



# 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.

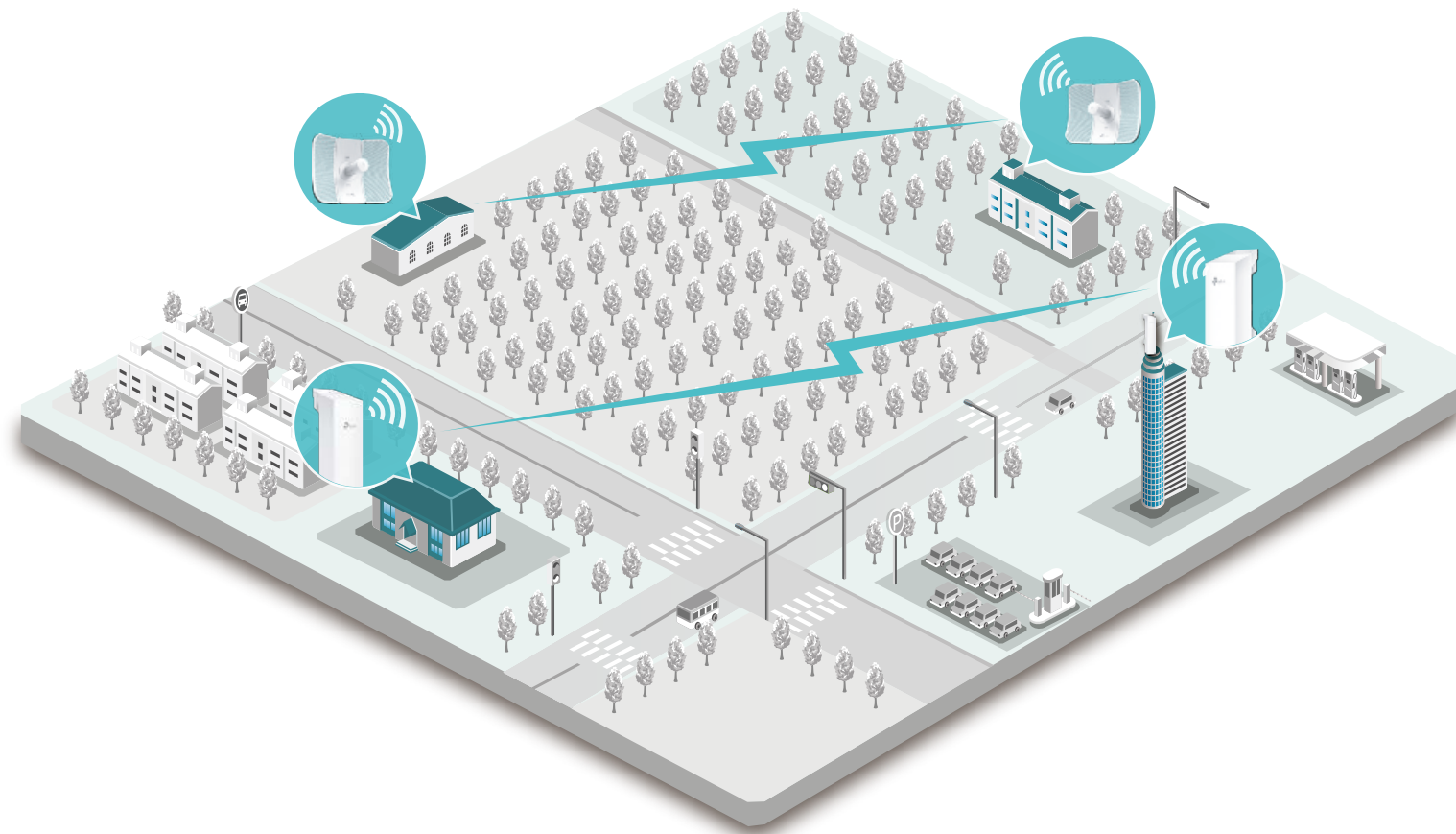
<sup>2</sup> CPE210 / CPE220 / CPE510 / CPE605 / CPE610 supports Maxtream.

# 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.

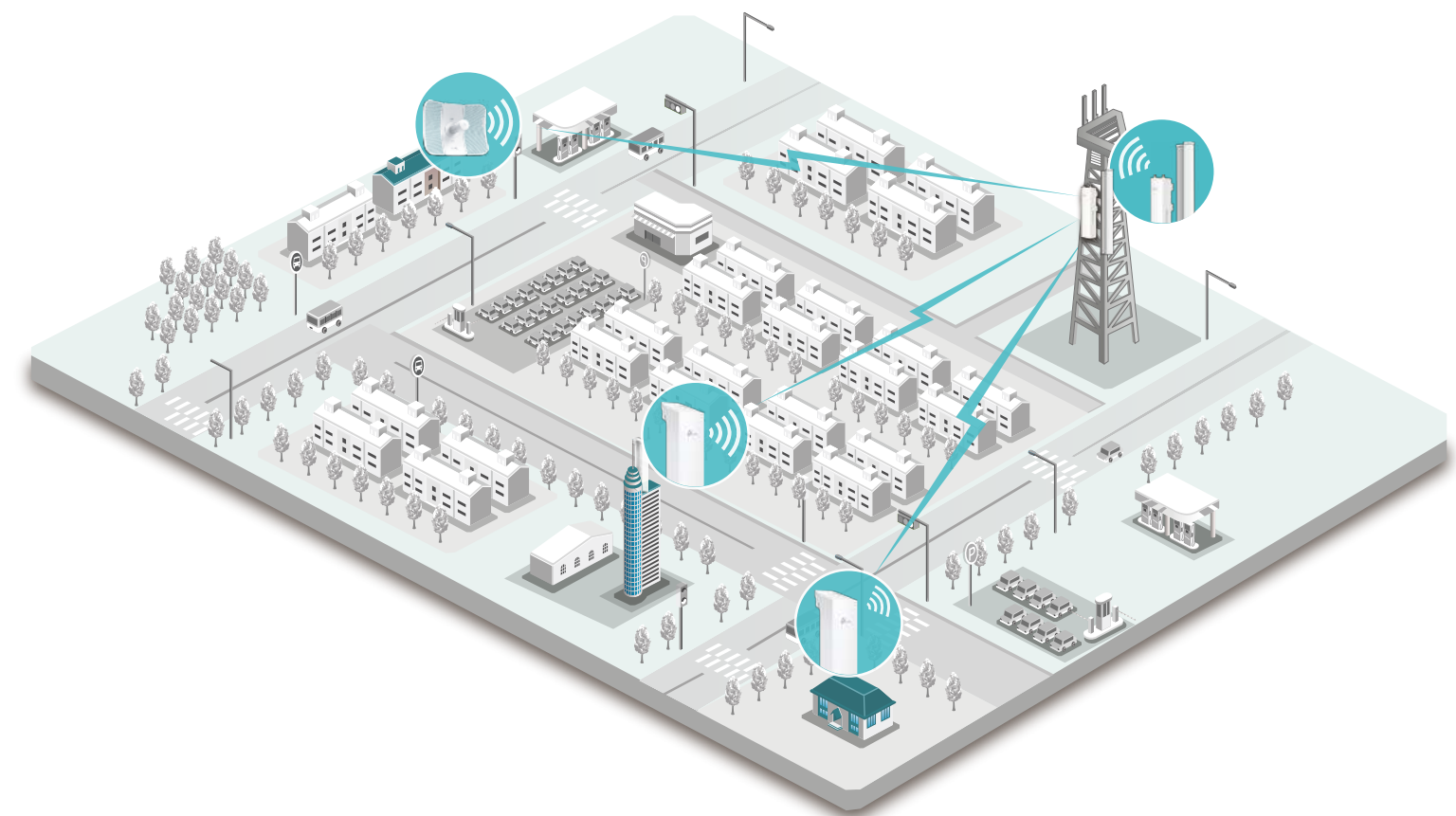
## Long-distance Wireless Connection

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



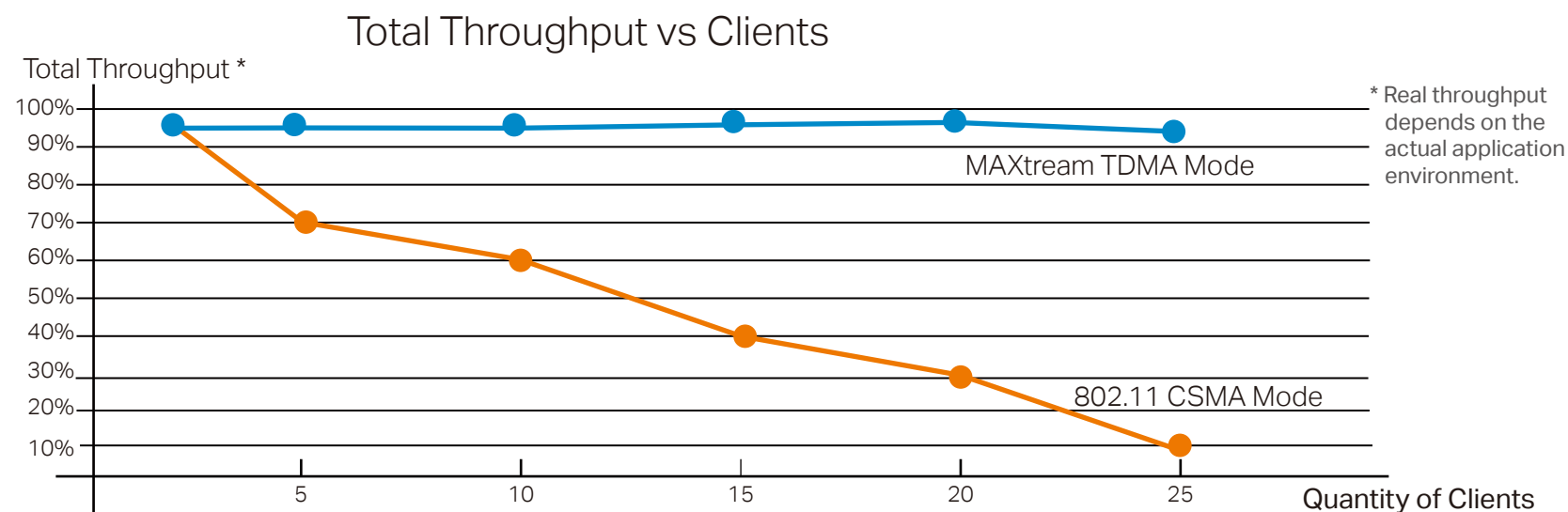
## Large-area Wireless Coverage

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 MAXstream TDMA Technology

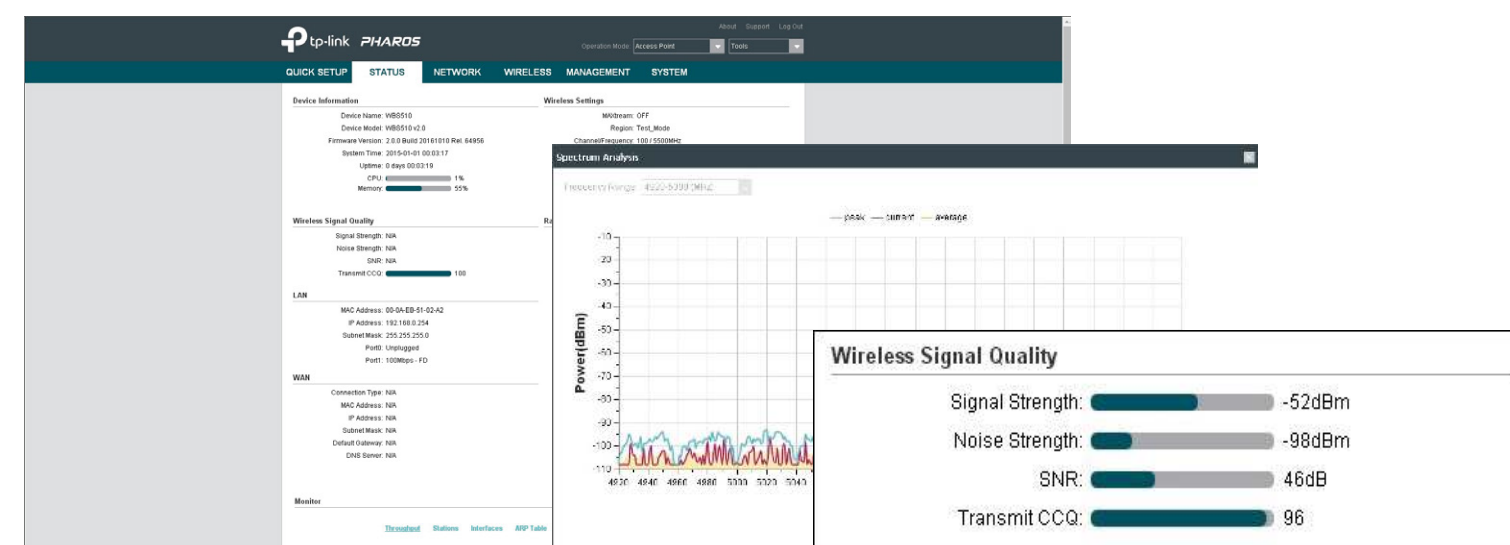
As network scale increases, wireless competition and collisions among outdoor devices will be so fierce that the real throughput of the network will drop, resulting in a serious impact on end-user experience, to mitigate these effects, TP-Link's Pharos series uses MAXtream<sup>3</sup> TDMA Technology.



