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[1] (200 feet) Power over Ethernet deployment

-TP-Link Pharos MAXtream[2] (Time-Division-Multiple-Access) technology improves product throughput, capacity and latency performance, ideal for PtMP applications.

-Centralized Management System – Pharos Control

[1] 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.

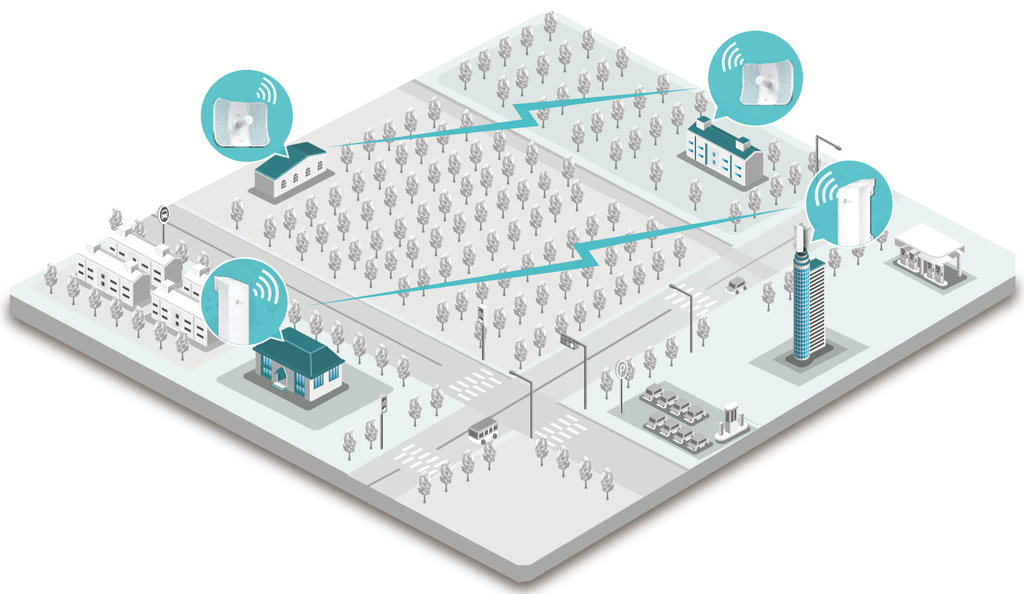
[2] CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.

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.

