LUCEOR

STARTMESH-PRO

StartMesh-PRO is the premium version of our routers with built-in antennas. A key component of our HyMesh solution, StartMesh-Pro combines LTE capabilities with WiMesh technology to enable data, voice and video applications. With its automatic failover capability and long-range transmission, StartMesh-Pro ensures an infrangible connectivity and broader coverage for your critical communication needs.

StartMesh-Pro is equipped with a cellular interface, Wi-Fi interface, GPS, built-in antennas, SIM adapter, four Ethernet ports, three of which support IEEE 802.3af/at to connect directly three CCTV cameras.

WIMESH + LTE/4G   BUILT-IN ANTENNA   OUTDOOR RATED

KEY FEATURES

2x2 MIMO 5GHz 802.11a/b/g/n/ac radio transceiver with useful throughput up to 500Mbps

LTE-A Cat-7 with up to 300Mbps downlink and 150Mbps uplink

Built-in 2x2 5GHz 20dBi dual-slant polarization directional antenna

Built-in 4dBi omnidirectional antenna

Automatic and intelligent switching between WiMesh and 4G to ensure reliable connectivity

4 x 10/100 Mbps Ethernet, three of which support IEEE 802.3af/at

GNSS interface (Galileo, Glonass, GPS, BeiDou)

SIM Adapter

MeshTool Suite software and web interface operate in tandem to configure, troubleshoot, and monitor the network architecture

Plug-and-Play installation

Outdoor rated: IP67, -40°C to +70°C temperature range

SYSTEM ELEMENTS

HARDWARE SPECIFICATIONS

CPU	Quad-core CPU ARM Cortex A7 up to 717MHz, 128 MB Nand Flash, 32MB Nor Flash and DDR3L 256 MB	
WLAN	Physical Layer	Complies with IEEE 802.11a/b/g/n/ac, supports 2x2 MIMO and provides a maximum rate of 866Mbps
	Frequency[1]	U-NII-1: 5180 – 5250 MHz U-NII-2A: 5250 – 5330 MHz U-NII-2C: 5470 – 5725 MHz U-NII-3: 5725 – 5825 MHz

	Modulation	OFDM : BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM		
	Max. EIRP[2,3]	47 dBm		
	RX Sensitivity[4]	nHT20	-96 dBm @ 6 Mb/s	-80 dBm @ 54 Mb/s
		HT20	-93 dBm @ MCS8	-76 dBm @ MCS15
		HT40	-90 dBm @ MCS8	-73 dBm @ MCS15
		VHT20	-93 dBm @ MCS0	-71 dBm @ MCS8
		VHT40	-90 dBm @ MCS0	-68 dBm @ MCS9
		VHT80	-88 dBm @ MCS0	-61 dBm @ MCS9
	Integrated Antenna	Gain	20 dBi	
		Polarization	Slant X	
		Beamwidth	16°/16°	
Cellular	**Interface**	LTE-A Cat-7 2x2 MIMO		
	Frequency Bands[1]	4G LTE	B1, B3, B7, B8, B20, B28, B32, B38,B40, B41, B42, B43	
		3G/ HSPA+	B1, B5, B8	
	Data Rate	Peak Downlink	300Mbps	
		Peak Uplink	150Mbps	
	Max. EIRP[2,3]	27 dBm		
	RX Sensitivity[5]	-100 dBm (Full RB on downlink; BW: 10 MHz)		
	Integrated Antenna	Gain[6]	4 dBi	
		Polarization	Vertical	
		Beamwidth	360°	
Navigation	Multi-constellation GNSS (GPS, Galileo, GLONASS, Beidou)			
	Integrated Antenna			
External Ports	3x RJ45 output ports,10/100 Mbps Ethernet, auto MDI/MDIX, active POE 802.3af/at 1x RJ45 input port ,10/100 Mbps Ethernet, auto MDI/MDIX, passive POE 1 x SIM Adapter			
LED Indicators	1 x RGB LED for RSSI and Alarm status			
Button	1 x reboot or restore button			
Power Supply	44~60 VDC Passive POE			
Power Consumption[6]	Max. < 9 W			
Dimensions	269.8 x 269.8 x 76.9 mm 10.62 x 10.62 x 3.03 in.			
Temperature	Operating temperature: -40°C to 70°C | -40°F to 176° F Storage temperature: -45°C to 105°C | -49°F to 221° F			
Humidity	Operating Humidity : 5 to +95% (non-condensing) Storage Humidity : 0 to +90% (non-condensing)			
Wind Resistance	250Km/h			
Weight	1.8 Kg 3.97 lb.			