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

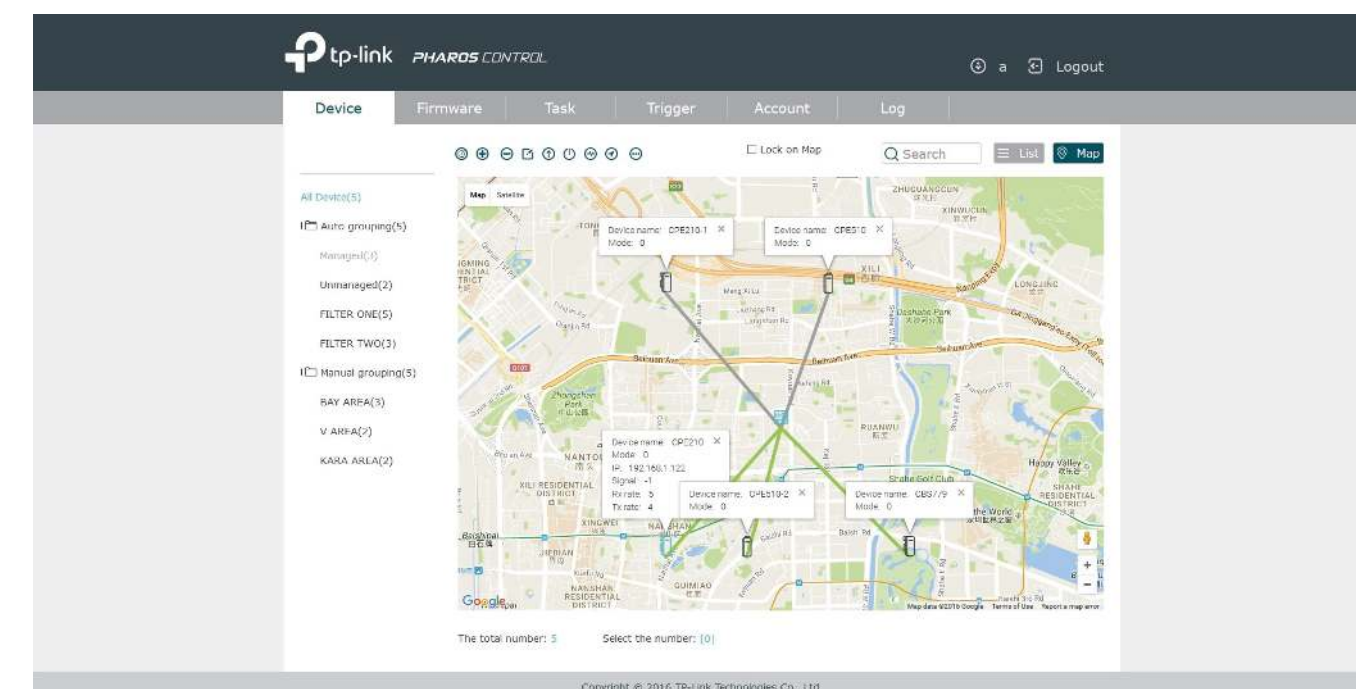
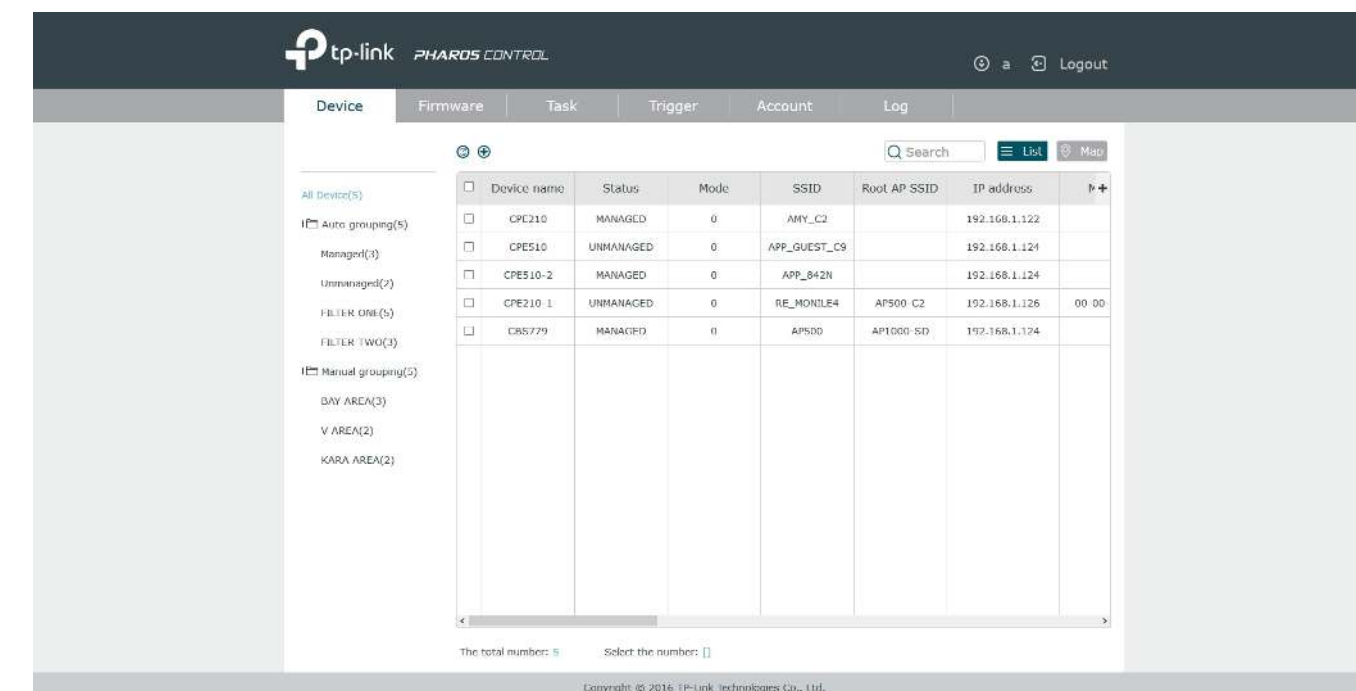
# PharOS

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 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<br>24 V Passive PoE Adapter<br>AC Power Cord<br>Mounting Kits<br>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)<br>1 Grounding Terminal<br>1 Reset Button             | 1 10/100 Mbps Shielded Ethernet Port (LAN0/ POE)<br>1 10/100 Mbps Shielded Ethernet Port (LAN1)<br>1 Grounding Terminal<br>1 Reset Button | 1 10/100 Mbps Shielded Ethernet Port (LAN/ POE)<br>1 Grounding Terminal<br>1 Reset Button | 1 10/100 Mbps Shielded Ethernet Port (LAN/POE)<br>1 Reset Button |                                                      | 1 10/100/1000 Mbps Shielded Ethernet Port (LAN/POE)<br>1 Reset Button |
|                  | Power Supply                                                                               | 24 VDC / 0.25 A Passive PoE<br>(+4,5 pins; -7,8 pins)                                                 | 24 VDC / 0.5 A Passive PoE<br>(+4,5 pins; -7,8 pins)                                                                                      |                                                                                           | 24 VDC / 0.25 A Passive PoE<br>(+4,5 pins; -7,8 pins)            | 24 VDC / 0.5 A Passive PoE<br>(+4,5 pins; -7,8 pins) |                                                                       |
|                  | Dimensions<br>(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                                   |                                                                       |
|                  | Protection4                                                                                | 15 kV ESD Protection<br>6 kV Lightning Protection                                                     |                                                                                                                                           |                                                                                           |                                                                  |                                                      |                                                                       |
| Enclosure        | Material: Outdoor ASA stabilized plastic<br>Weatherproof: IPX5 water and dust proof design |                                                                                                       |                                                                                                                                           | Material: Outdoor PC stabilized plastic<br>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.

# 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                                                                             |
| 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)                                                                                                                                                                                                                                                                                                                 |                                       |                                       |                                                                                                                                                 |                                                                                                                                                 | /                                                                                                          |
|                   | Frequency5              | 2.4-2.483 GHz                                                                                                                                                                                                                                                                                                                                            |                                       | 5.15-5.85 GHz                         |                                                                                                                                                 |                                                                                                                                                 |                                                                                                            |
|                   | Wireless Speed6         | Up to 300 Mbps (40 MHz, Dynamic)<br>Up to 144.4 Mbps (20 MHz, Dynamic)<br>Up to 72.2 Mbps (10 MHz, Dynamic)<br>Up to 36.1 Mbps (5 MHz, Dynamic)                                                                                                                                                                                                          |                                       |                                       | Up to 150 Mbps (40 MHz, Dynamic)<br>Up to 72.2 Mbps (20 MHz, Dynamic)<br>Up to 36.1 Mbps (10 MHz, Dynamic)<br>Up to 18.05 Mbps (5 MHz, Dynamic) | Up to 300 Mbps (40 MHz, Dynamic)<br>Up to 144.4 Mbps (20 MHz, Dynamic)<br>Up to 72.2 Mbps (10 MHz, Dynamic)<br>Up to 36.1 Mbps (5 MHz, Dynamic) | Up to 867 Mbps (80 MHz, Dynamic)<br>Up to 400 Mbps (40 MHz, Dynamic)<br>Up to 173.4 Mbps (20 MHz, Dynamic) |
|                   | Maximum Transmit Power7 | 25 dBm<br>(Adjustable power by 1 dBm)                                                                                                                                                                                                                                                                                                                    | 30 dBm<br>(Adjustable power by 1 dBm) | 26 dBm<br>(Adjustable power by 1 dBm) | 23 dBm<br>(Adjustable power by 1 dBm)                                                                                                           | 25 dBm<br>(Adjustable power by 1 dBm)                                                                                                           | 27 dBm<br>(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)<br>LAN: Static / Dynamic / DHCP<br>IPv6<br>Forwarding: ALG / UPnP / Virtual Server / Port Trigger<br>Security: SPI Firewall / Ping Forbidden / DoS Protection<br>Access Control<br>Static Routing<br>Bandwidth Control<br>IP & MAC Binding |                                       |                                       |                                                                                                                                                 |                                                                                                                                                 |                                                                                                            |

<sup>5</sup> Available operating frequency may vary depending on the limitaion 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