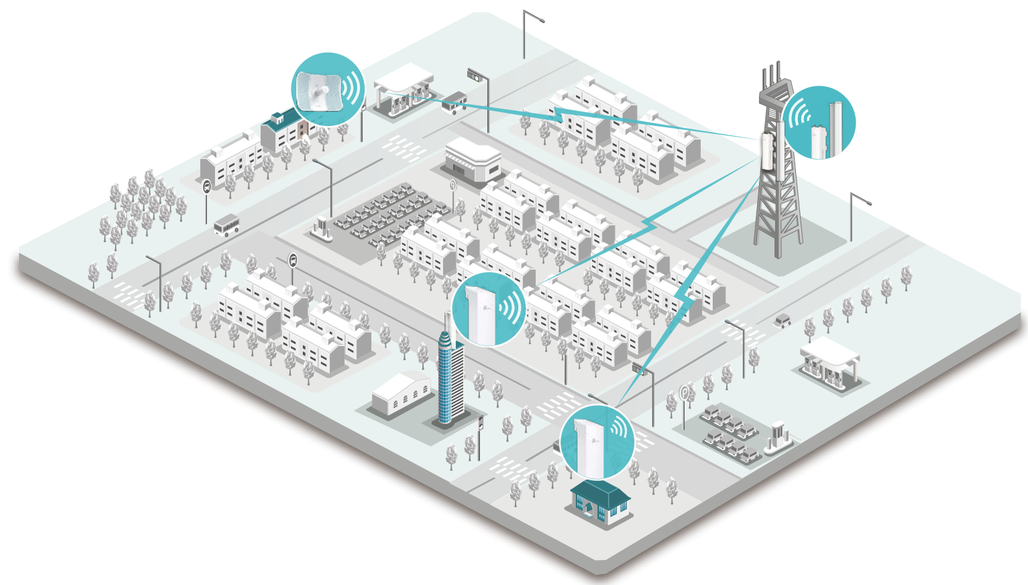
Long-distance Wireless Connection

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



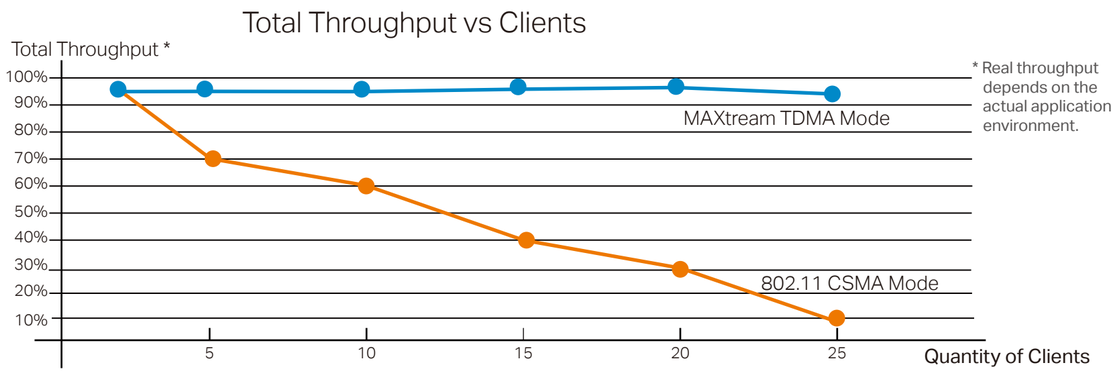
Large-area Wireless Coverage

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

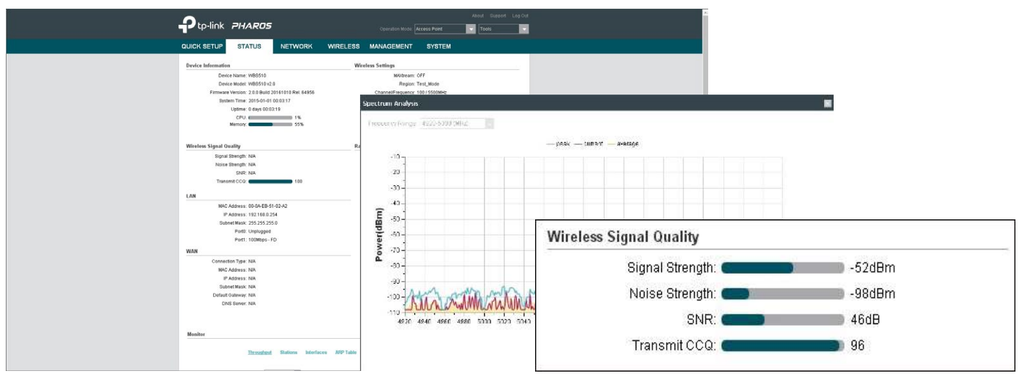
As network scale increases, wireless competition and collisions among outdoor devices will be so fierce that the real throughput of the network will drop, resulting in a serious impact on end-user experience, to mitigate these effects, TP-Link's Pharos series uses MAXtream[3] TDMA Technology.



[3] CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.

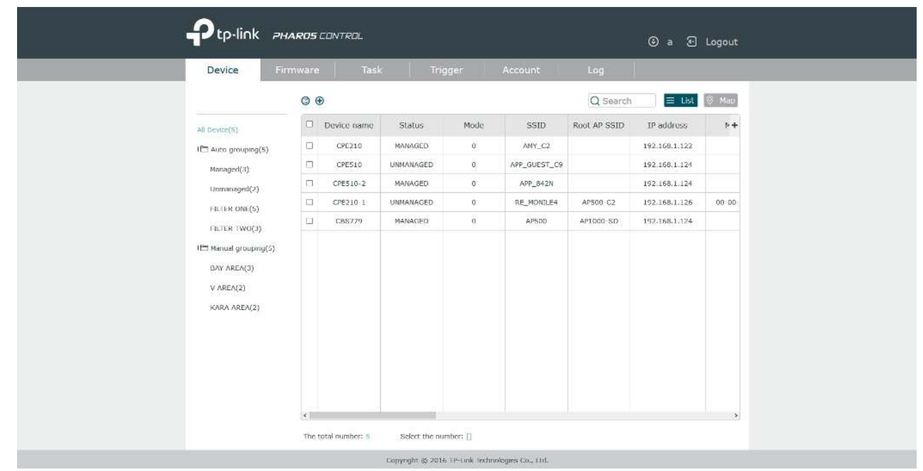
PharOS

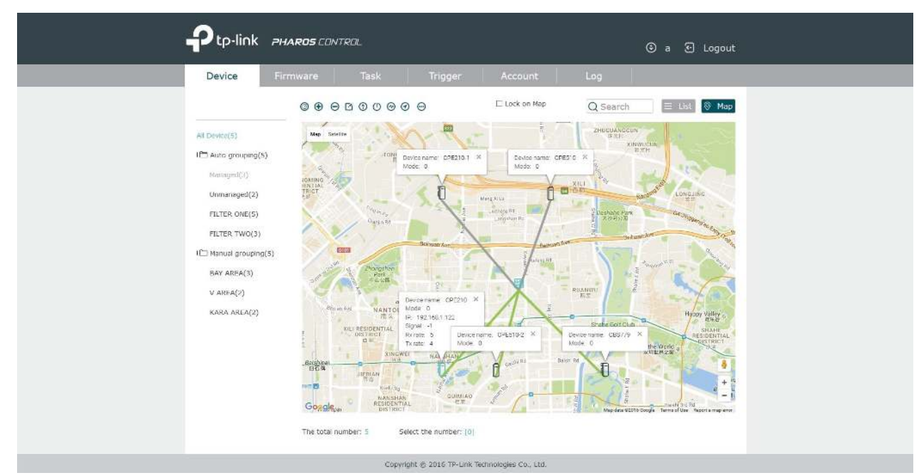
User-friendly web-based management system allows professionals to do more specific configurations.



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.





Specification

Features & Performance

Model		CPE210	CPE220	CPE510	CPE605	CPE610	CPE710
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 x 255 x 350 mm	207 × 280 × 366 mm	
	Protection[4]	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		

[4] 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	CPE510	CPE605 V1.0	CPE610	CPE710
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
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[5]	2.4-2.483 GHz		5.15-5.85 GHz			
	Wireless Speed[6]	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[7]	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					

[5] Available operating frequency may vary depending on the limitaion of the countries or regions in which the device is used.

[6] 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.

[7] Maximum transmit power is limited by local regulatory settings.

Specification

Features & Performance

Model		CPE210	CPE220	CPE510	CPE605	CPE610	CPE710
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	Wireless Configurations	Pharos MAXtream TDMA Technology (CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.) Long Range PtP Selectable Channel Width: 20/40/80 MHz for CPE710, 5/10/20/40 MHz for other models Auto Channel Selection Transmit Power Control Dynamic Frequency Selection (DFS) *Only CPE510(UN) / CPE605(UN) / CPE610(UN) / CPE710(UN) supports DFS. WDS Enable/Disable Security: WPA / WPA2, WPA-PSK / WPA2-PSK (AES / TKIP) Encryption SSID Broadcast Enable/Disable Multi-SSID with VLAN Tagging (AP mode only) Distance / ACK Timeout Setting Wireless MAC Address Filter Wireless Advanced: Beacon Intevel / RTS Threshold / Fragmentation Threshold / DTIM Intevel / 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					

