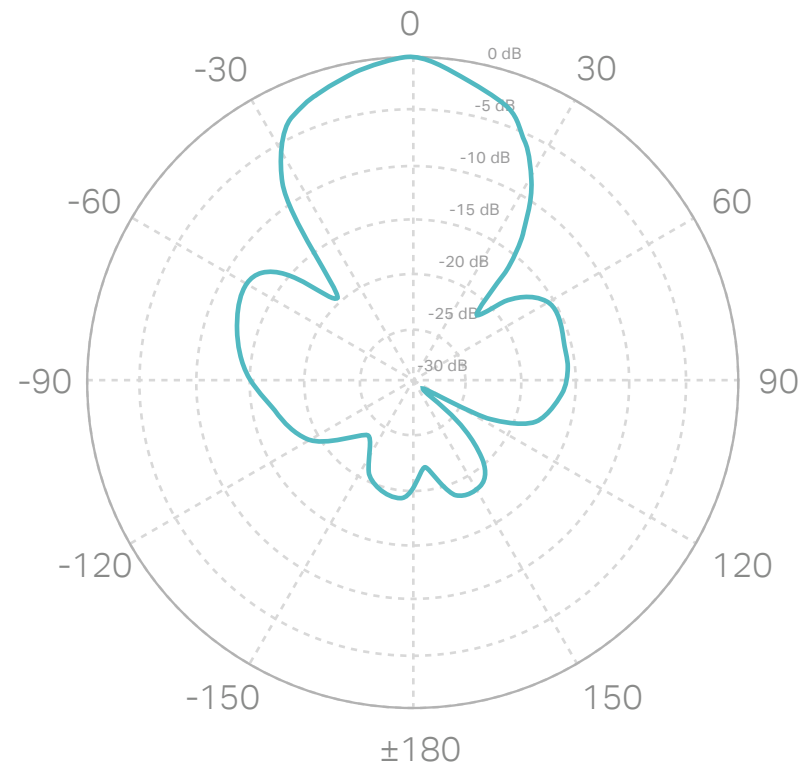


# CPE510 Antenna Patterns

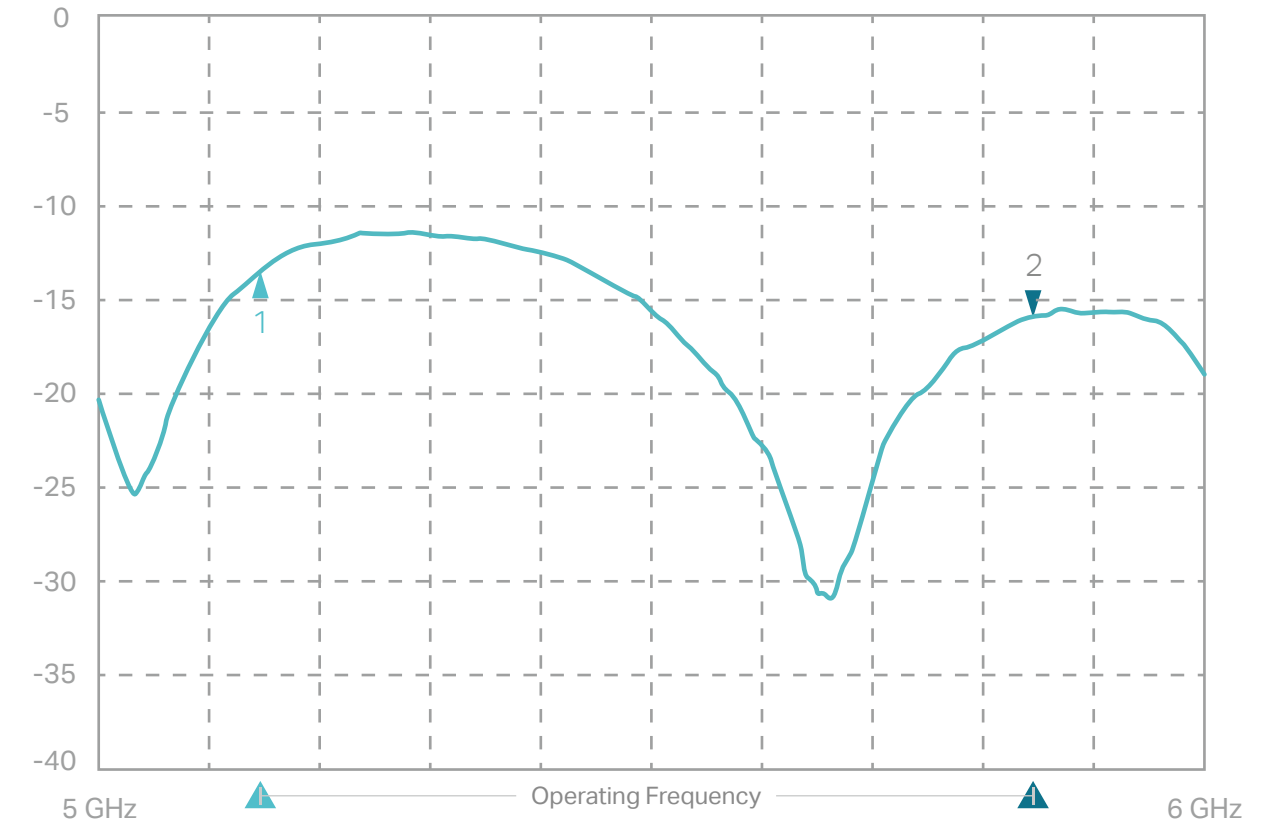