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

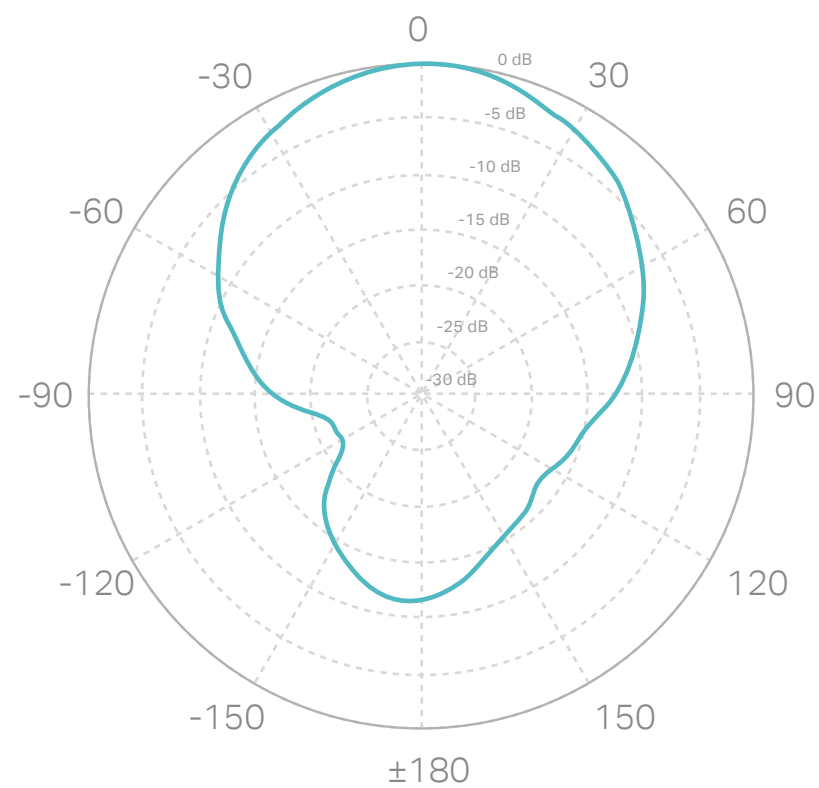
# Specification

## Features & Performance

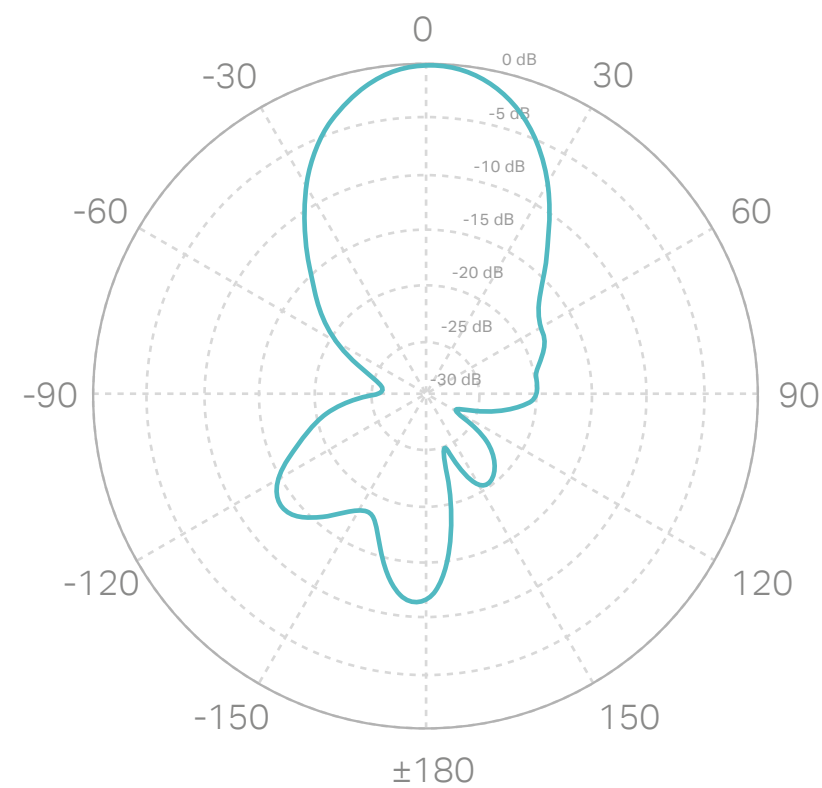
|                  |                            |                                                                                                                                                                                                                                                                          |             |                                   |                                   |                                   |                                |
|------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------------------|
| 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 / 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.<br>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)<br>Storage Temperature: -40 °C~70 °C (-40 °F~158 °F)<br>Operating Humidity: 10%~90% non-condensing<br>Storage Humidity: 5%~95% non-condensing                                                                        |             |                                   |                                   |                                   |                                |