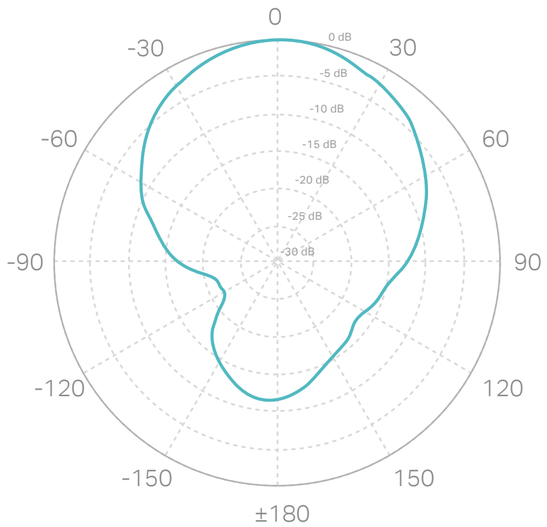
Specification

Features & Performance

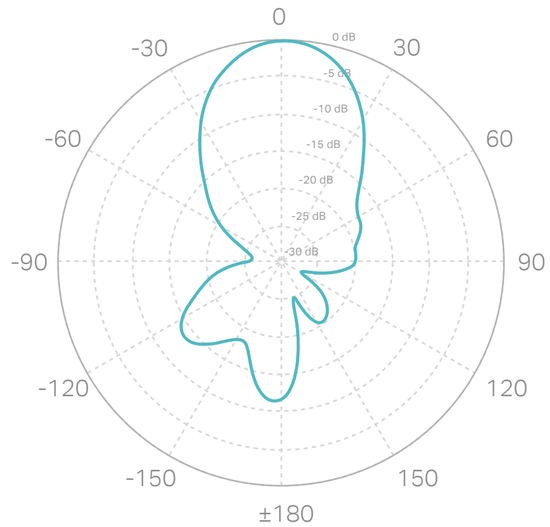
Model		CPE210	CPE220	CPE510	CPE605	CPE610	CPE710
Name		2.4 GHz 300 Mbps 9 dBi / 12 dBi Outdoor CPE		5 GHz 300 Mbps 13 dBi Outdoor CPE	5 GHz 150 Mbps 23 dBi Outdoor CPE	5 GHz 300 Mbps 23 dBi Outdoor CPE	5GHz 867Mbps 23dBi Outdoor CPE
Software Feature	System-level Optimizations	IGMP Snooping / Proxy for multicast applications					
	System Requirements	Microsoft Windows 98SE, NT, 2000, XP, VistaTM 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