## Vertical Azimuth



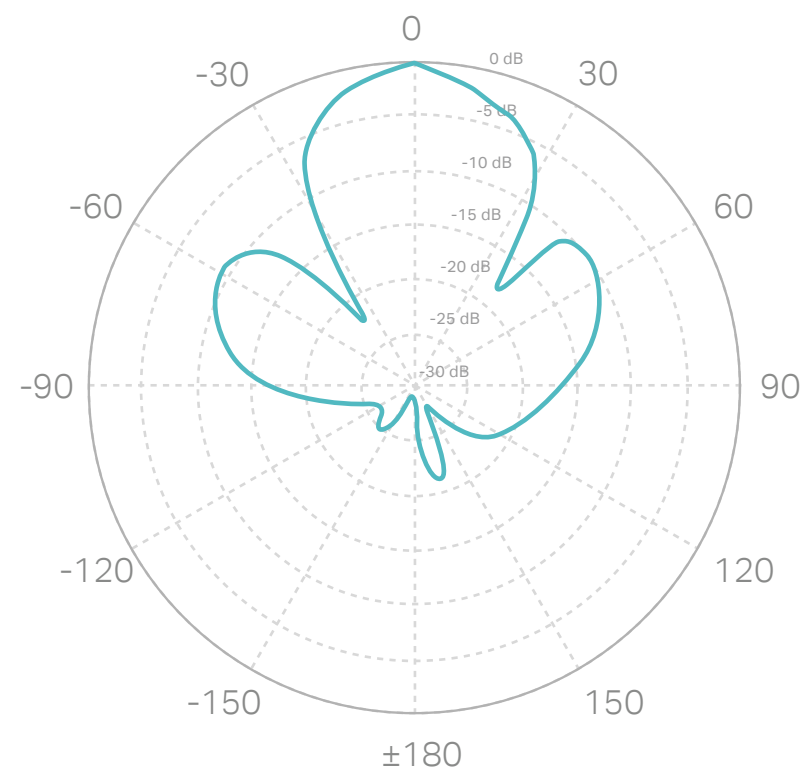
## Vertical Elevation



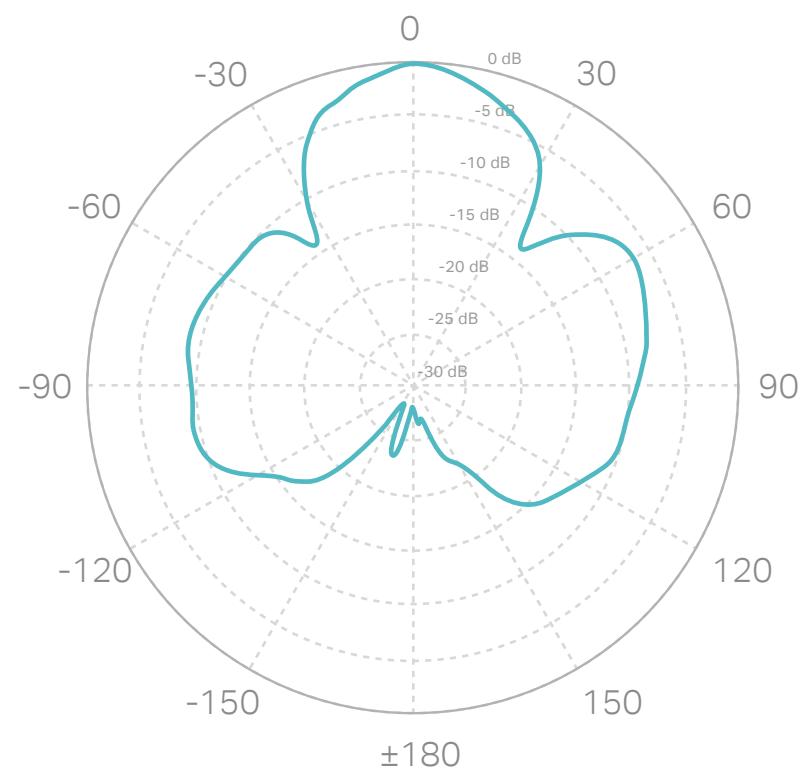