# CPE210 Antenna Patterns

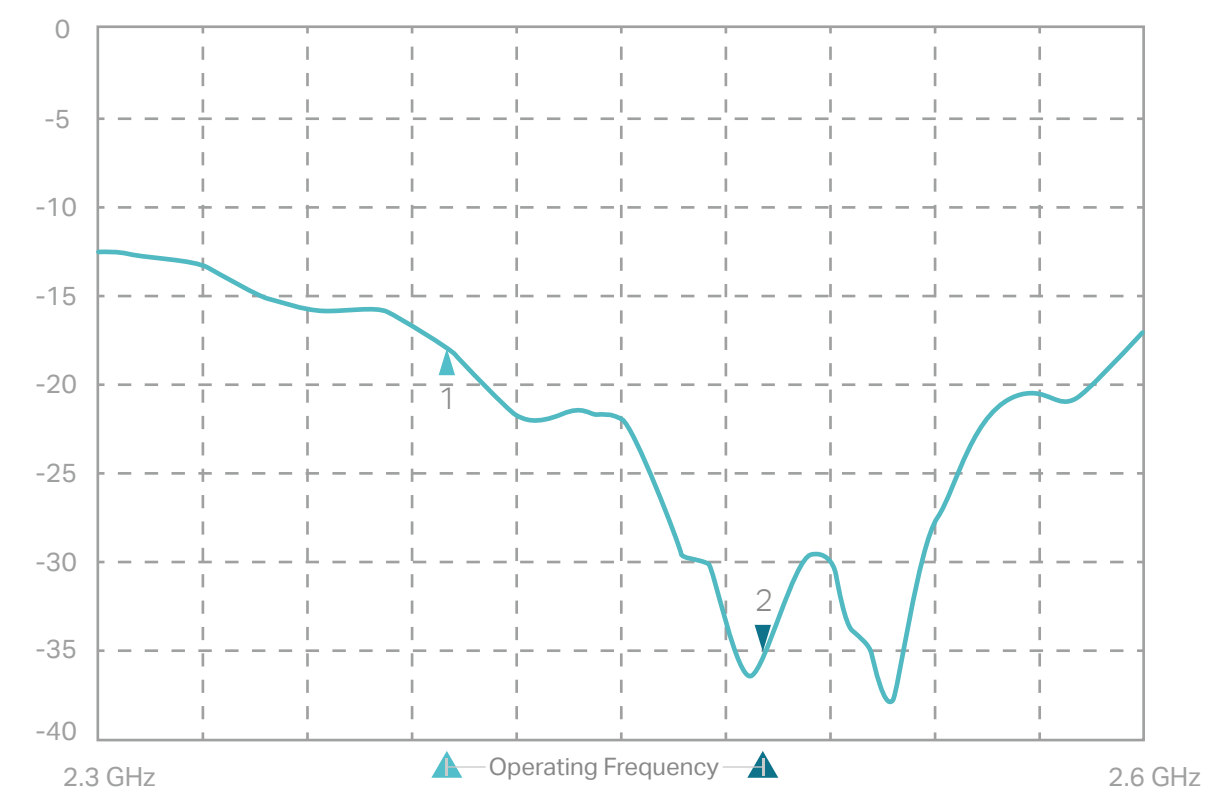
## Vertical Azimuth



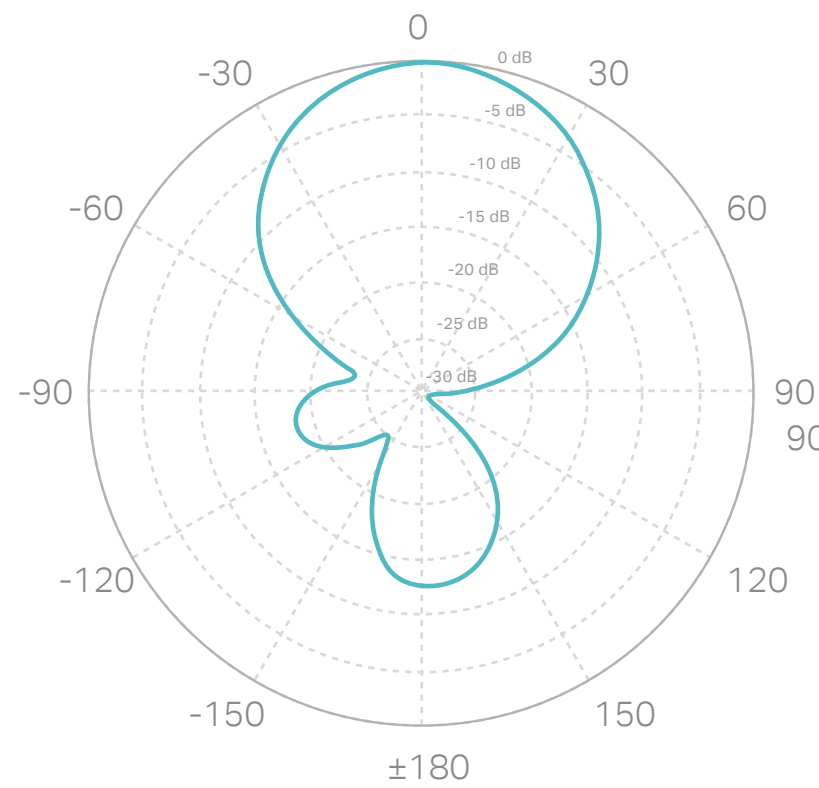
## Vertical Elevation



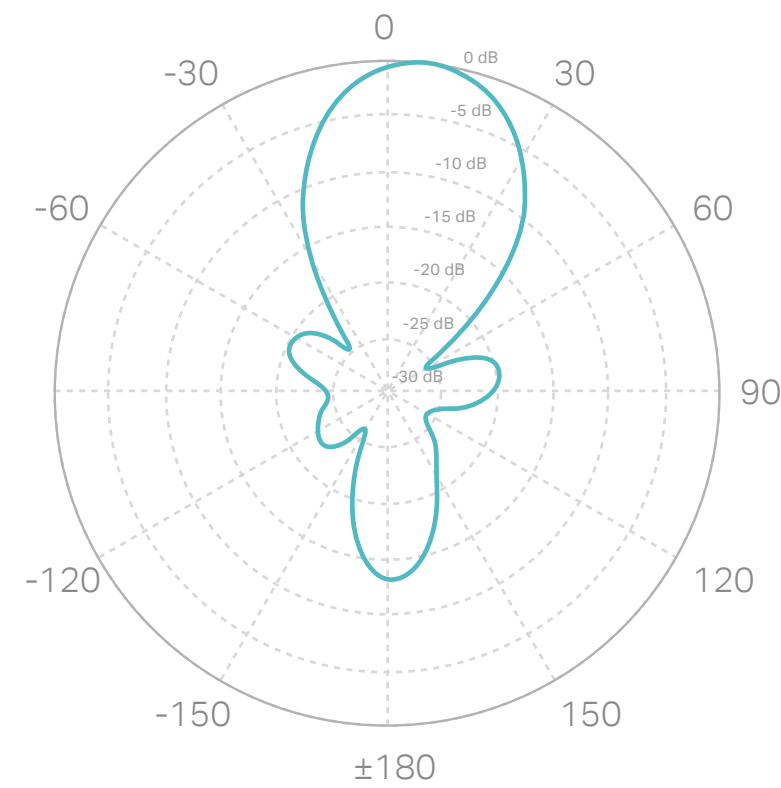
## Return Loss – Vertical Polarization



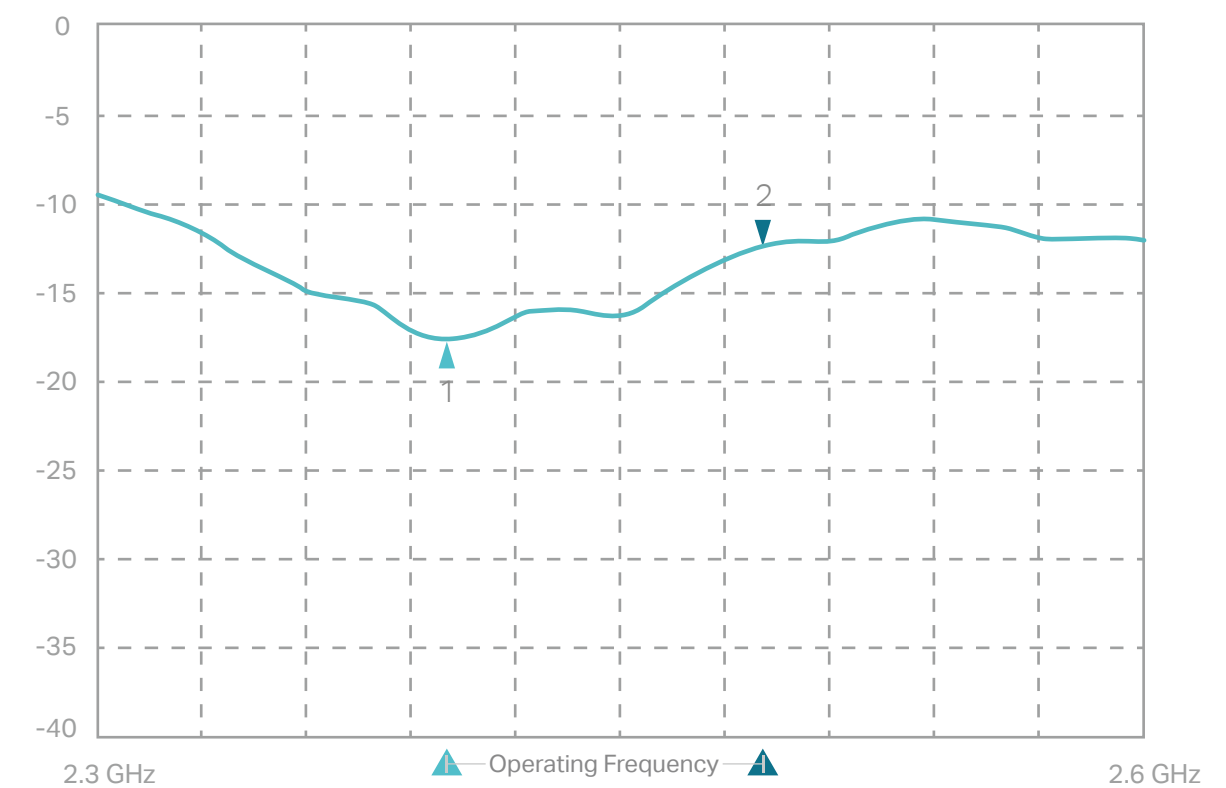
## Horizontal Azimuth



## Horizontal Elevation

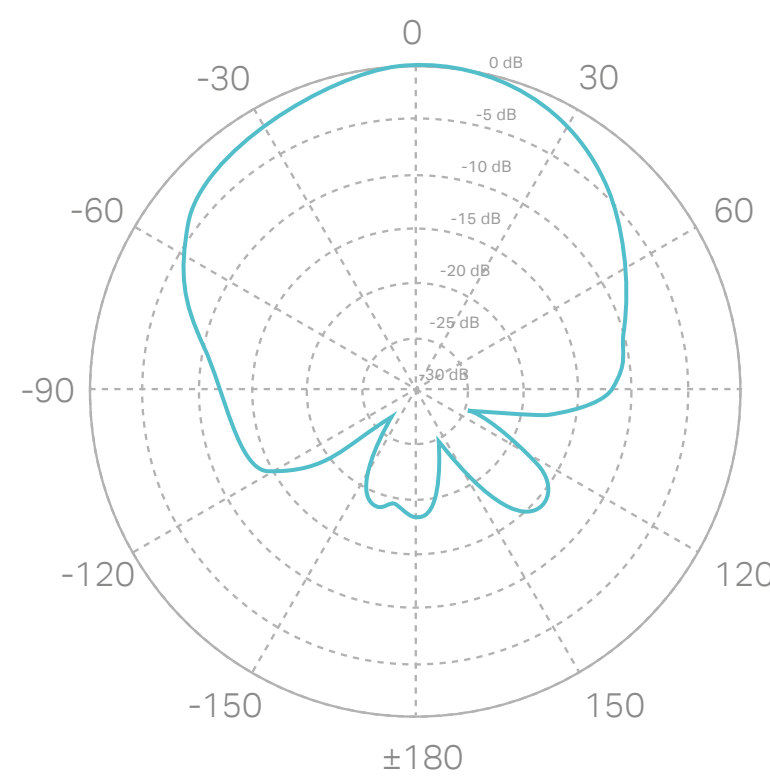


## Return Loss – Horizontal Polarization

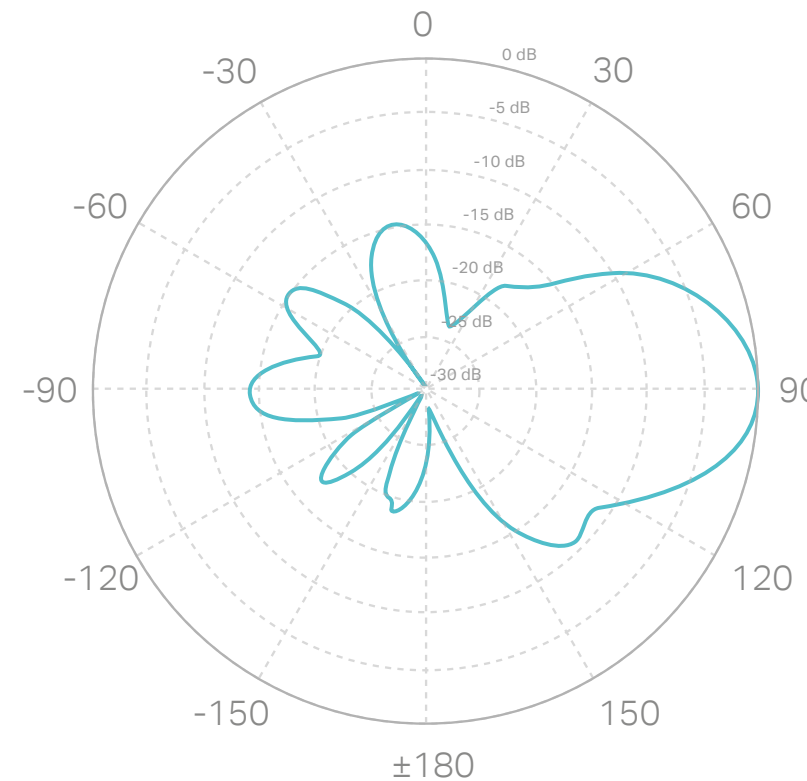