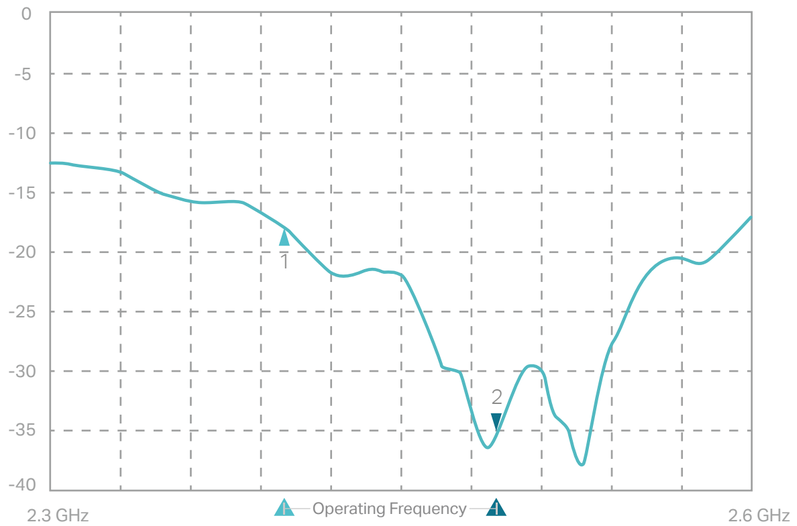
Vertical Azimuth



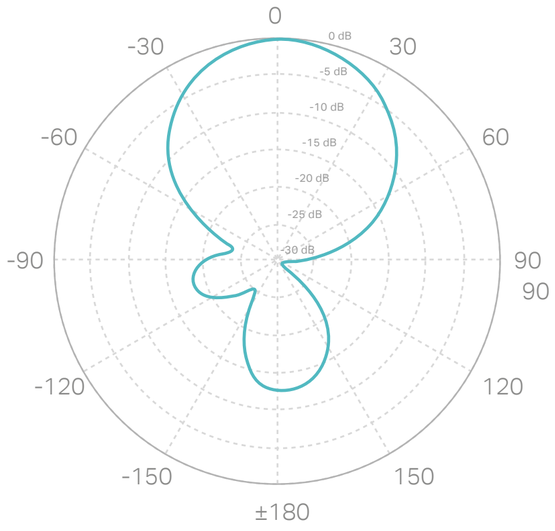
Vertical Elevation



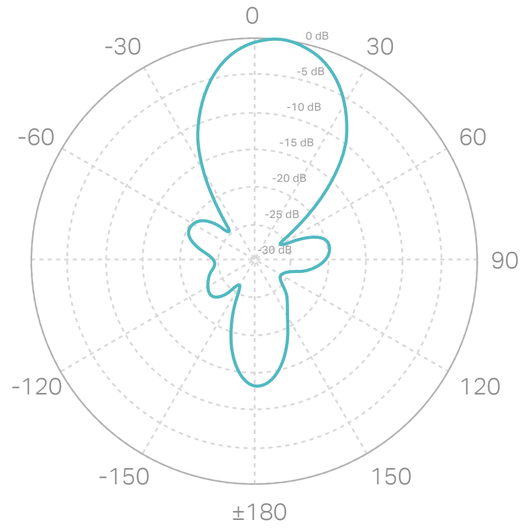
Return Loss –Vertical Polarization



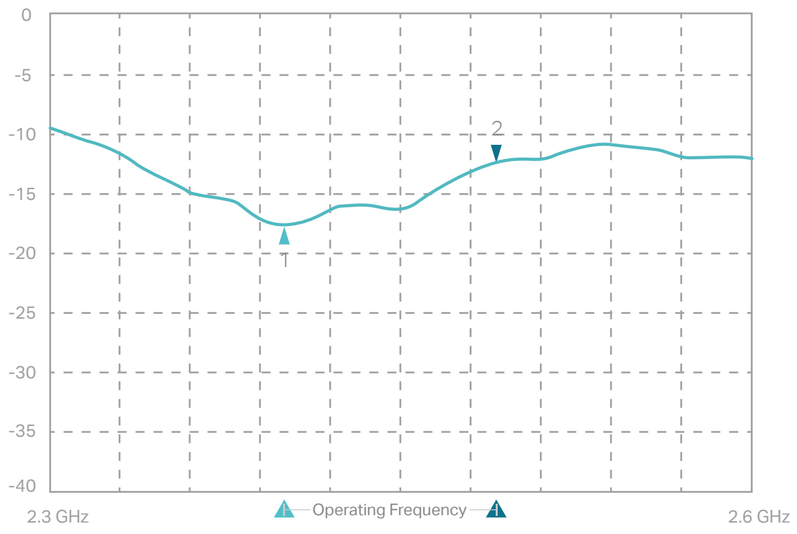
Horizontal Azimuth



Horizontal Elevation

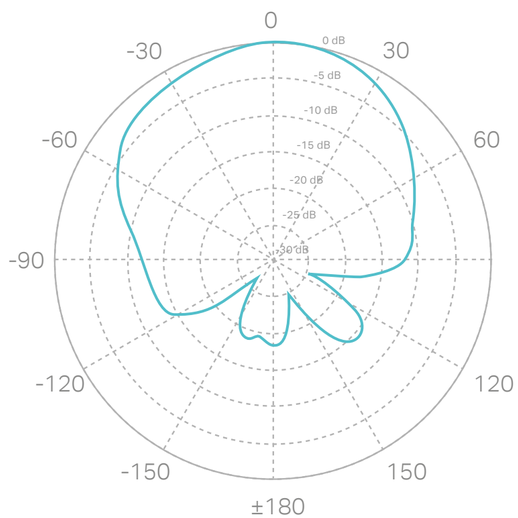


Return Loss – Horizontal Polarization