## Return Loss – Vertical Polarization



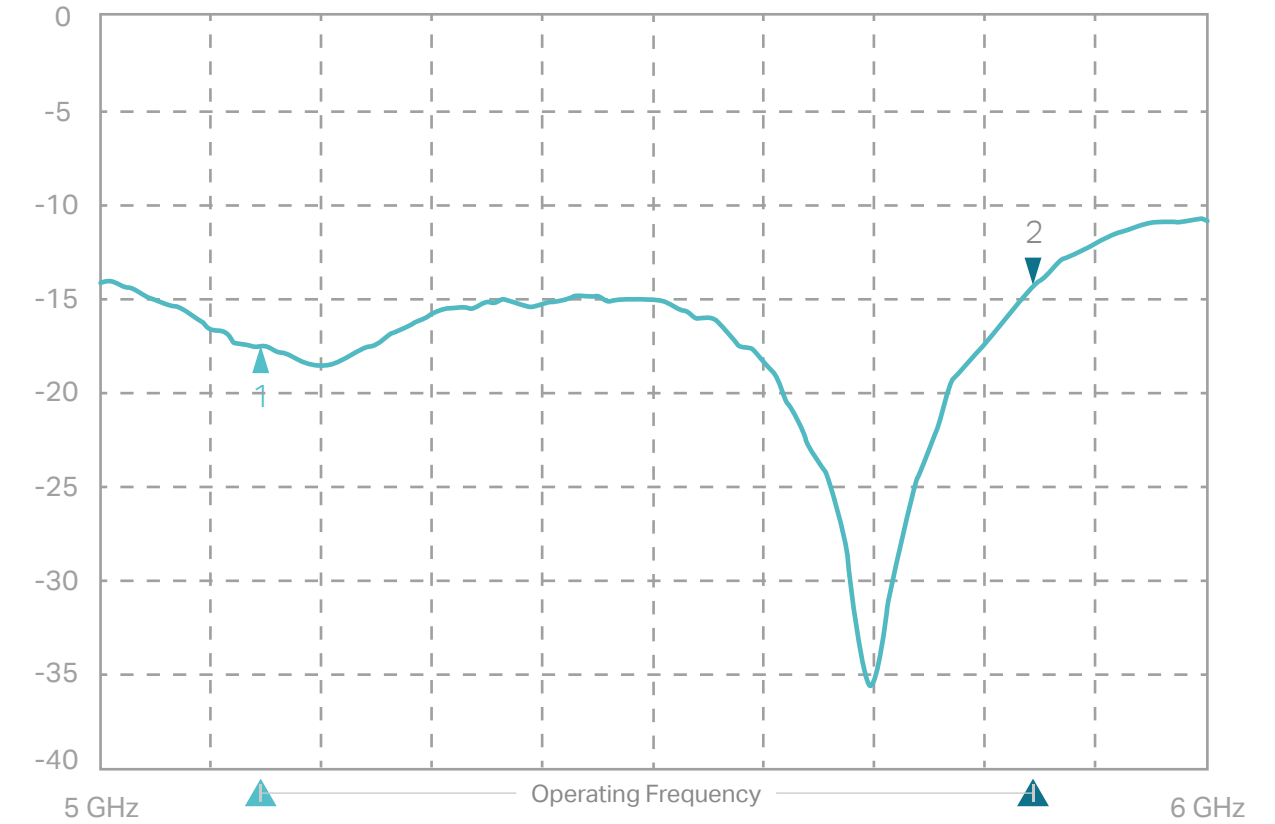
## Horizontal Azimuth



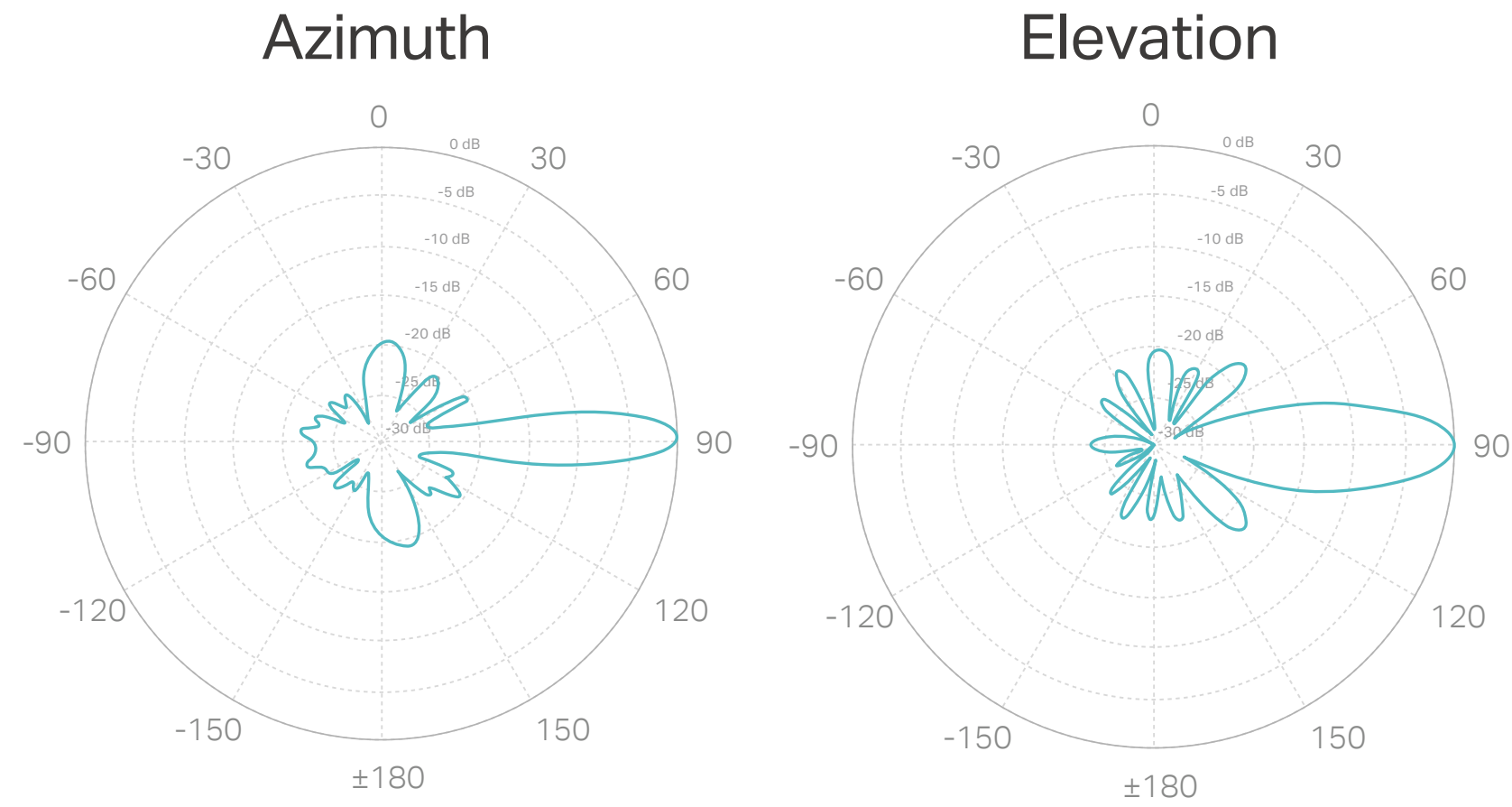