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Wind Resistance	250Km/h
Weight	1.8 Kg 3.97 lb.
IP code	IP67
Materials	ABS, PTFE,

[1]Channel, Frequency Channel, frequency and bandwidth options will vary based upon regional and local regulations
[2]Transmission power is governed by local regulations and varies by frequency
[3]EIRP Tolerance is ±2 dB
[4]RX sensitivity Tolerance is ±2 dB
[5]Cellular RX sensitivity depends on the LTE bands
[6]Power consumption depends on transceiver configuration

SOFTWARE SPECIFICATIONS

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Networking	Compliance with 802.11s Mesh networking
	Compliance with IEEE 802.1q
	Proactive link-state routing protocol for Mesh networking
	SSID-based VLAN assignment
	Service set identifier (SSID) hiding
	Automatic and manual rate adjustment
	Automatic channel scanning and interference avoidance
	Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx)
	VLAN trunk on uplink Ethernet ports
	Management channel of the AP uplink port in tagged and untagged mode
	DHCP client, obtaining IP addresses through DHCP
	Tunnel data forwarding and direct data forwarding
	STA isolation in the same VLAN
	Access control lists (ACLs)
	Link Layer Discovery Protocol (LLDP)
	Network Address Translation (NAT)
	Virtual Router Redundancy Protocol (VRRP)
	Supports IPv6/ IPv4, UDP, TCP, ICMP, Telnet, SNMP, HTTP and FTP protocols
	Static IP, dynamic IP or zero-configuration deployment
Management	Web local management through HTTP or HTTPS
	Real-time configuration monitoring and fast fault location using the NMS
	SNMPv2c and v3
	System status alarm
	Network Time Protocol (NTP)
	Control and Provisioning of Wireless devices
	Remote software update

Security	Open system authentication
	WPA/WPA2/WPA-WPA2-PSK authentication and encryption
	Wireless intrusion detection system (WIDS) and wireless intrusion prevention system (WIPS)
	WPA/WPA2/WPA-WPA2-802.1x authentication and encryption with MAC address authentication, and Portal authentication
	802.1x authentication, MAC address authentication, and Portal authentication
	DHCP snooping
	IP Source Guard
	VPN / L2TP with AES encryption
	WPA, WPA2, and WPA-WPA2 support TKIP and CCMP encryption algorithms, where CCMP uses 128-bit advanced encryption standard (AES) encryption algorithm and has high security
QoS Features	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	WMM parameter management for each radio
	WMM power saving
	Priority mapping for upstream packets and flow-based mapping for downstream packets
	Queue mapping and scheduling
	User-based bandwidth limiting
	Adaptive bandwidth management (automatic bandwidth adjustment based on the user quantity and radio environment)