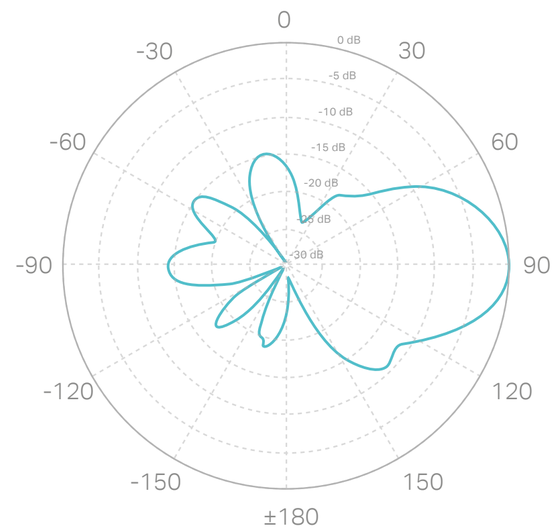


CPE220 Antenna Patterns

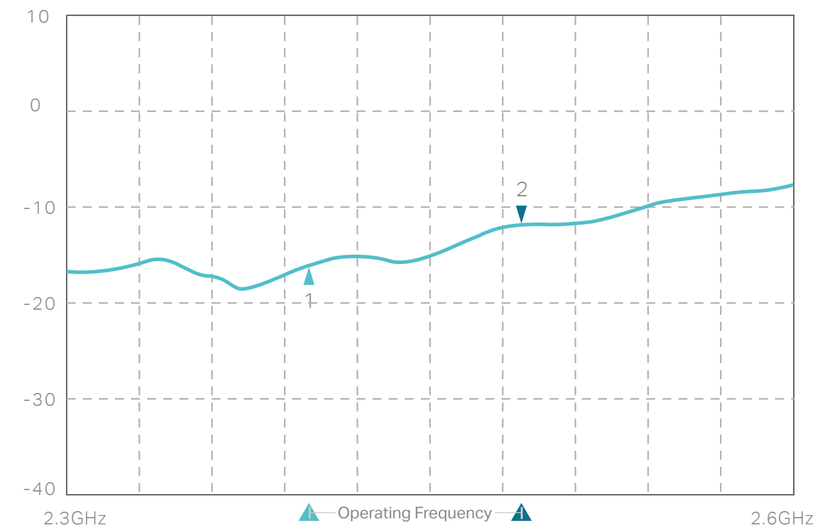
Vertical Azimuth



Vertical Elevation



Return Loss –Vertical Polarization



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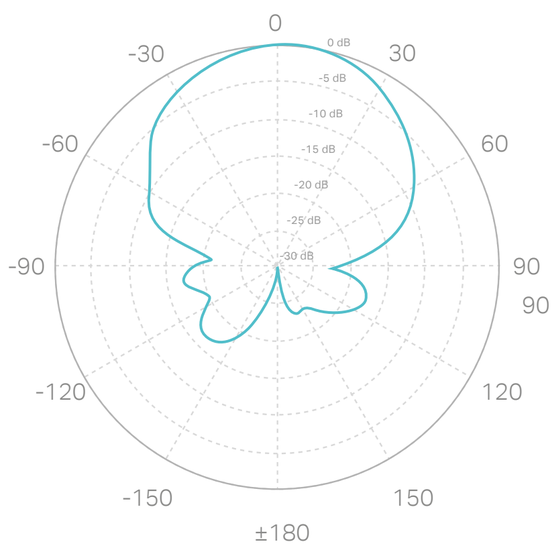
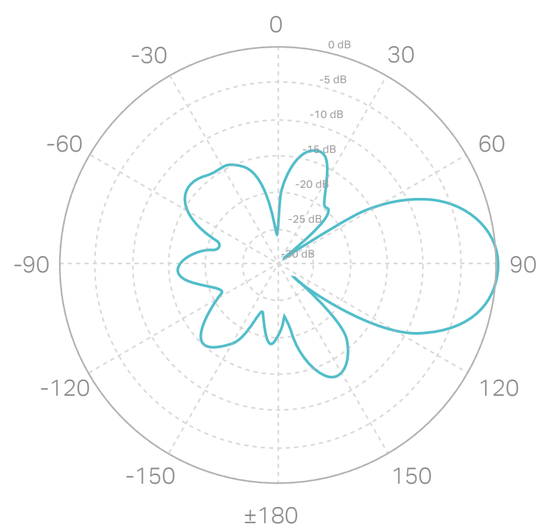
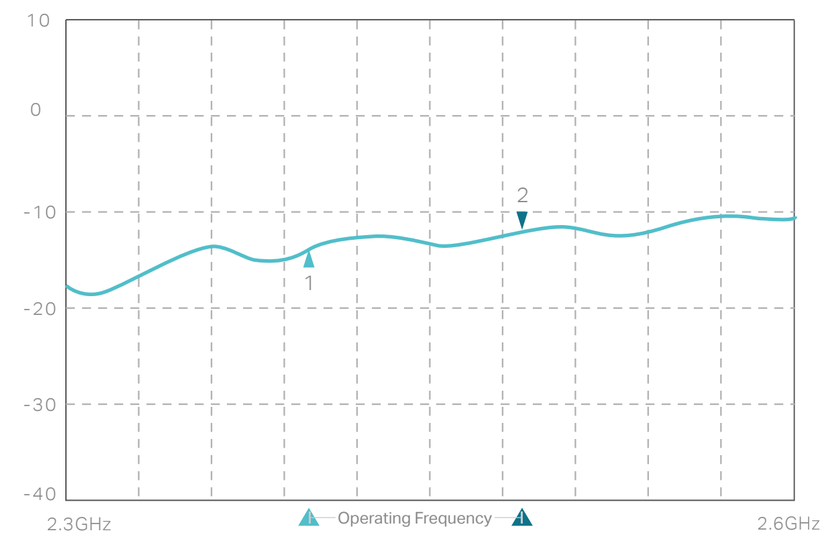