## Horizontal Elevation



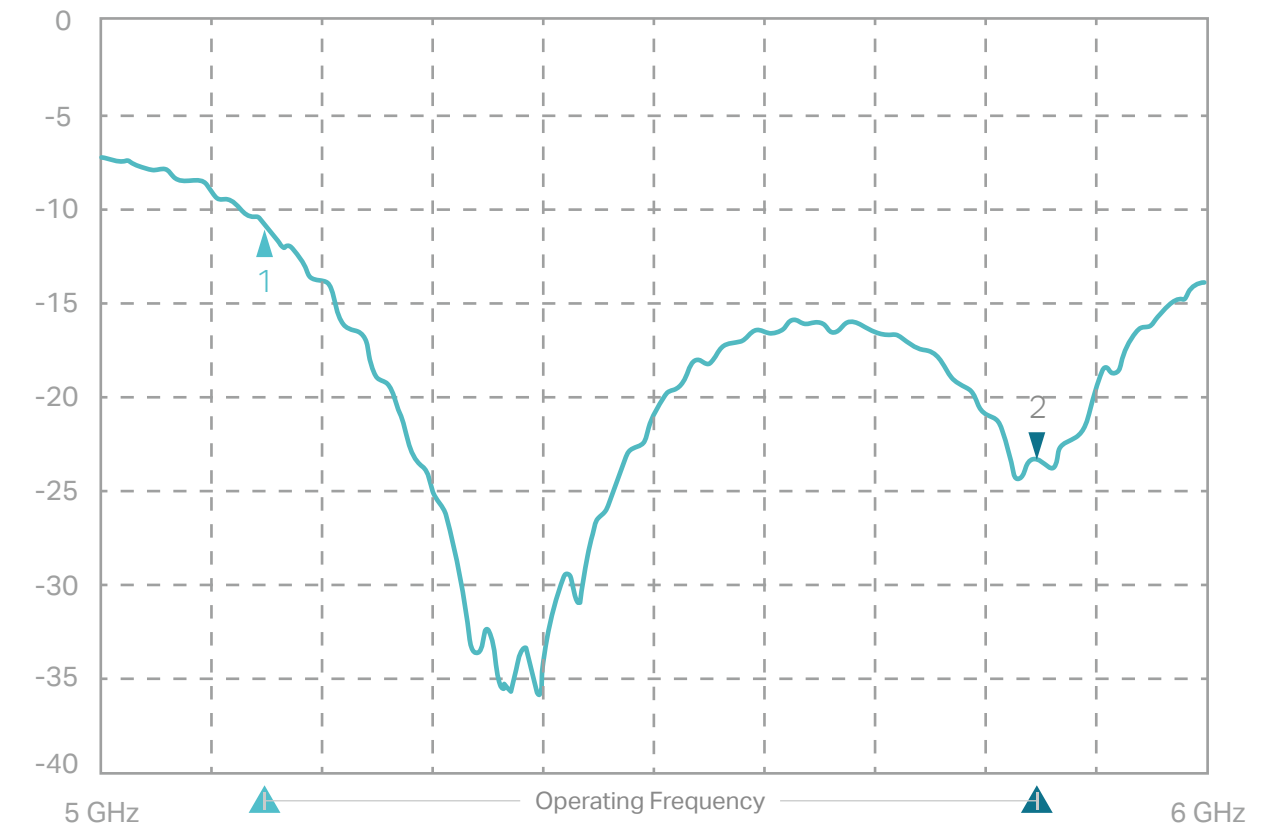
## Return Loss – Horizontal Polarization