# CPE220 Antenna Patterns

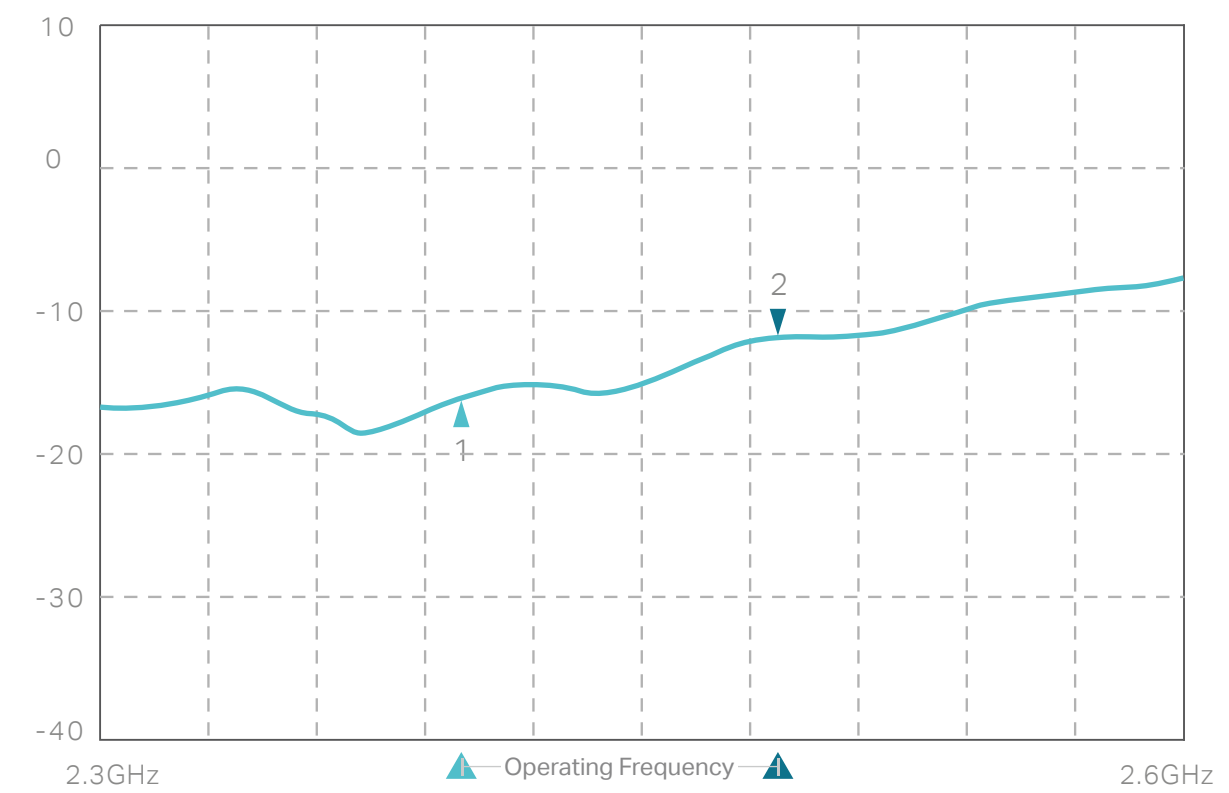
## Vertical Azimuth



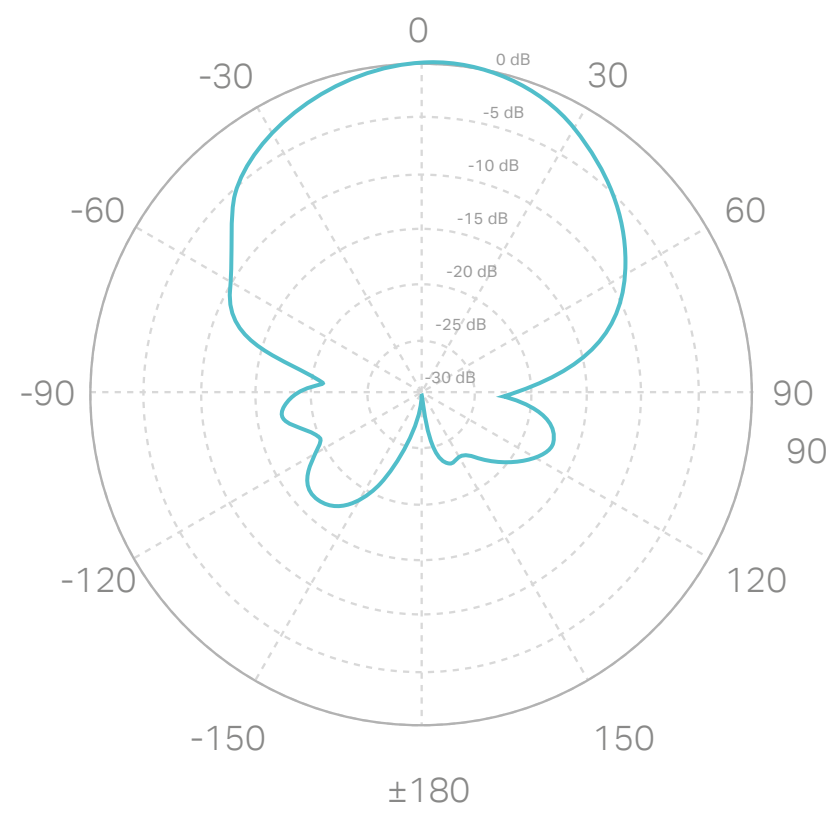
## Vertical Elevation



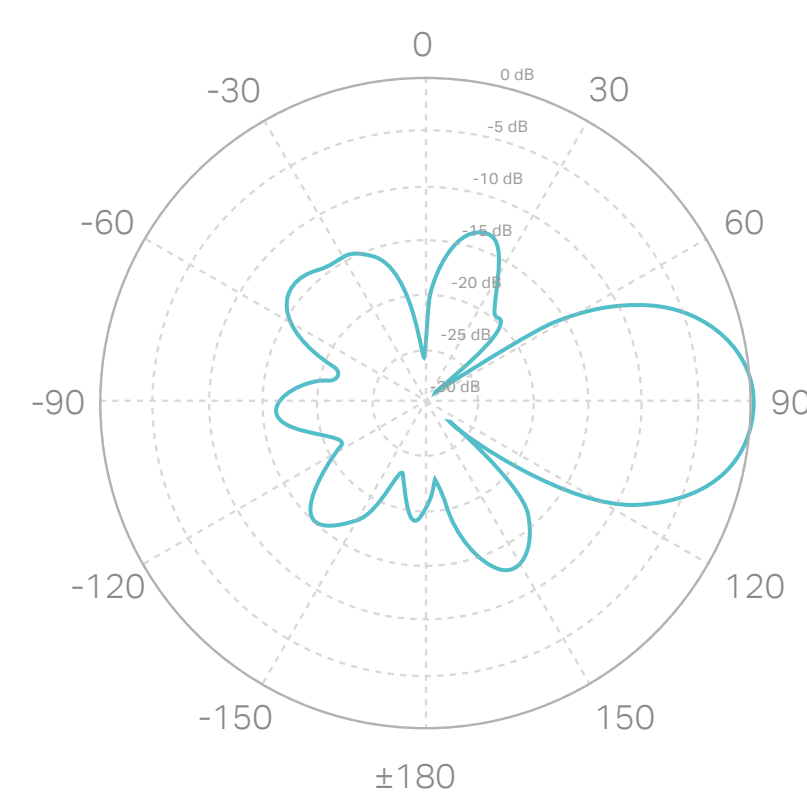
## Return Loss – Vertical Polarization



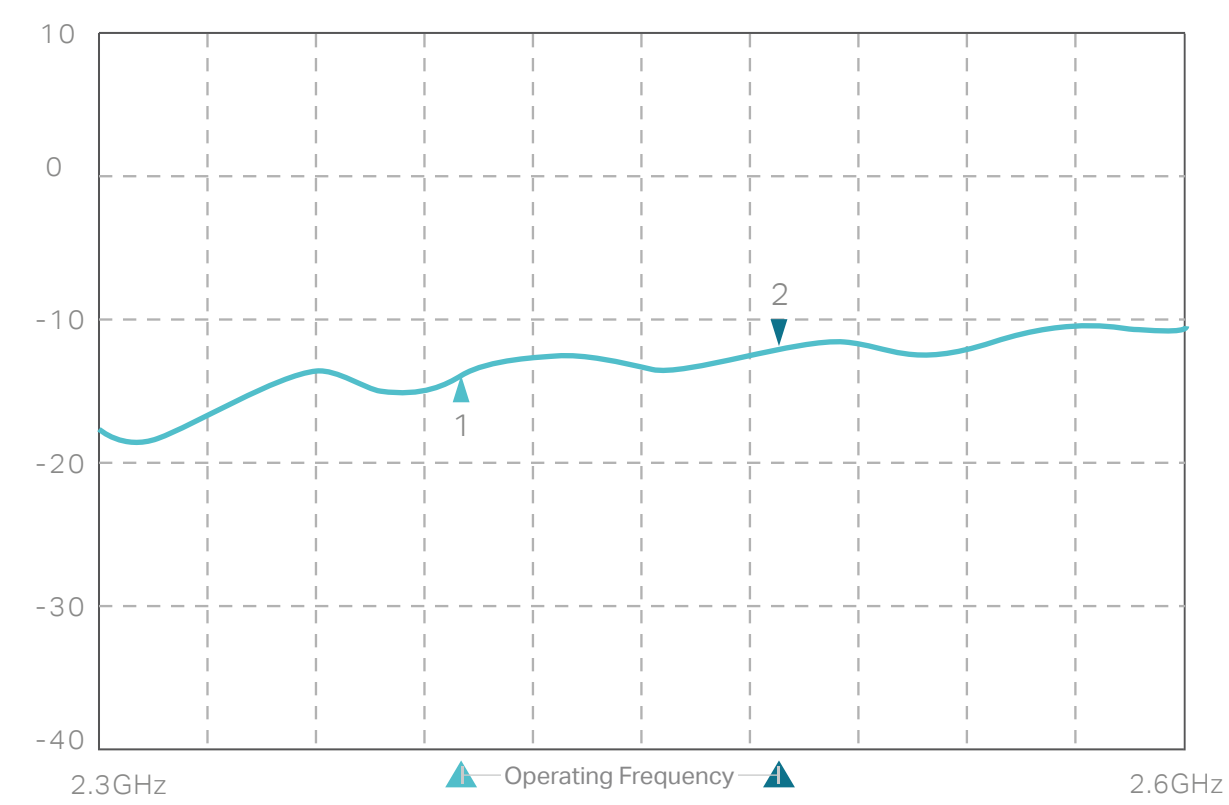
## Horizontal Azimuth



## Horizontal Elevation

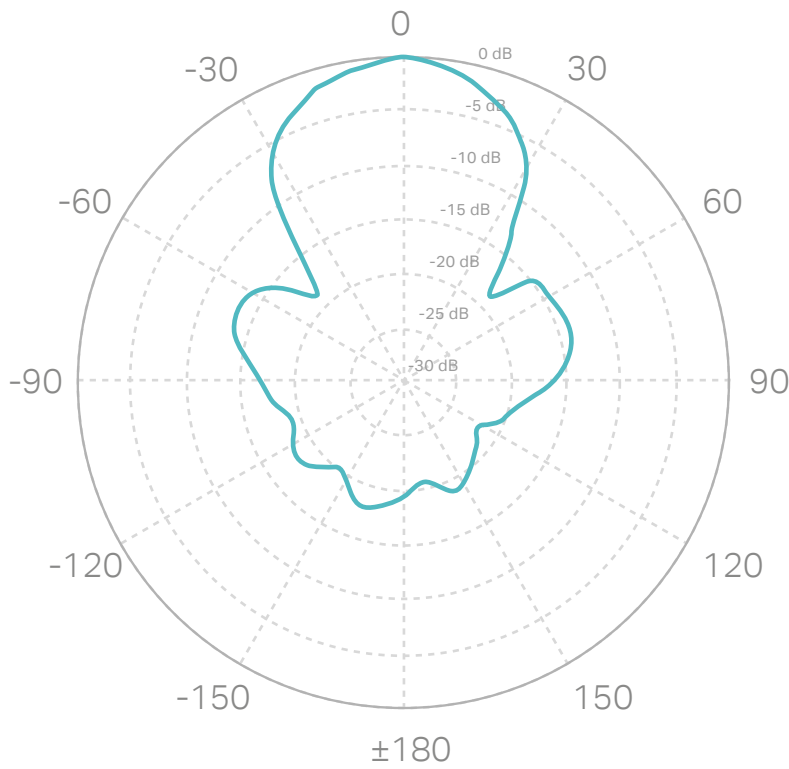


## Return Loss – Horizontal Polarization

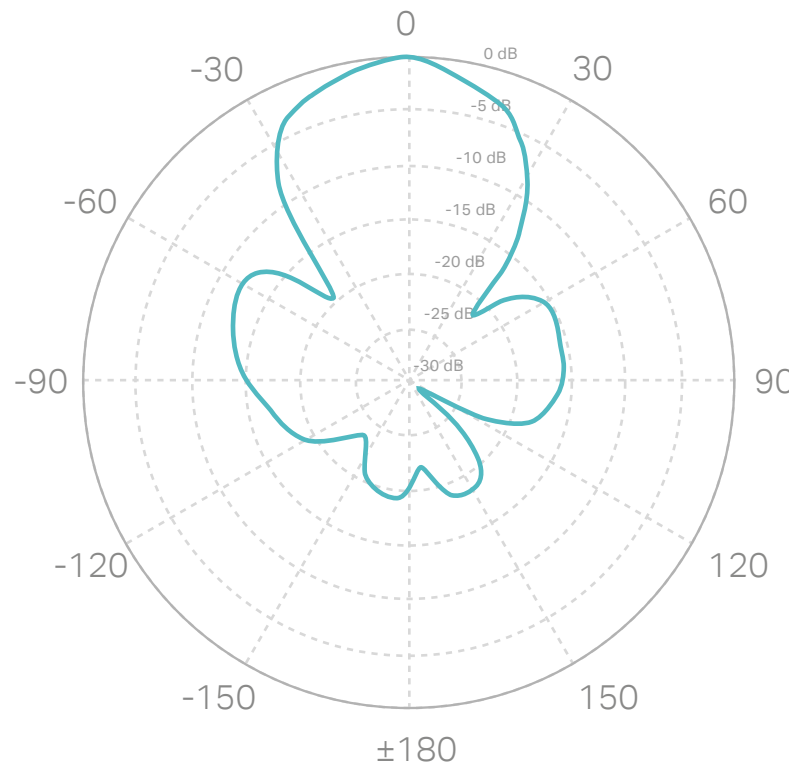