STANDARDS AND CERTIFICATIONS

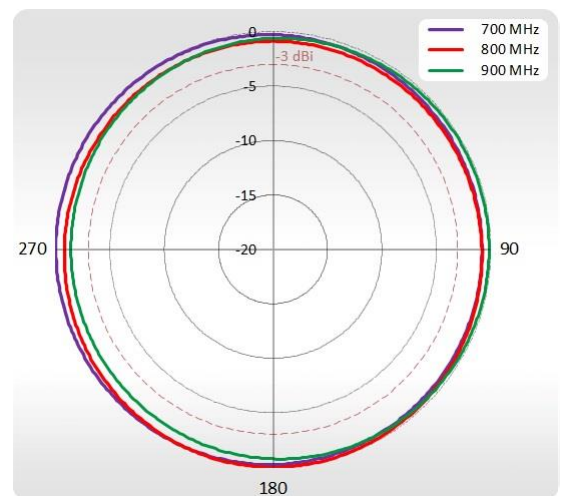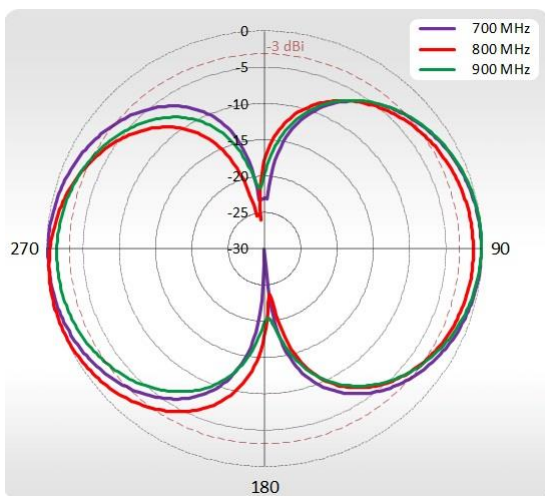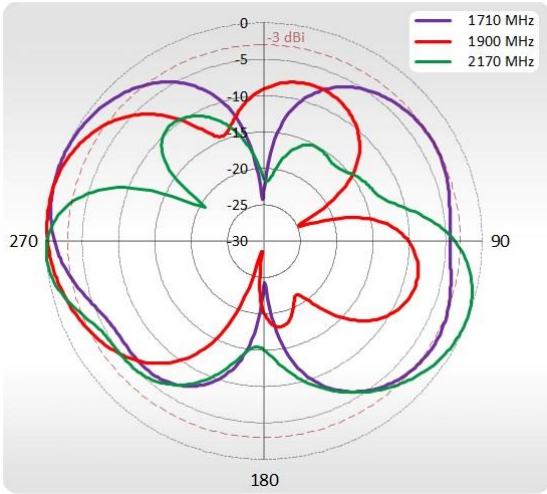|	
FCC	Part 15.C Part 15.E Part 15.247 Part 15.407 Part 1.1310 & 2.1091 Part 15.203 Part15.207 Part 15.205 Part 15.209
Environmental	IEC 60529 (IP67) RoHs compliance