# CPE605 Antenna Patterns

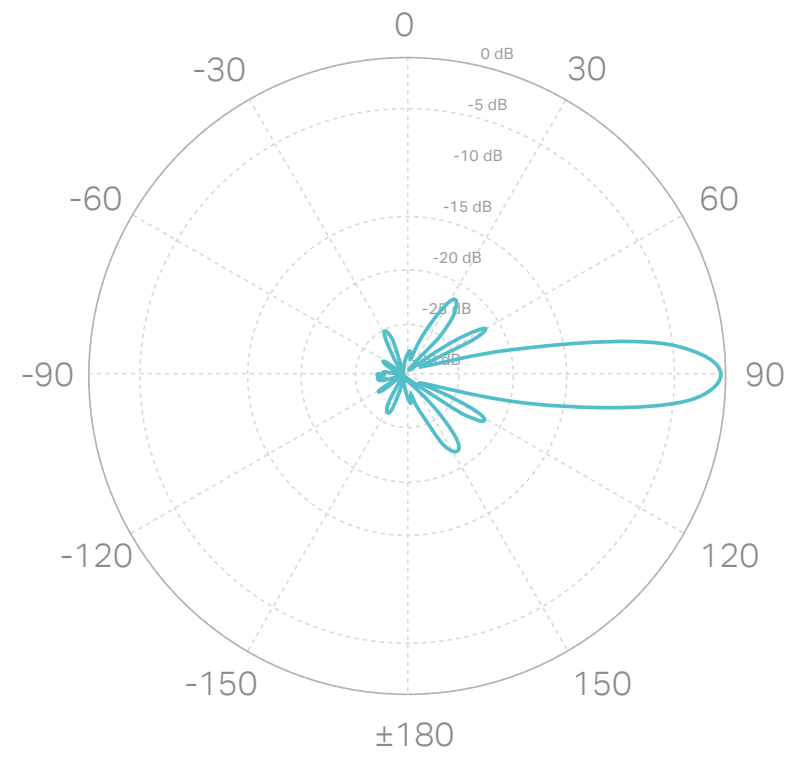


## Return Loss

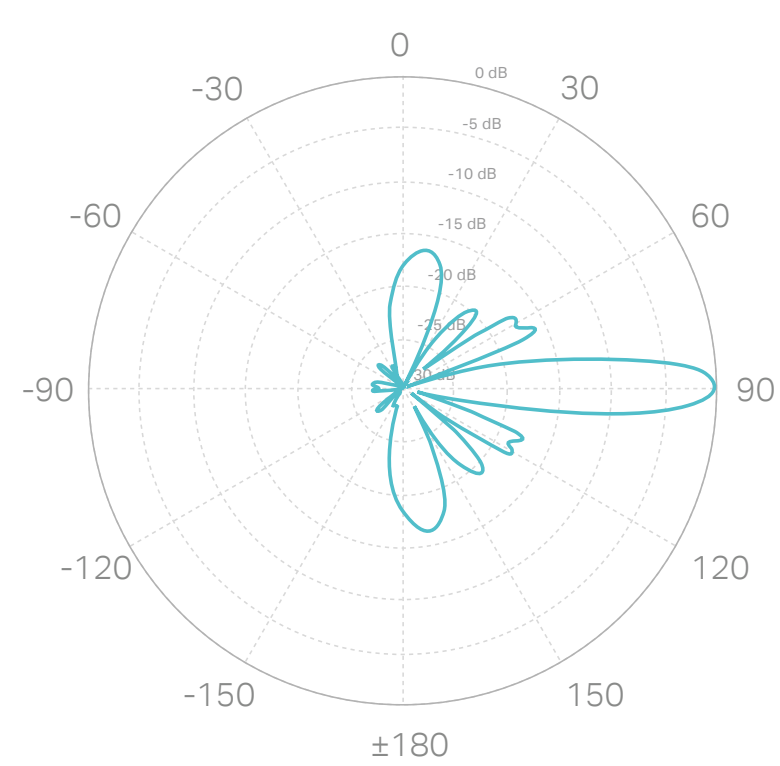


# CPE610 Antenna Patterns

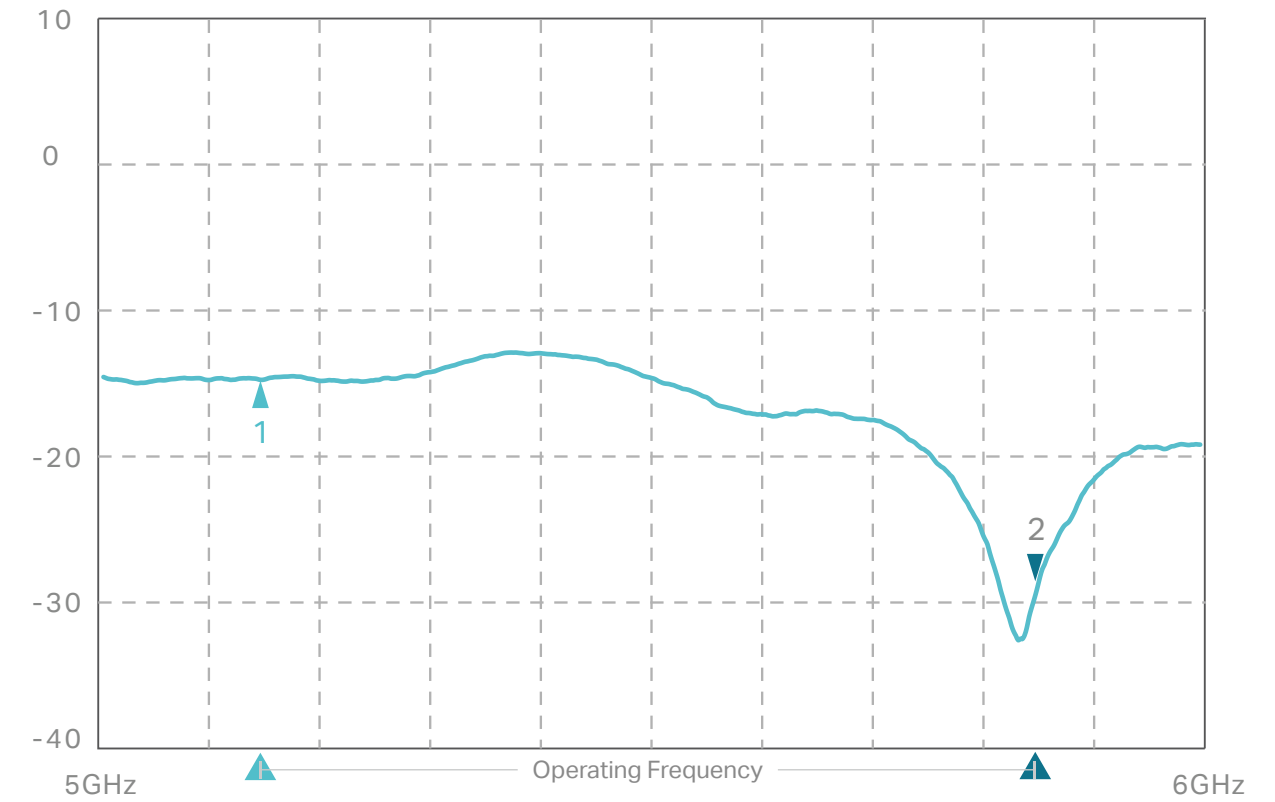
## Vertical Azimuth



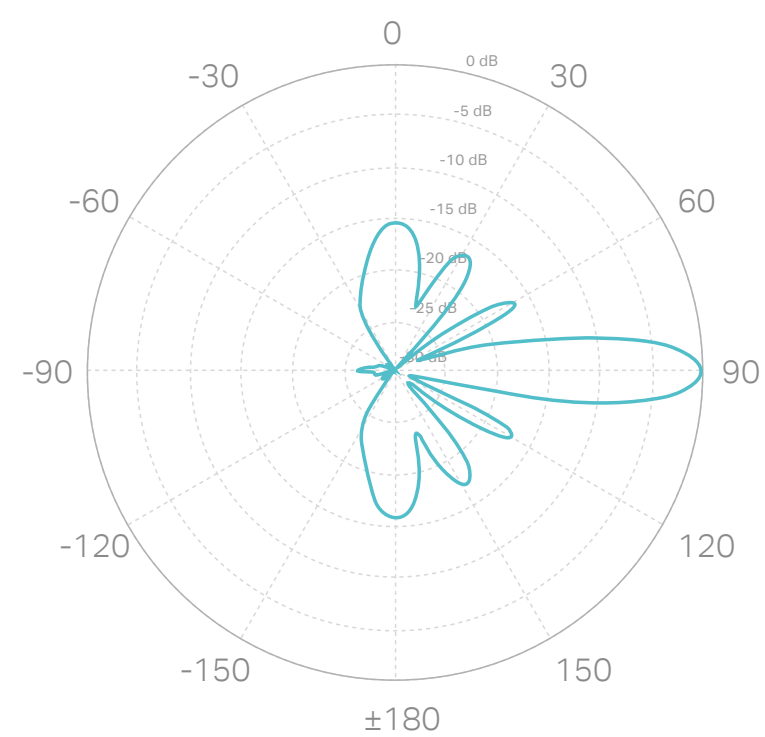