# CPE510 Antenna Patterns

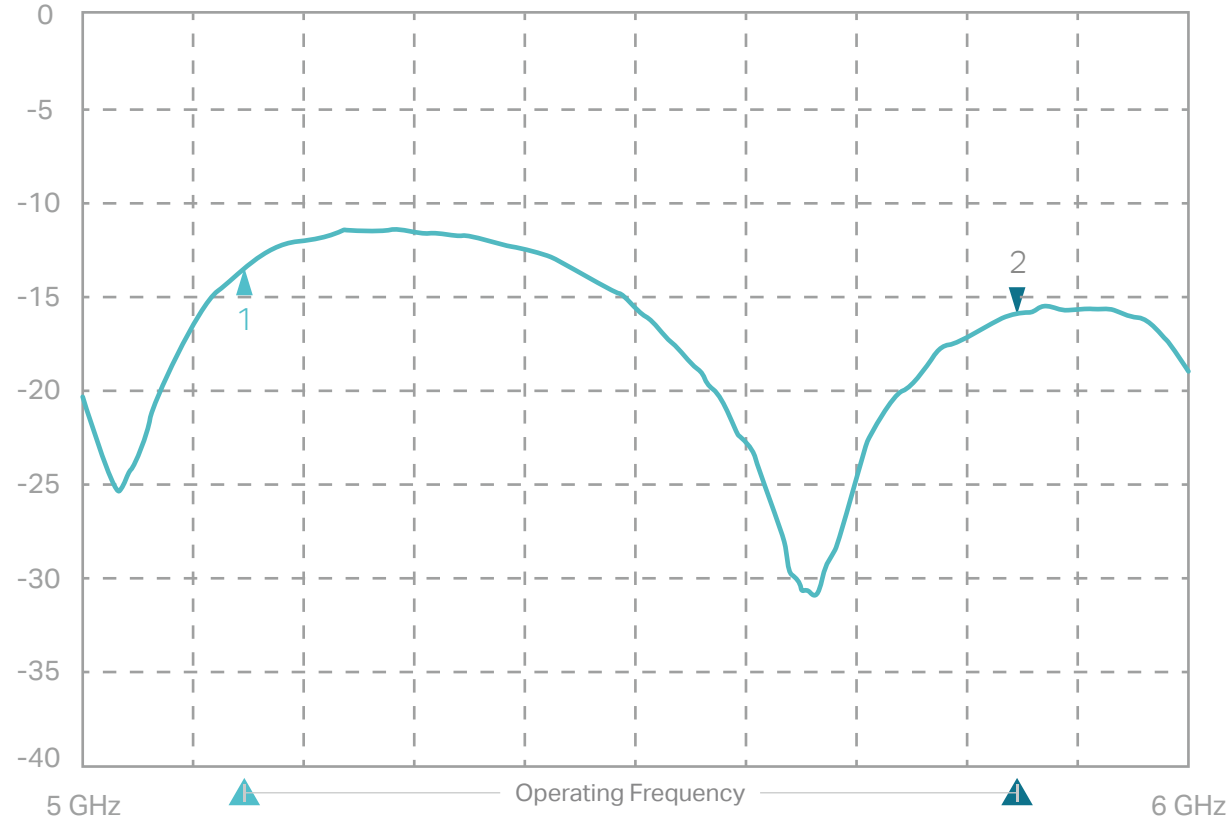
## Vertical Azimuth



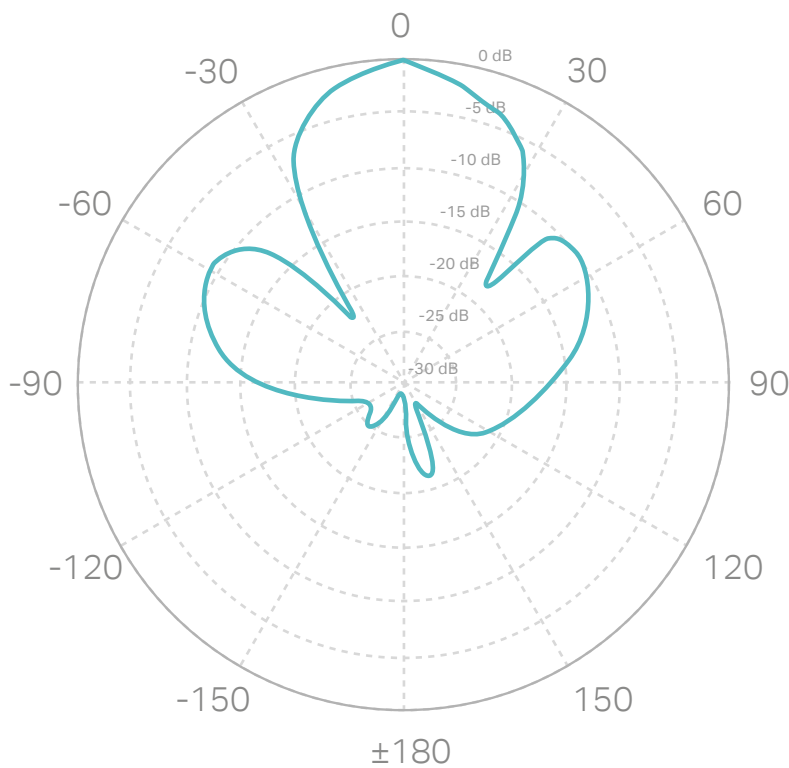
## Vertical Elevation



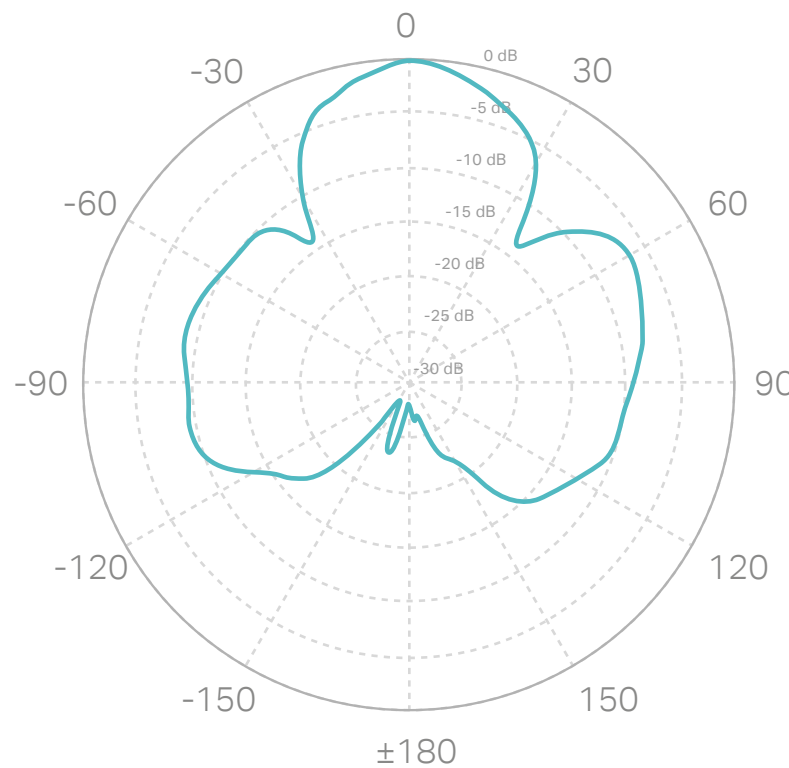
## Return Loss – Vertical Polarization



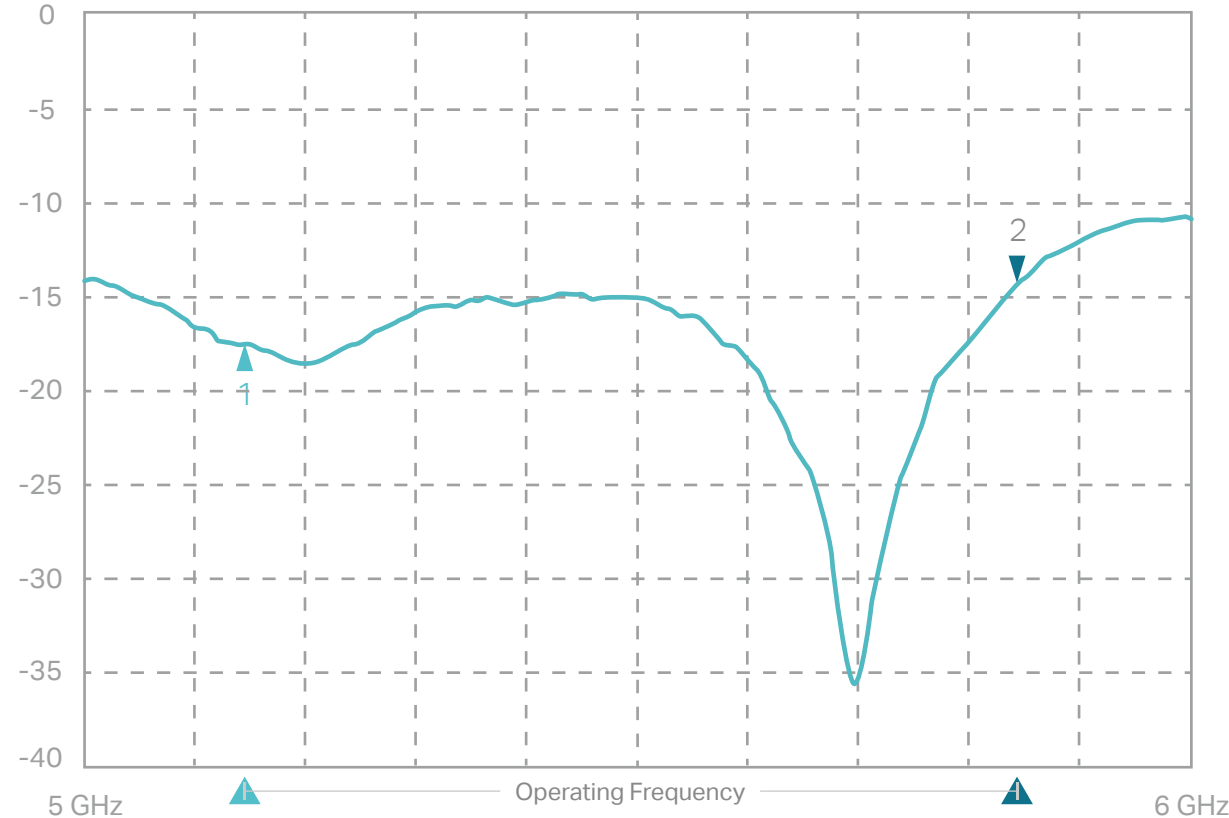
## Horizontal Azimuth



## Horizontal Elevation

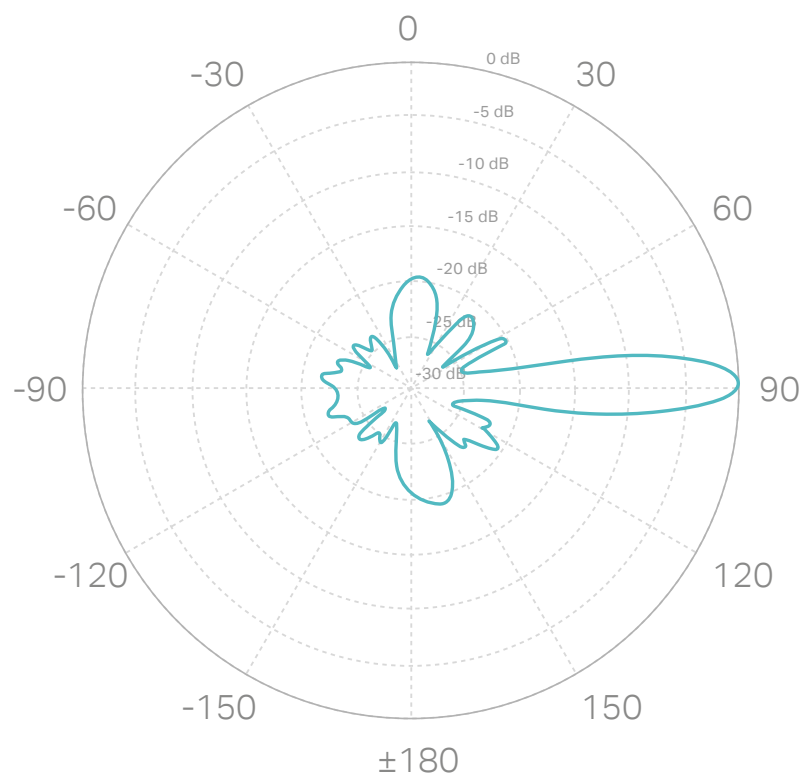


## Return Loss – Horizontal Polarization

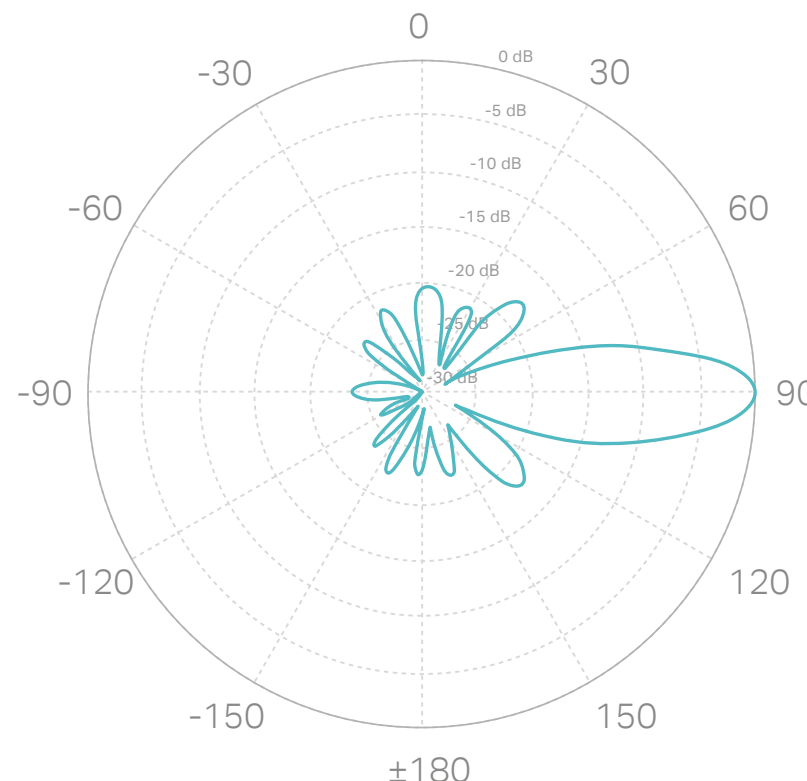


# CPE605 Antenna Patterns

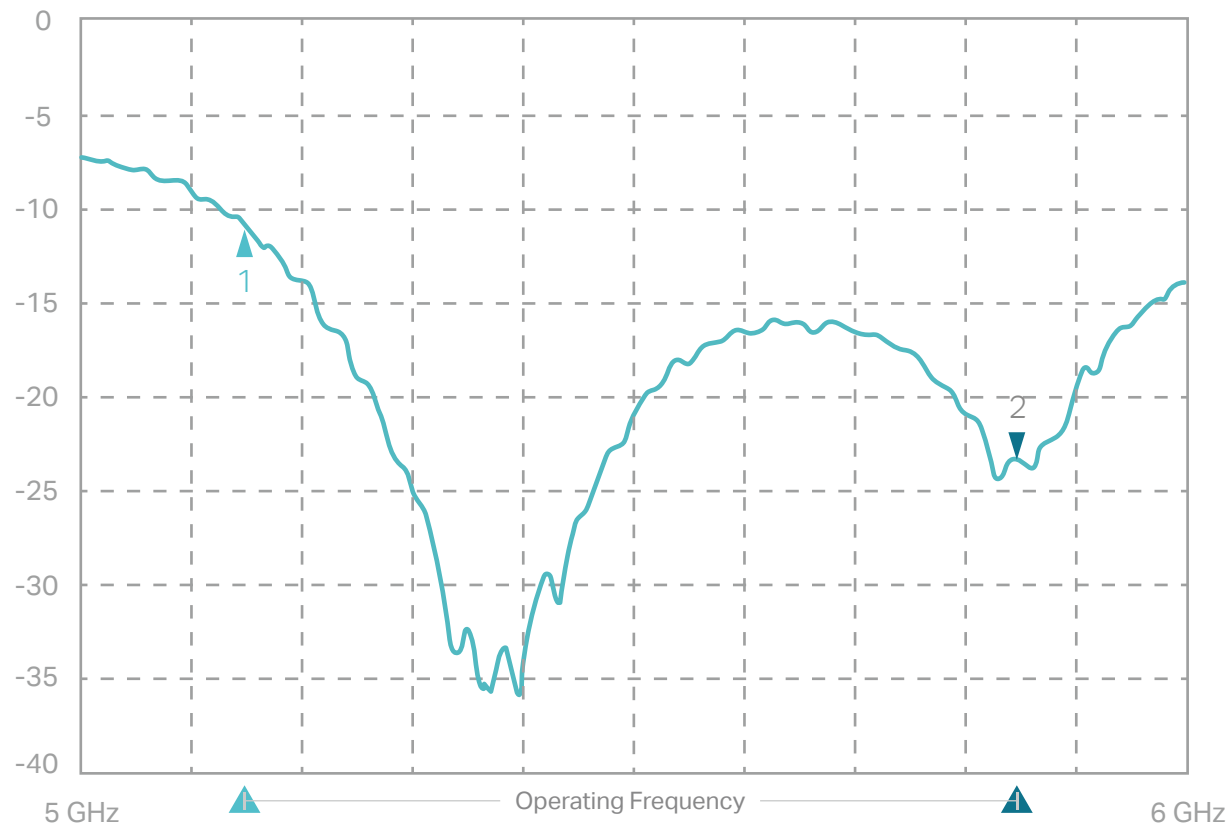