Horizontal Elevation

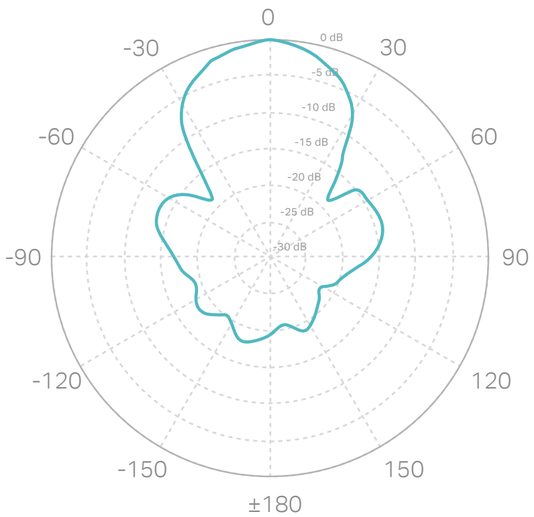


Return Loss – Horizontal Polarization

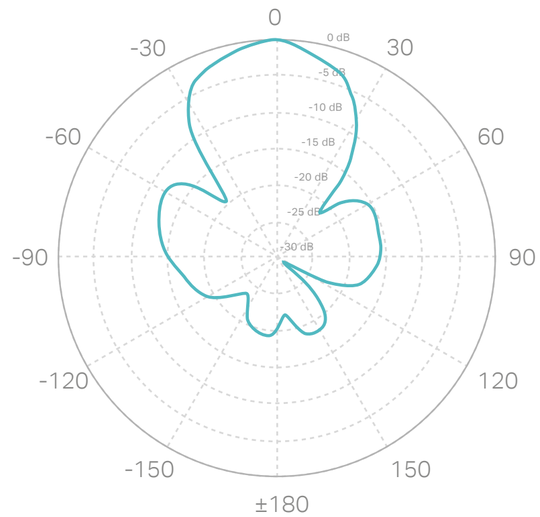


CPE510 Antenna Patterns

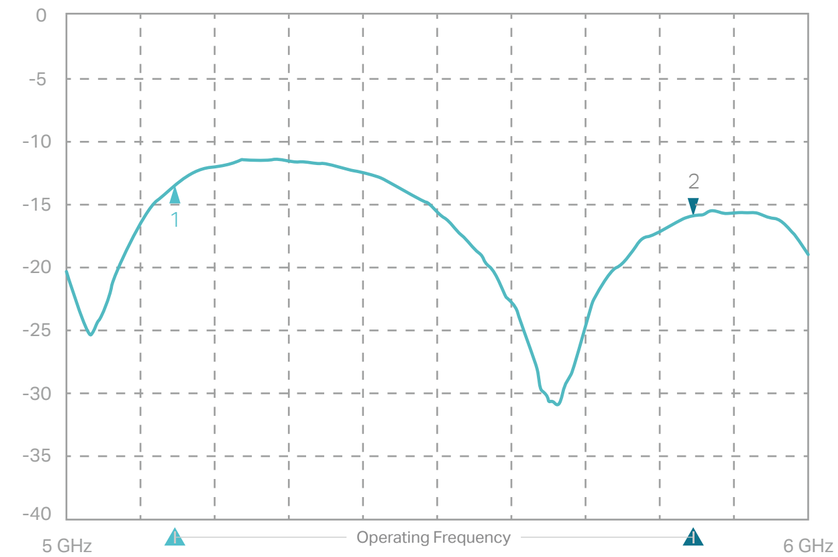
Vertical Azimuth



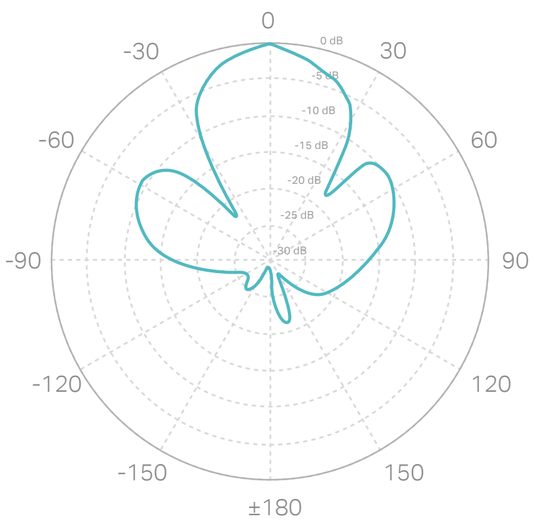
Vertical Elevation



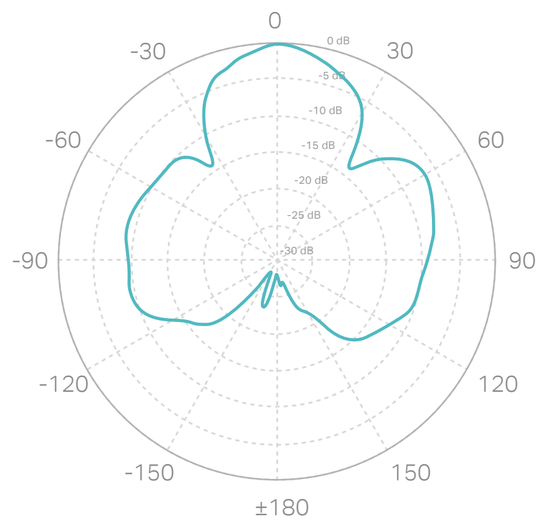
Return Loss –Vertical Polarization



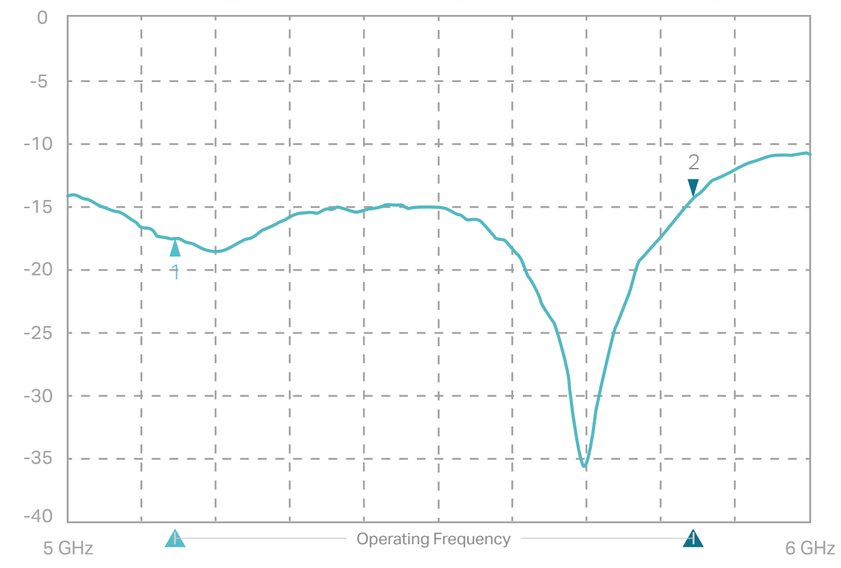
Horizontal Azimuth



Horizontal Elevation

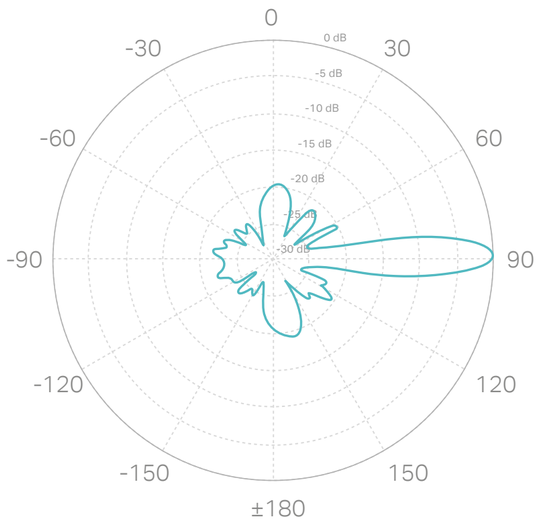


Return Loss – Horizontal Polarization