## Vertical Elevation



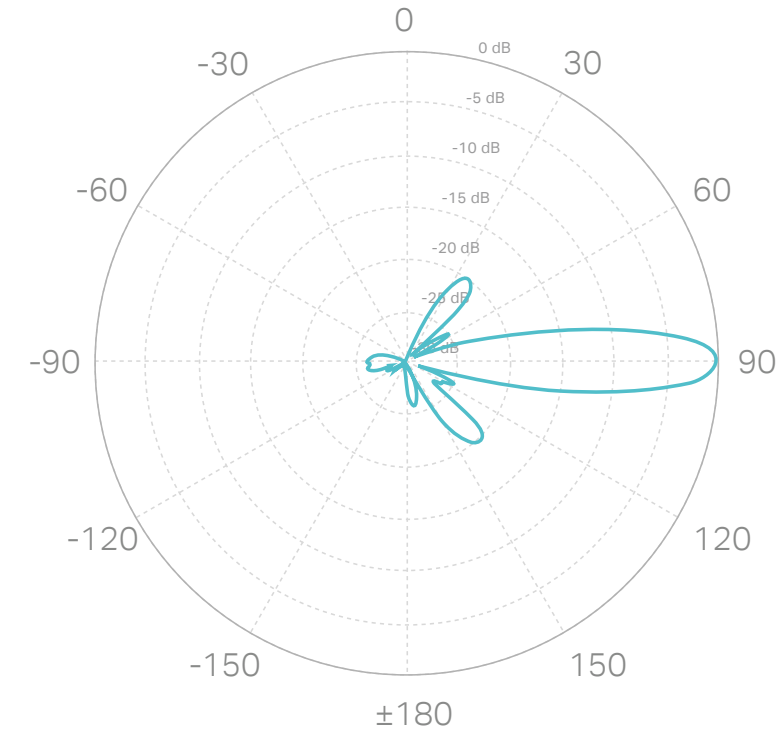
## Return Loss – Vertical Polarization



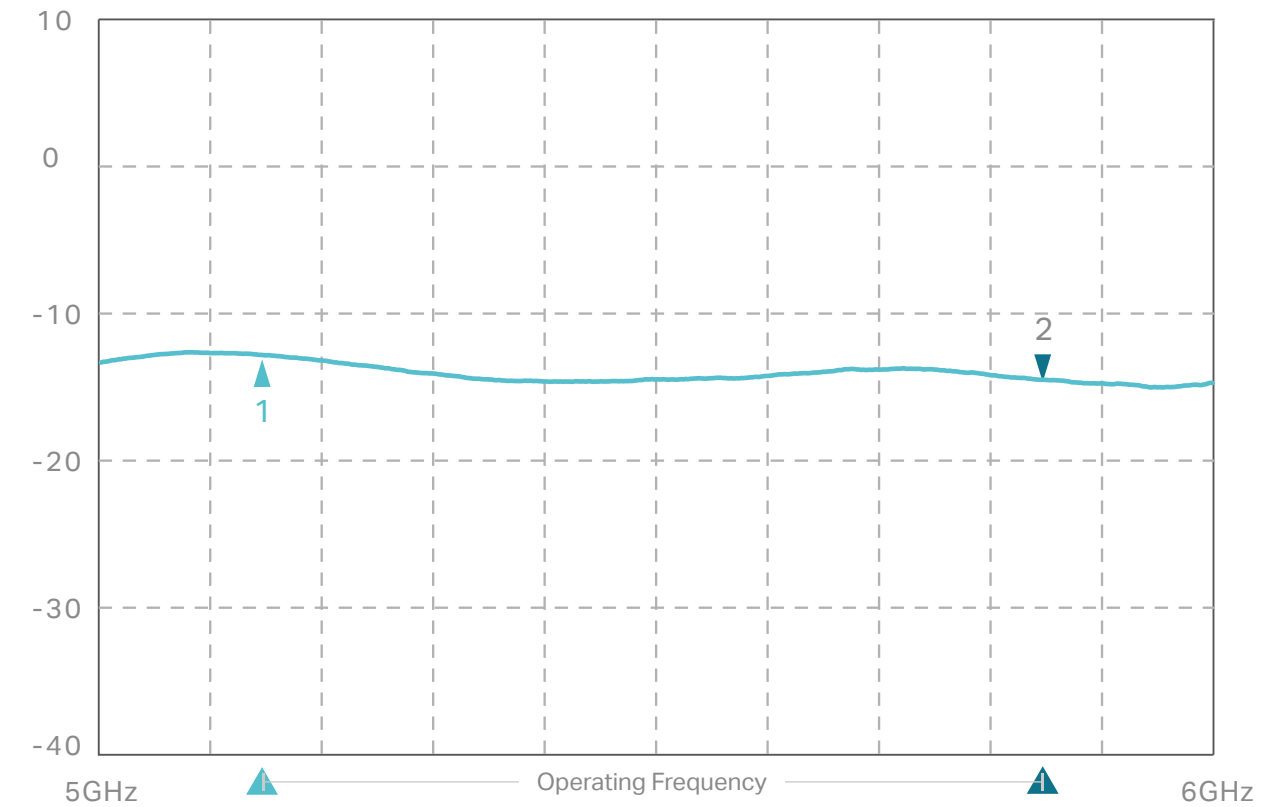
## Horizontal Azimuth



## Horizontal Elevation