Azimuth



Elevation

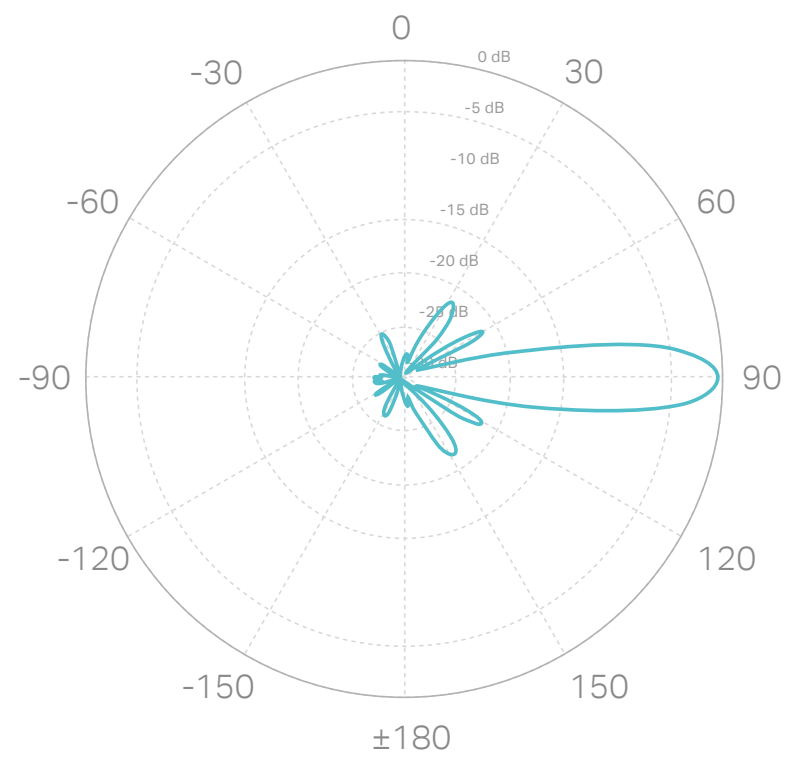


Return Loss

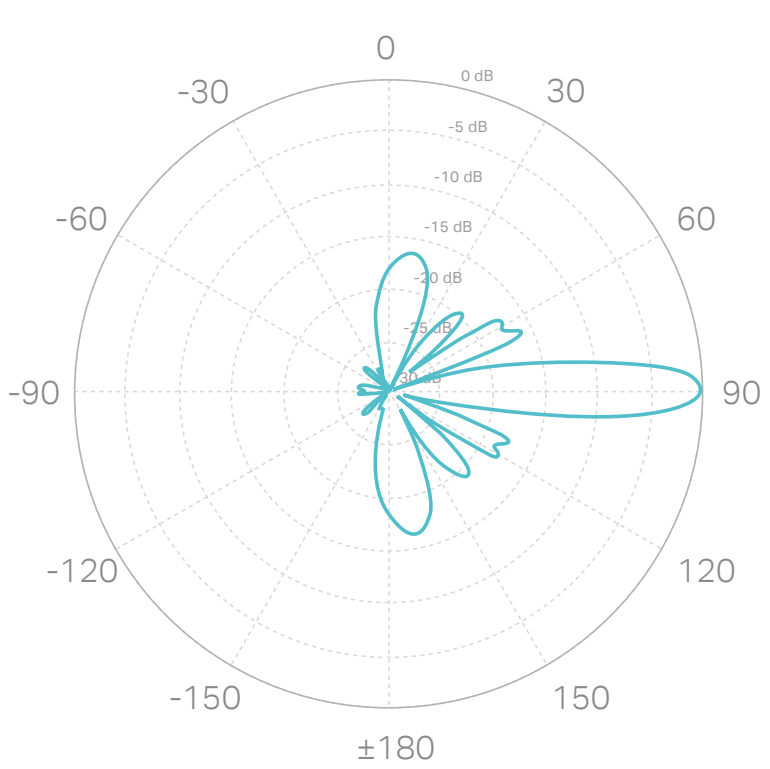


# CPE610 Antenna Patterns

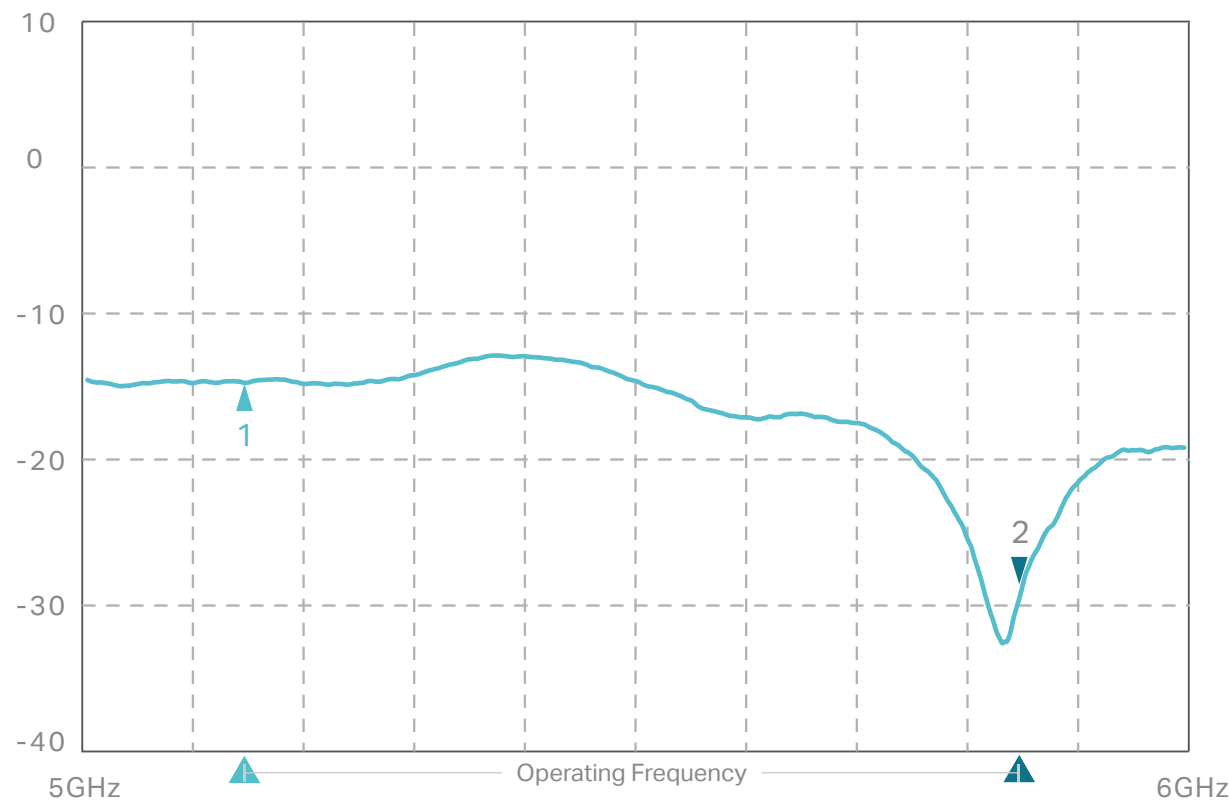
## Vertical Azimuth



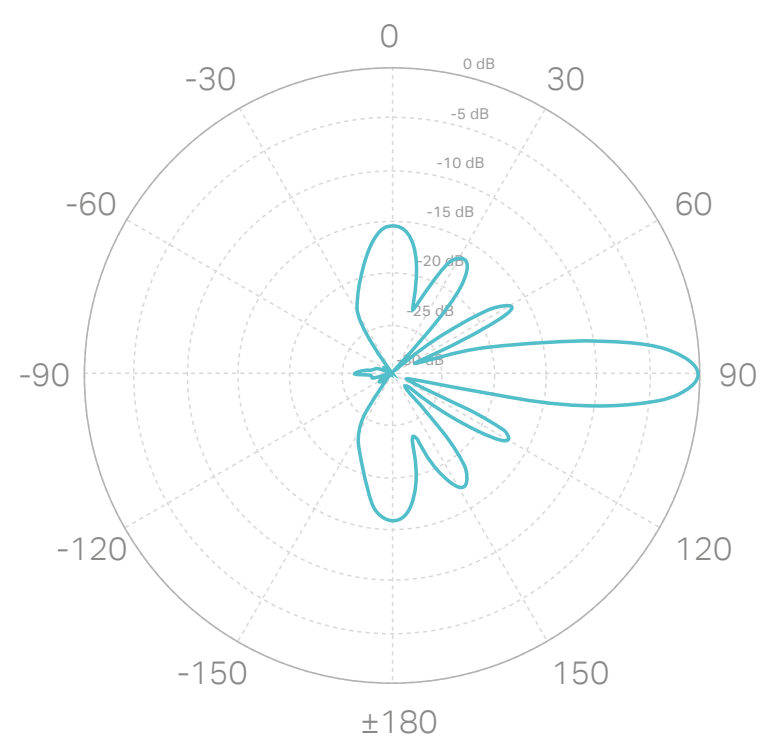
## Vertical Elevation



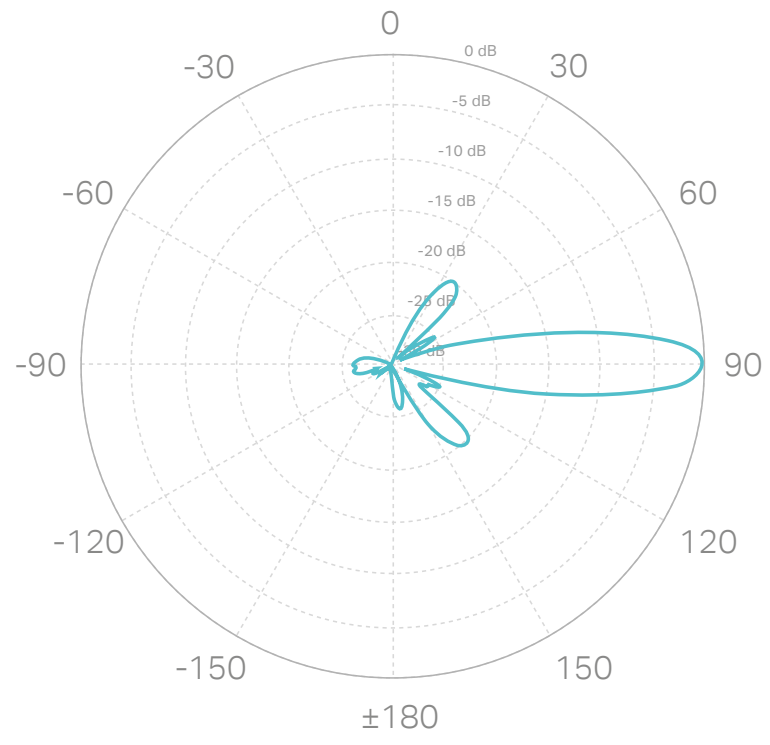
## Return Loss – Vertical Polarization



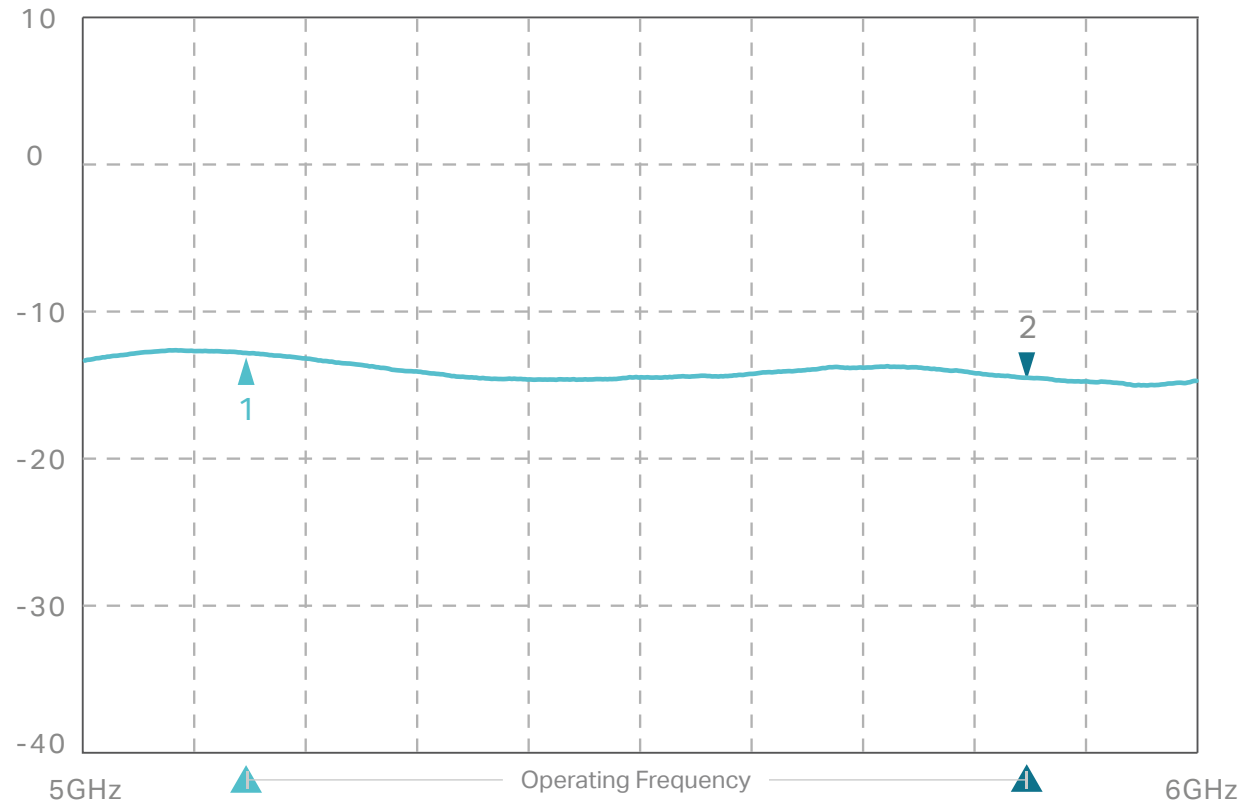