LTE Antenna VSWR
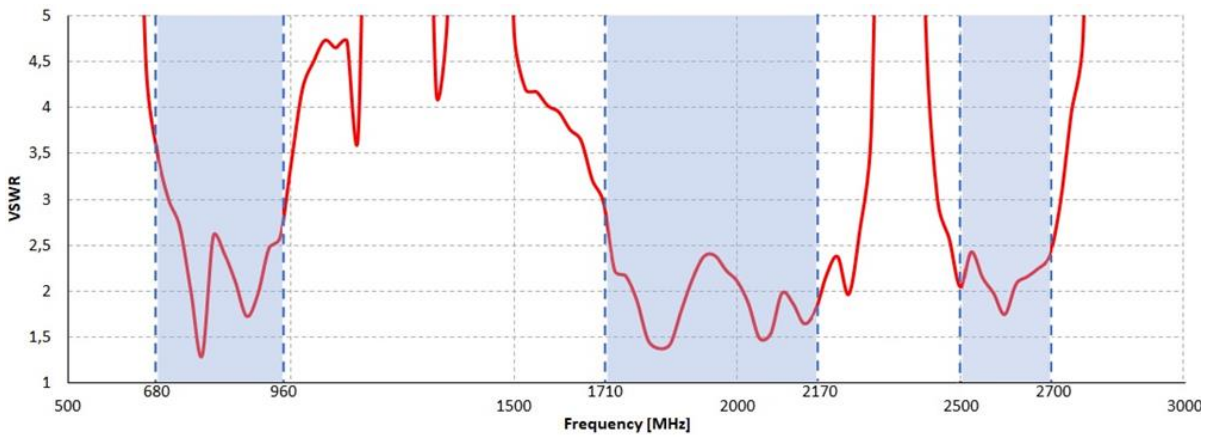
LTE Antenna Gain
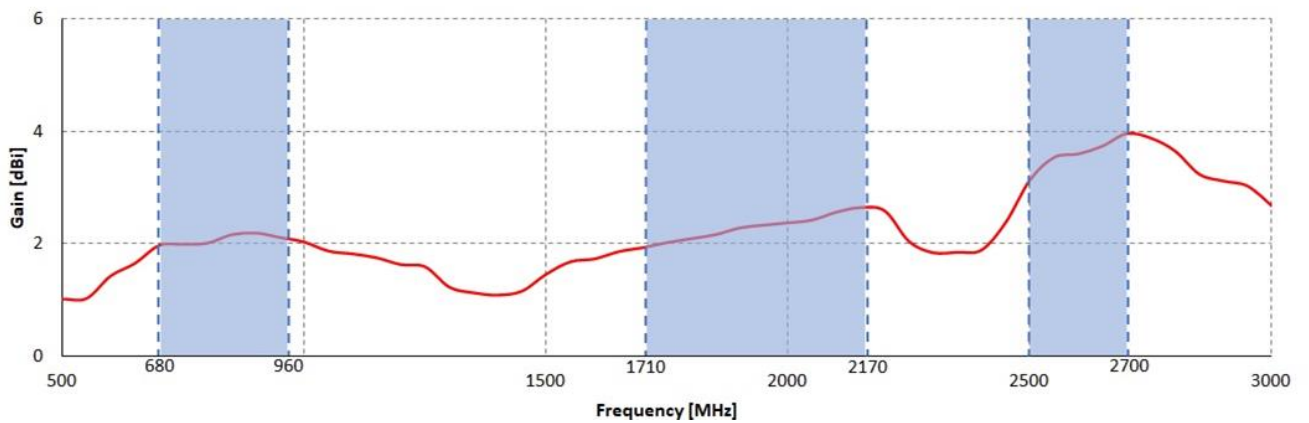
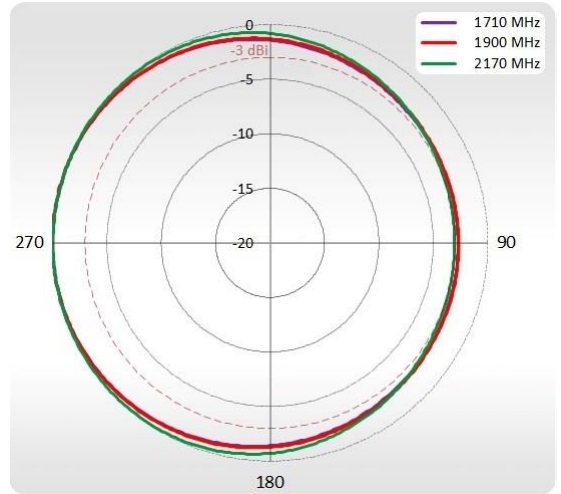## LTE ANTENNA PATTERNS
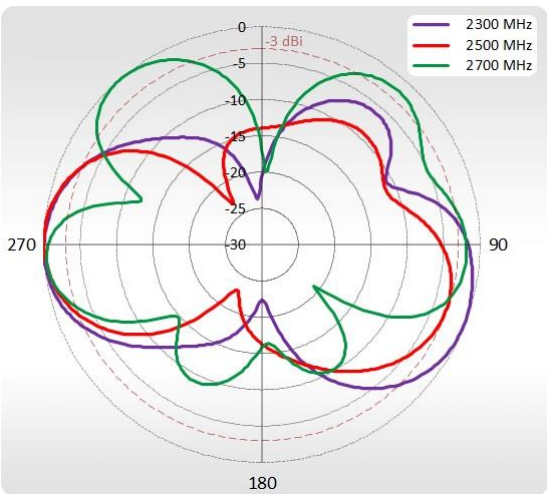
700-900 MHz Elevation