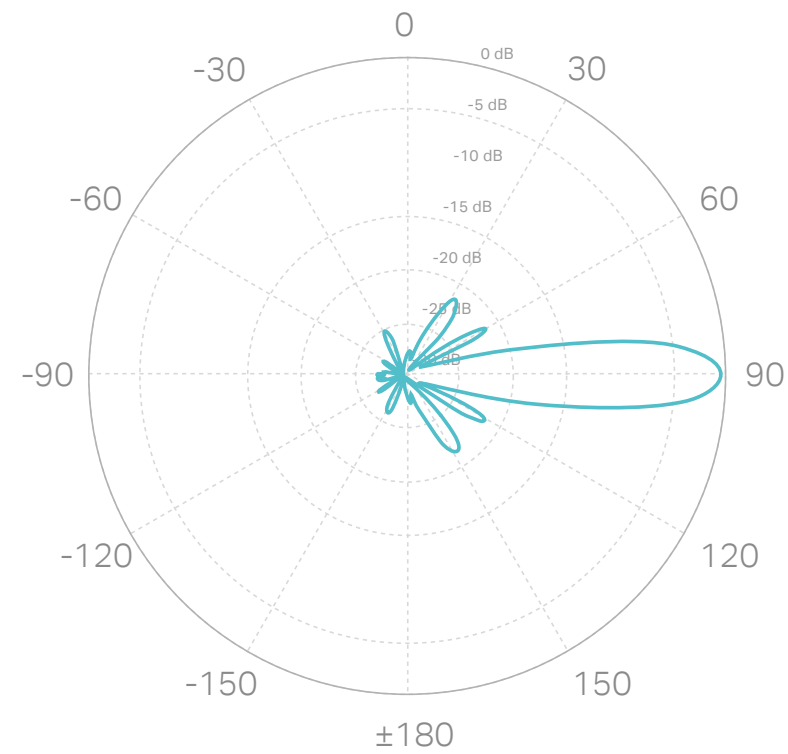


## Return Loss – Horizontal Polarization

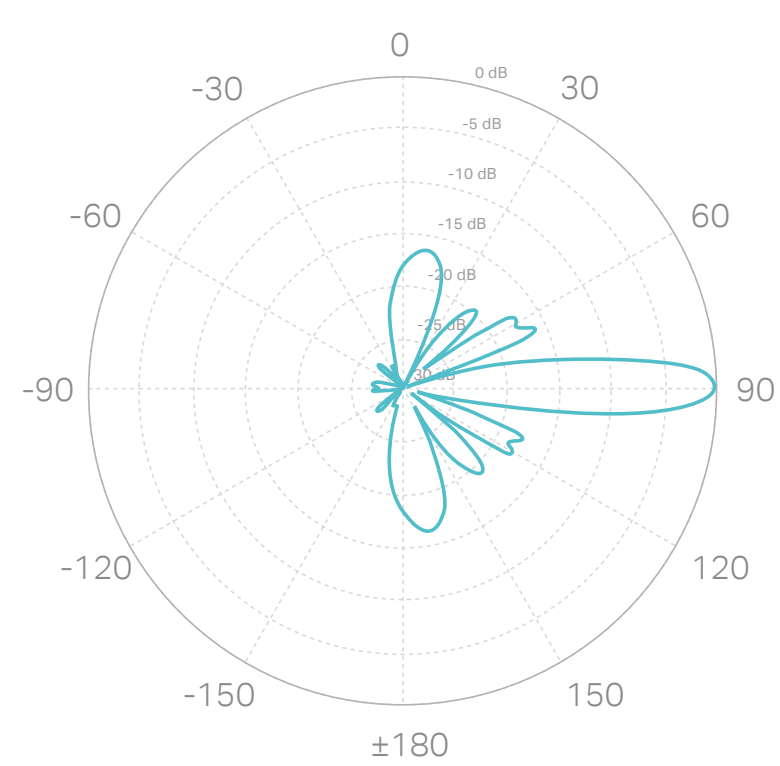


# CPE710 Antenna Patterns

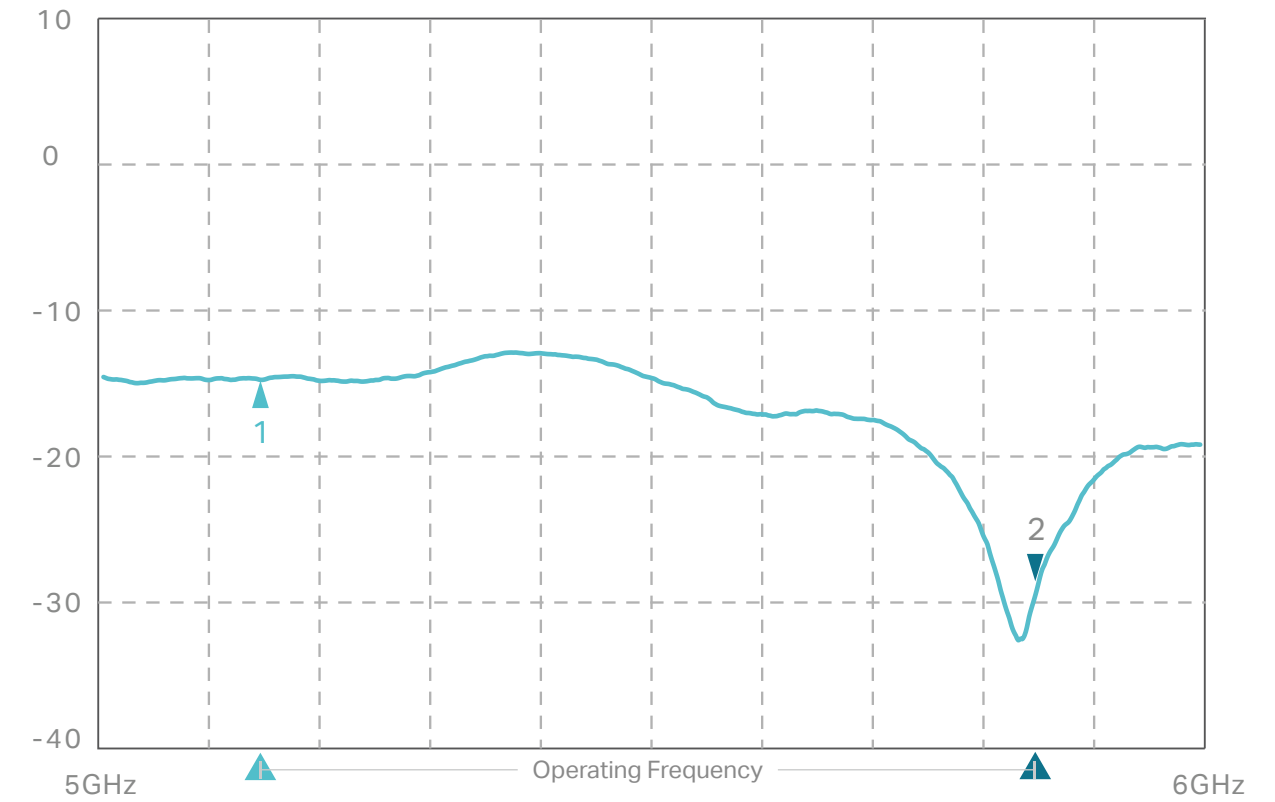
## Vertical Azimuth



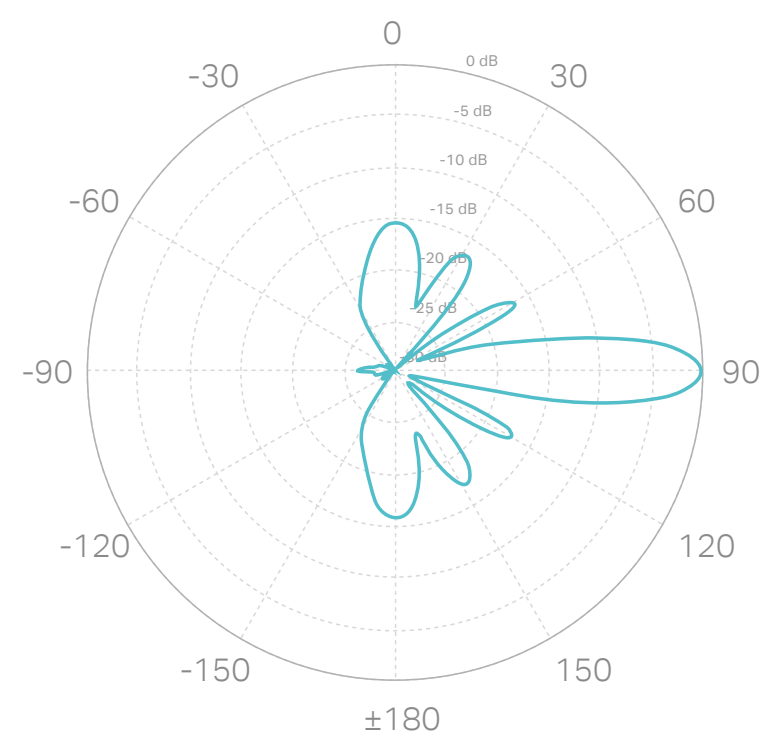