## Horizontal Azimuth



## Horizontal Elevation

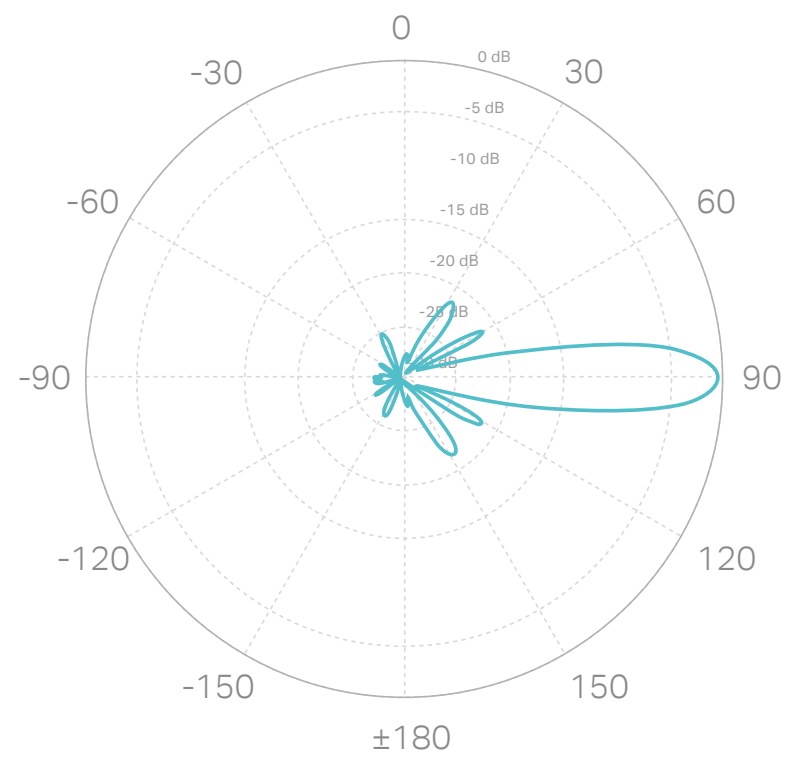


## Return Loss – Horizontal Polarization

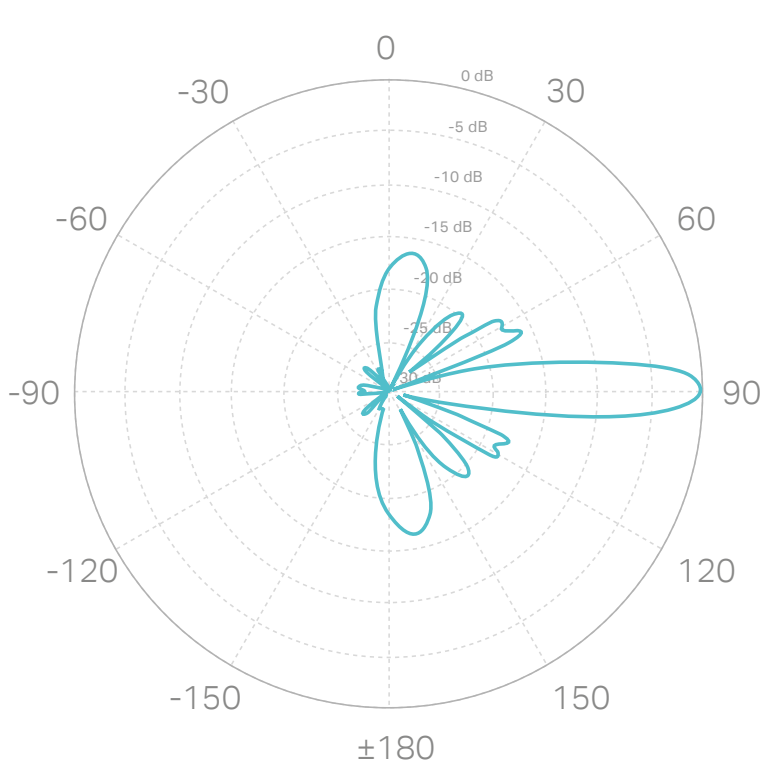


# CPE710 Antenna Patterns

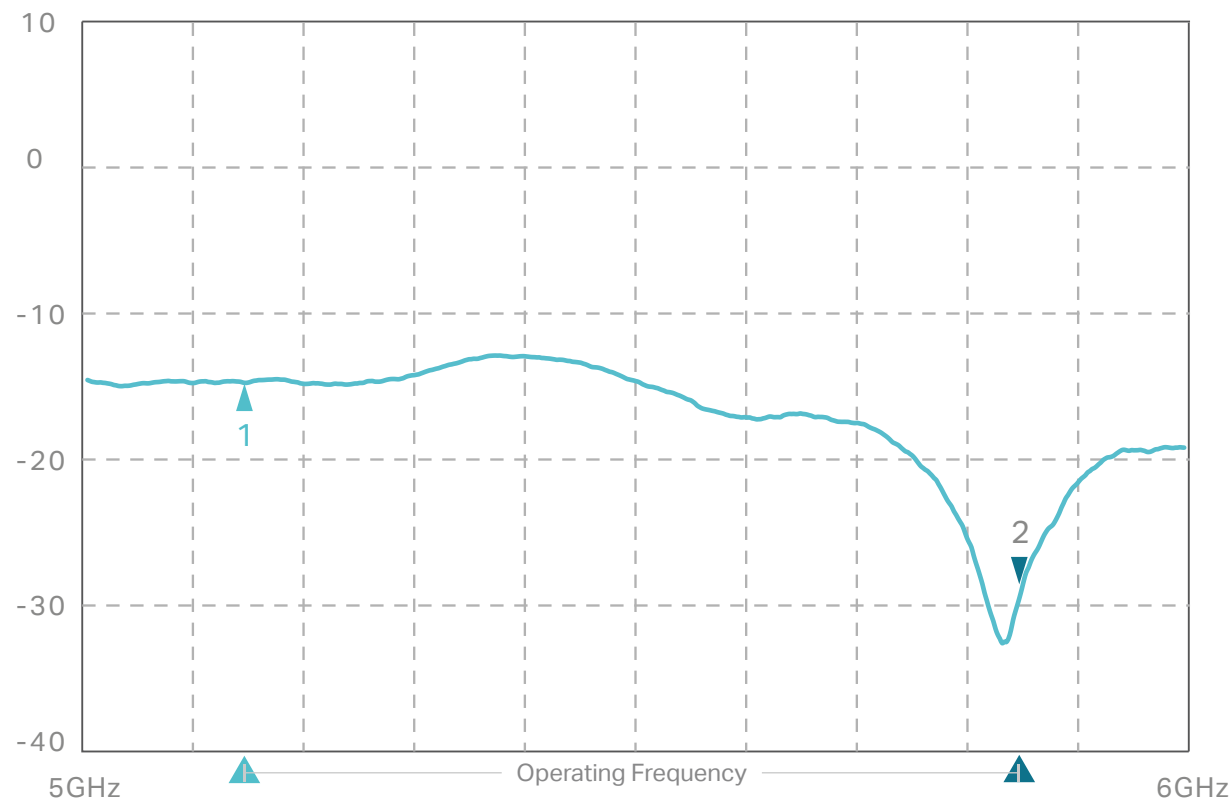
## Vertical Azimuth



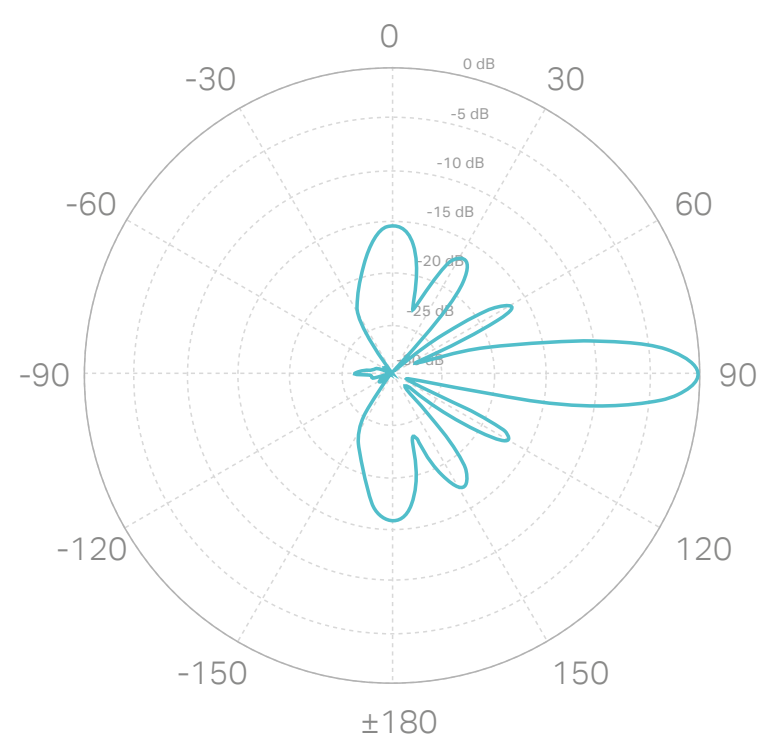
## Vertical Elevation



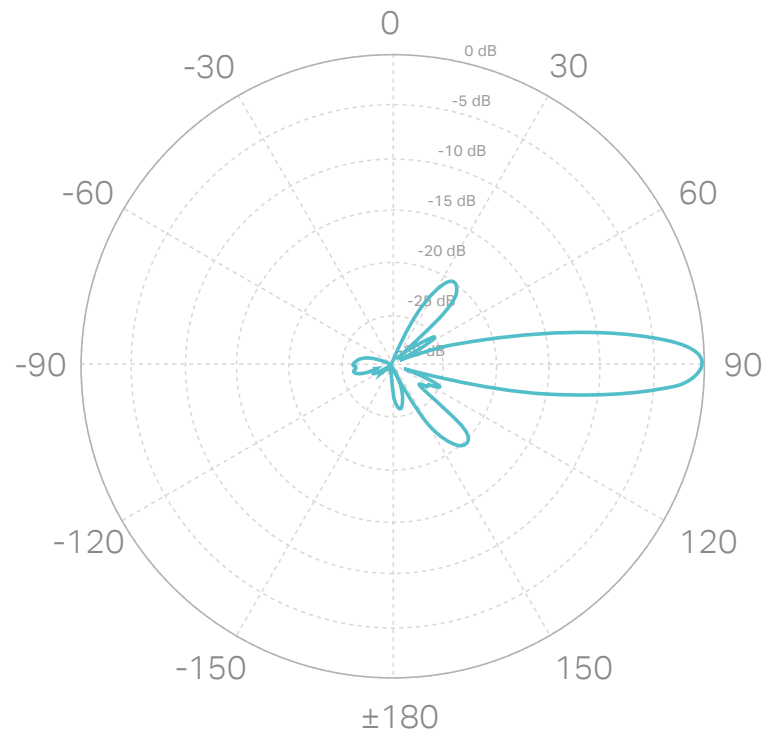
## Return Loss – Vertical Polarization



## Horizontal Azimuth



## Horizontal Elevation



## Return Loss – Horizontal Polarization