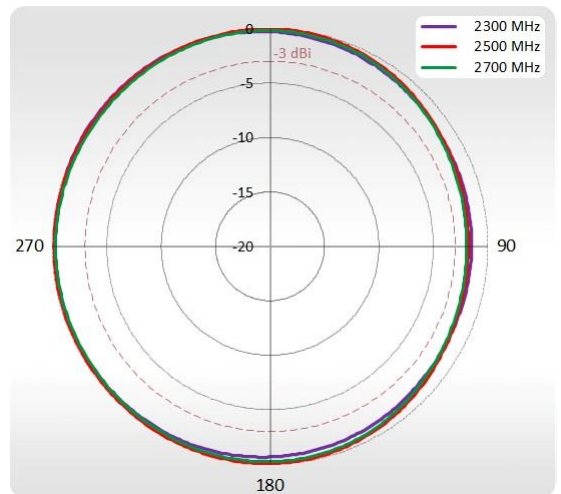**700-900 MHz Azimuth**

1710-2170 MHz Elevation
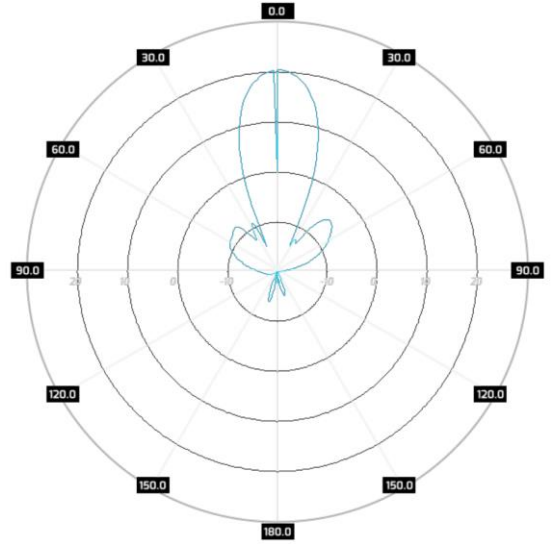

1710-2170 MHz Azimuth

2500-2700 MHz Elevation

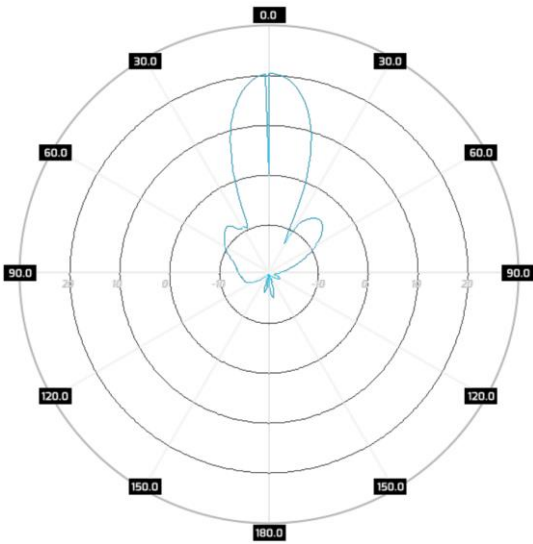## 2500-2700 MHz Azimuth

5GHz ANTENNA PATTERNS
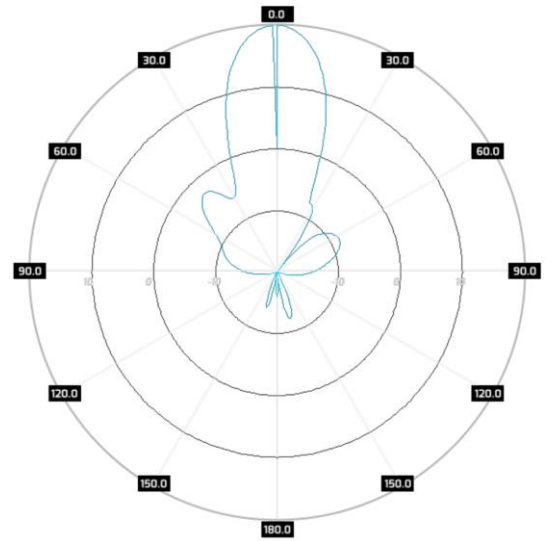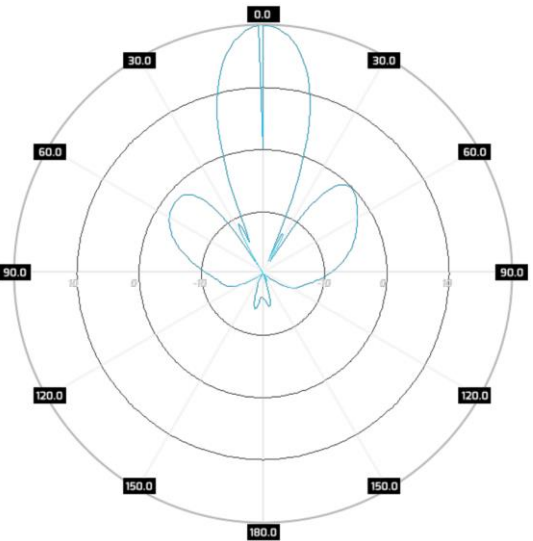
Port 1 Elevation   **Port 1 Azimuth**

Port 2 Elevation   **Port 2 Azimuth**

DIMENSIONS

148,5 [5,85"]   76,9 [3,03"]

277 [10,90"]

99,7 [3,93"]