## Vertical Elevation



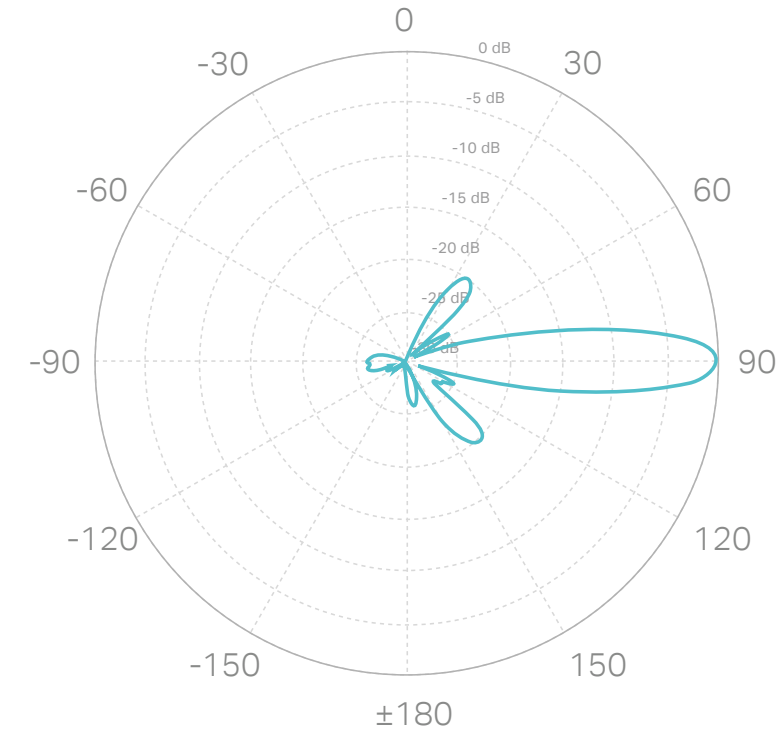
## Return Loss – Vertical Polarization



## Horizontal Azimuth



## Horizontal Elevation



## Return Loss – Horizontal Polarization