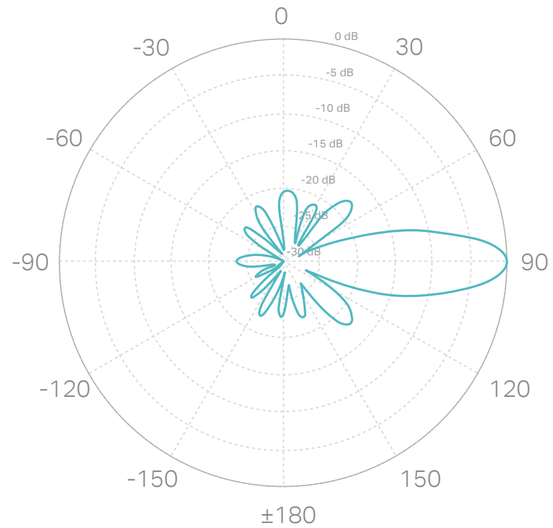


CPE605 Antenna Patterns

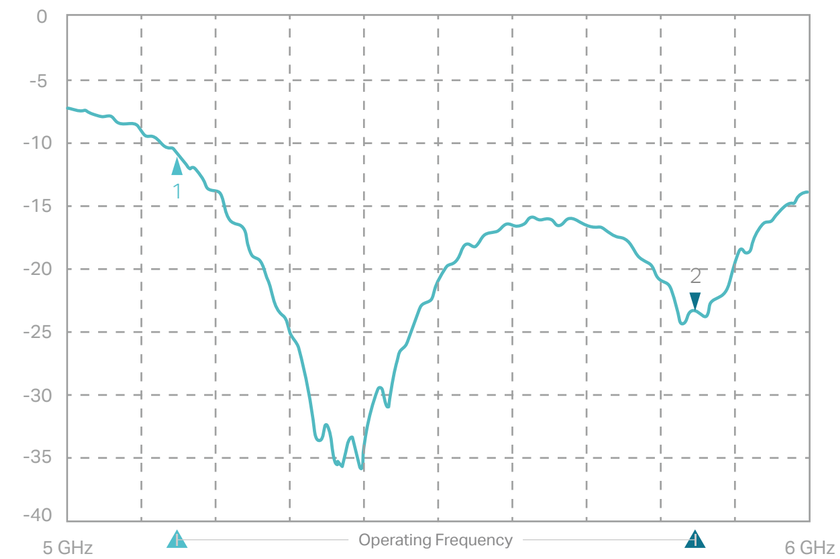
Azimuth



Elevation

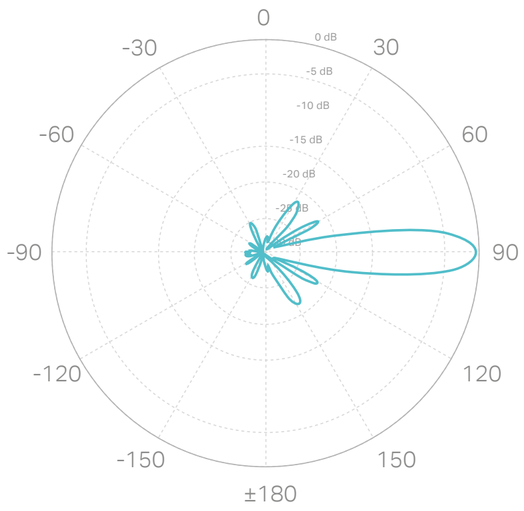


Return Loss

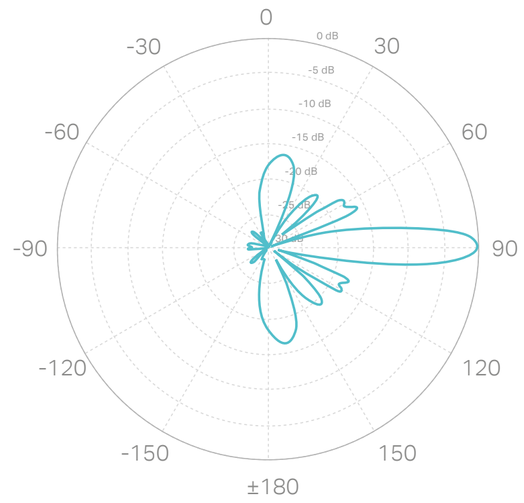


CPE610 Antenna Patterns

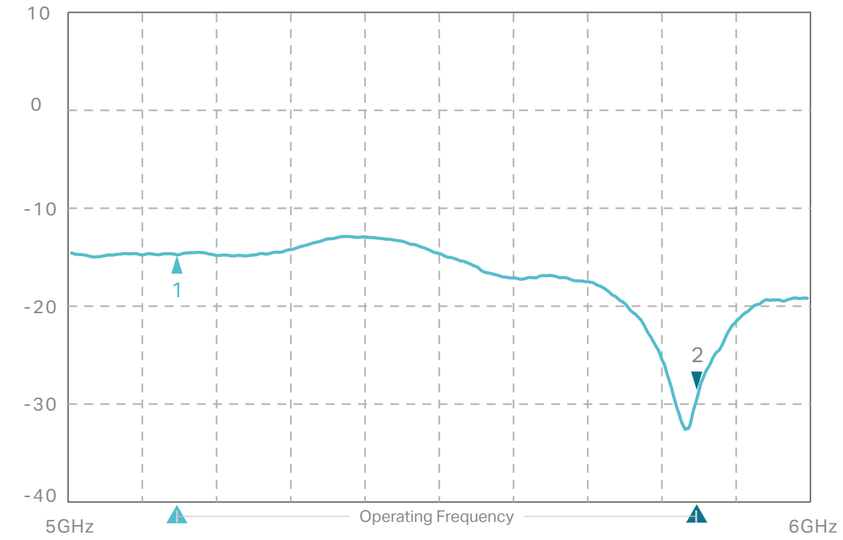
Vertical Azimuth



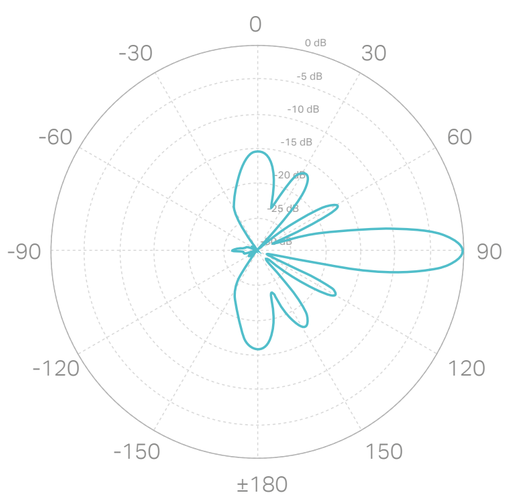
Vertical Elevation



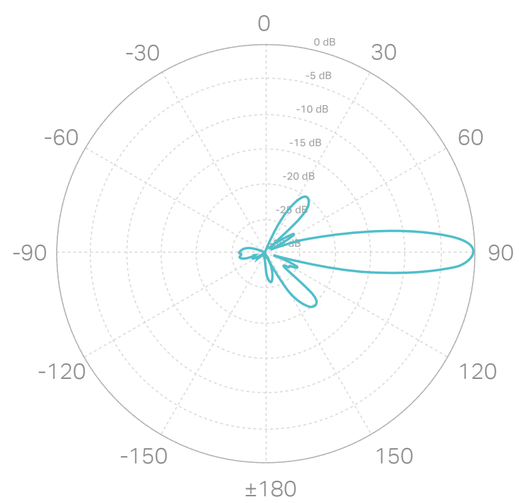
Return Loss –Vertical Polarization



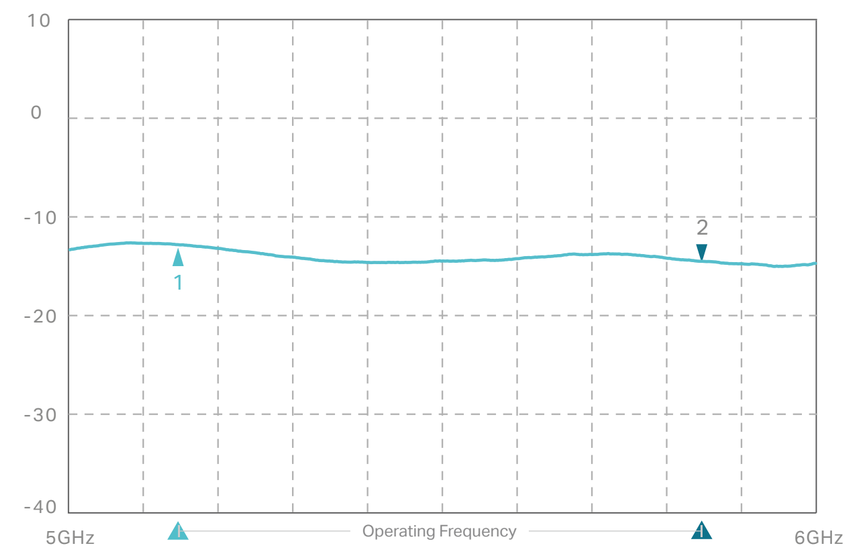
Horizontal Azimuth



Horizontal Elevation