269,8 [10,62"]

PORT 1   PORT 2   PORT 3   PORT 4

66 [2,59"]
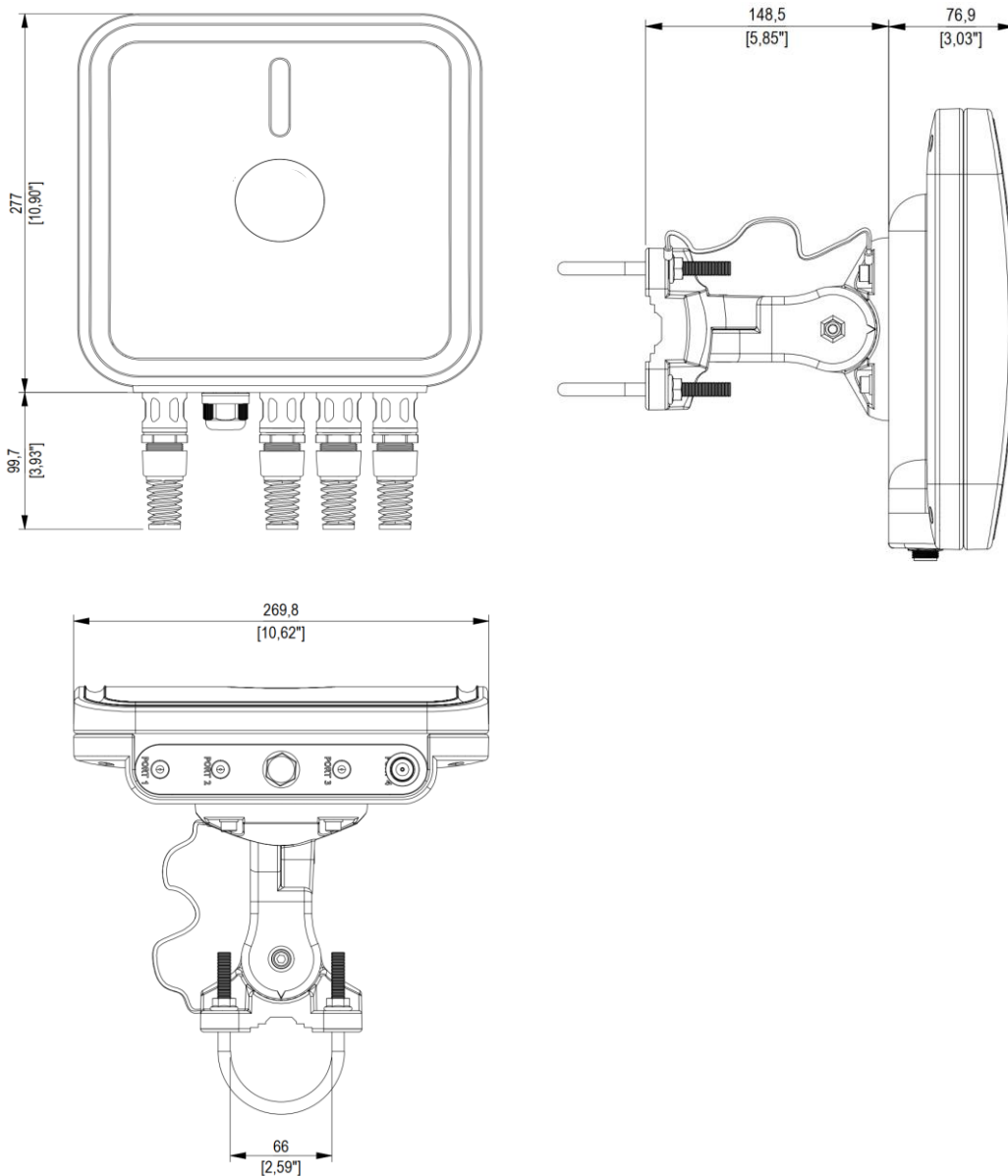
ORDERING INFORMATION

OWR-100AC-A-IA20-4G	StartMesh-PRO with one 5GHz, 2x2 MIMO, 802.11a/b/g/n/ac and one LTE-A Cat-7, 2x2 MIMO transceivers and one integrated antenna, 20dBi.
	AL-002: 100-240VAC 0.8A Max 50/60HZ / 56VDC 1A passive POE power supply