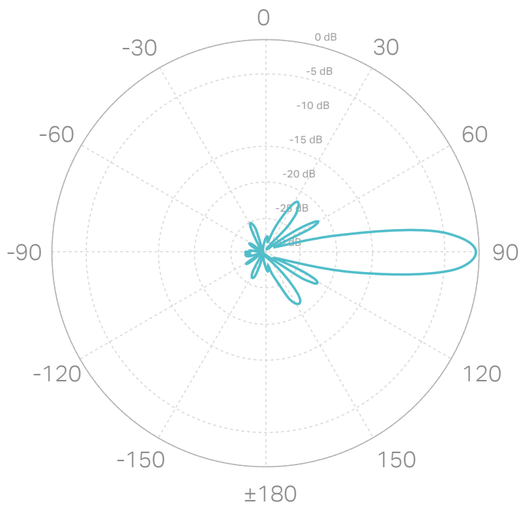


Return Loss – Horizontal Polarization

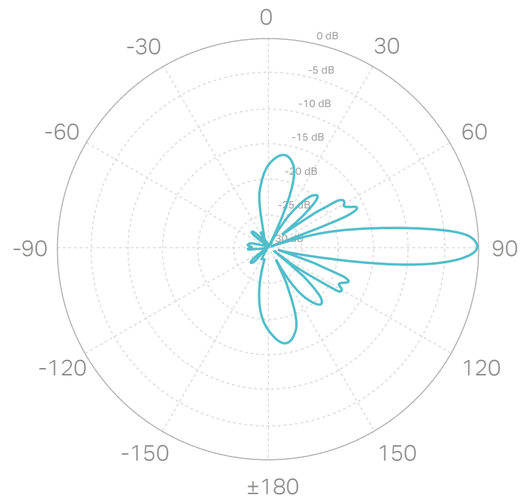


CPE710 Antenna Patterns

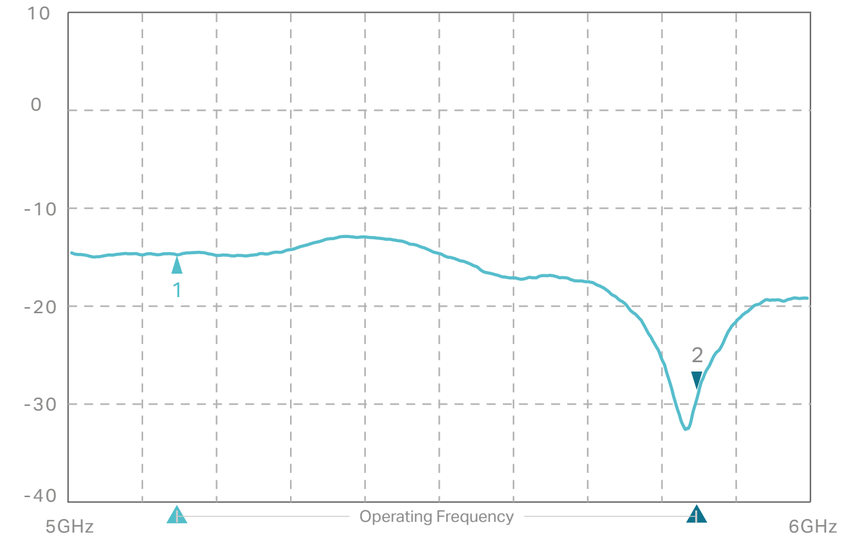
Vertical Azimuth



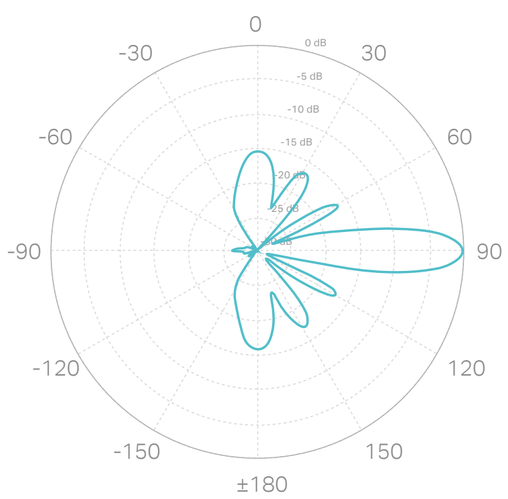
Vertical Elevation



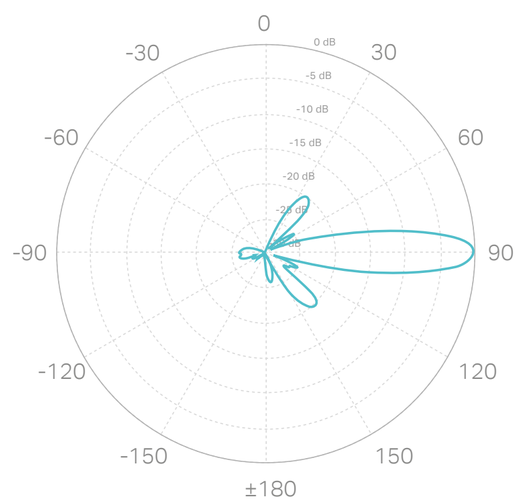
Return Loss –Vertical Polarization



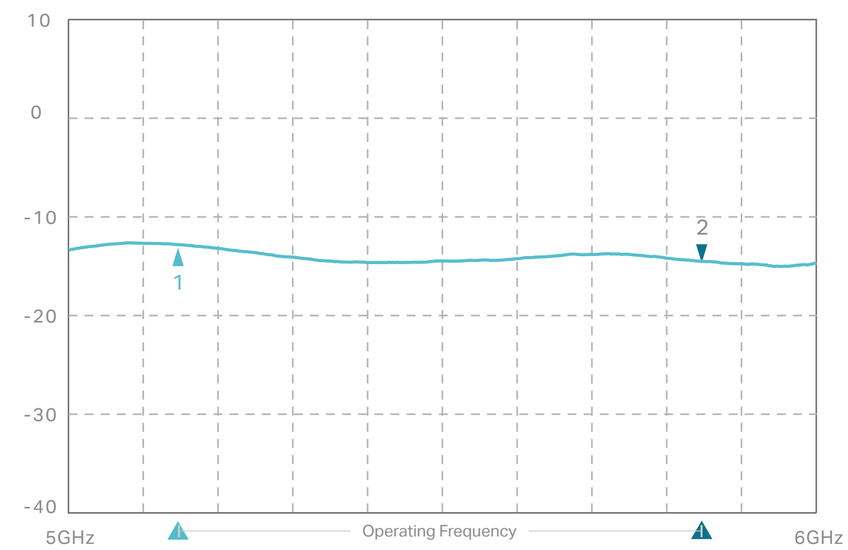
Horizontal Azimuth



Horizontal Elevation



Return Loss – Horizontal Polarization



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