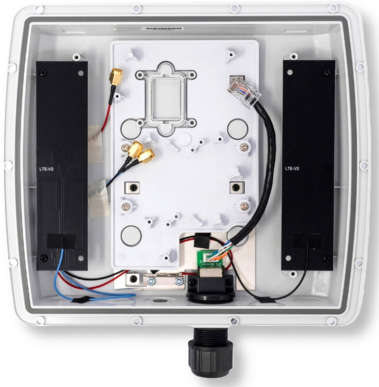
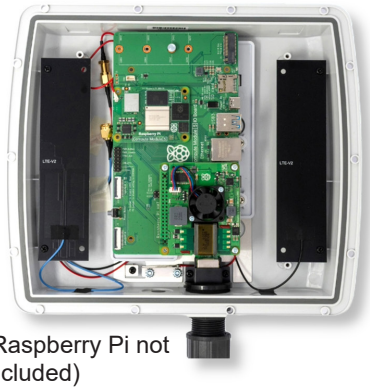
Raspberry Pi Compute Module And Development Kit

RoHS Compliant



IP67 “Installation Ready”



(Raspberry Pi not included)

Description:

Raspberry Pi Omnidirectional Antenna Enclosure Development Kit – 2x2 MIMO Supports: 4G/LTE, 5G, 5G RedCap, Wi-Fi, Bluetooth | Optional GPS Module

Unlock advanced wireless connectivity for your Raspberry Pi projects with this all-in-one Omnidirectional Antenna Enclosure Development Kit, featuring 2x2 MIMO technology for optimal signal performance.

Key Features:

• Wide Frequency Compatibility: Supports 4G/LTE, 5G, 5G RedCap, dual-band Wi-Fi (2.4GHz & 5GHz), and Bluetooth communications.
• 2x2 MIMO Configuration: Enables improved data throughput, reduced latency, and robust wireless performance, ideal for high-demand IoT, mobile, or edge-computing applications.
• Omnidirectional Antenna Design: Ensures 360° coverage and consistent signal strength, even in dynamic environments.
• Integrated Enclosure: Custom-designed to securely house Raspberry Pi boards and antenna modules, offering protection and simplified setup.
• Optional GPS Module: Expand functionality with precise GNSS positioning—perfect for mobile, remote monitoring, or location-aware systems.

Ideal for:

Edge computing, remote IoT gateways, smart transportation systems, wireless development and testing, or any project requiring high-reliability wireless connectivity in a compact format.

Applications

• IP67/rated
• Robust
• Wide Temp. Range

Kit Contents

• IP67 / NEMA6 high-impact polycarbonate Enclosure
• Embedded Antennas: 2 x 4G / LTE, 5G, 5G Redcap + 1 Wi-Fi, Bluetooth embedded omni antennas
• RJ45 Cat 5e complete with cable gland
• Universal mounting board for various Raspberry Pi models
• Fast Slide-In Mounting Bracket: Stainless steel (304), corrosion resistant with vertical or horizontal positioning options

Features

Embedded Cellurar Omni Antenna 1&2:

- 2x Multi-band 2x2 MIMO
- Antenna 1 4G/LTE + 5G + Redcap
- Antenna 2 4G/LTE + 5G + Redcap
- Frequency 617-960 / 1710-2170 / 2300-2690 / 3300-4200 MHz
- Efficiency 43% - 78%
- Peak Gain
- Antenna 1 6.1 dBi
- Antenna 2 6.3 dBi
- Output Impedance 50 ohm
- Output VSWR 1 min

Embedded Wi-Fi & Bluetooth Antenna3:

- 1 x dual-band
- Frequency 2400-2500 / 5150-5850 MHz
- Efficiency 66% - 77%
- Peak Gain 6.2 dBi
- Output Impedance 50 ohm
- Output VSWR 1 min

Outdoor Enclosure:

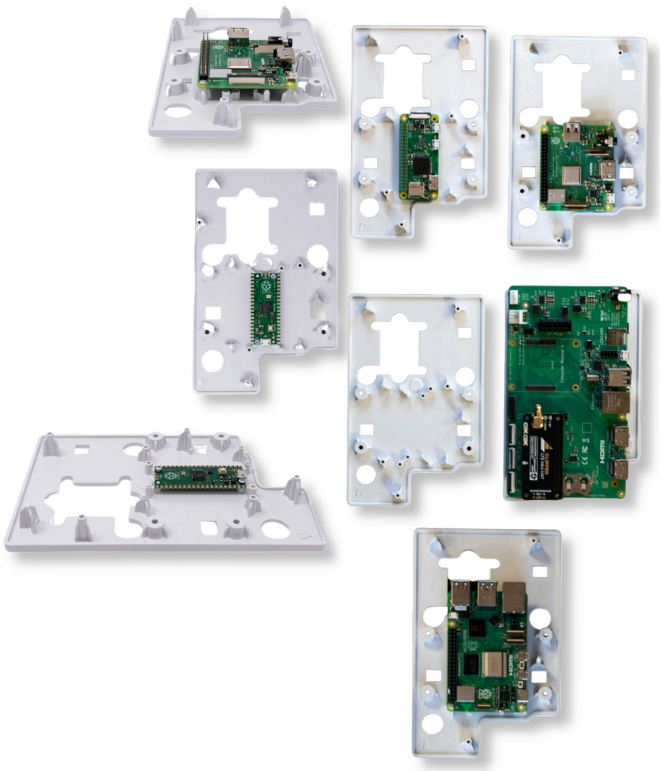
- Material : Enclosure & Antenna - High Impact Polycarbonate - UV Resistant; Ext Mounting Bracket - Stainless Steel 1.8mm SU304
- IP67 / NEMA6 water and dustproof
- Optional I/O M25 Port with USB-c / RJ45 (Cat5e)
- Temperature Range: -20°C to +70°C
- Humidity: 95% @ 55°C
- Gore® External Temperature Vent
- Weight Enc + Lid: 860g (inc mounting board)
- Quick Slide mounting bracket (fixed/pole, vertical/horizontal pole) SUS304 stainless steel
- Wind Speed Tolerance 240 Km/h

Enclosure External Dimensions:

- Base Unit L220 x W250 x D50 mm (W - 250 narrowing to 235mm)
- Enc + Lid L220 x W250 x D52 mm
- Lid Only L 189 mm x W225 - W213 x D7 mm

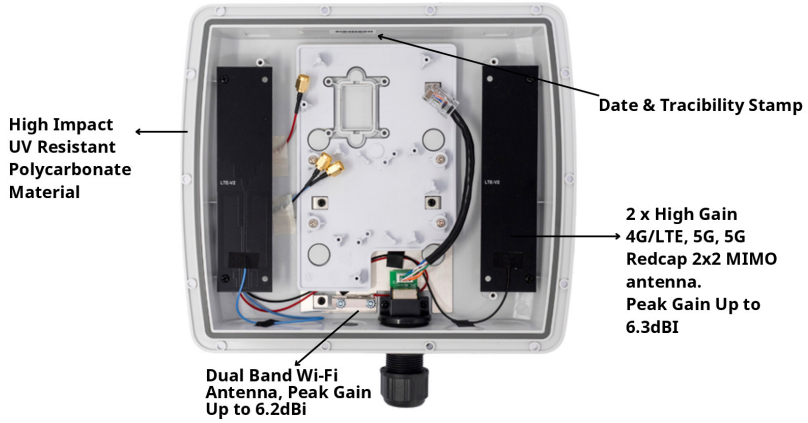
Enclosure Internal Dimensions:

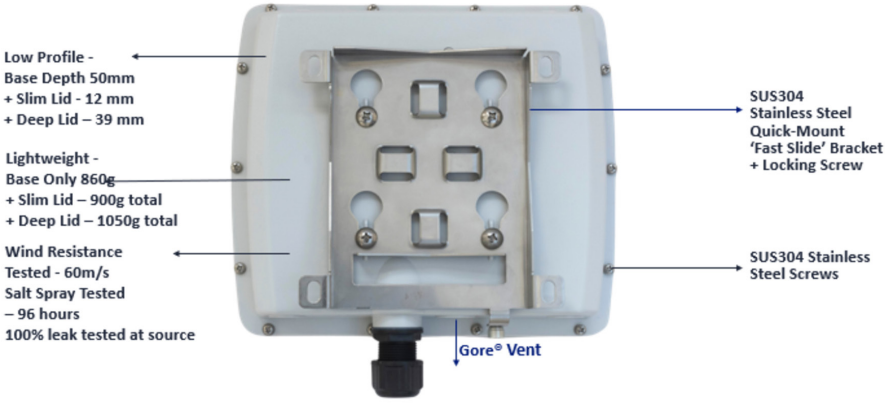
- Base Unit L 189 mm x W219-W205 x D35 mm
- W - 219 narrowing to 205 mm
- D - From Base Plate - 35 mm
- D - From Highest Pillar - 27 mm



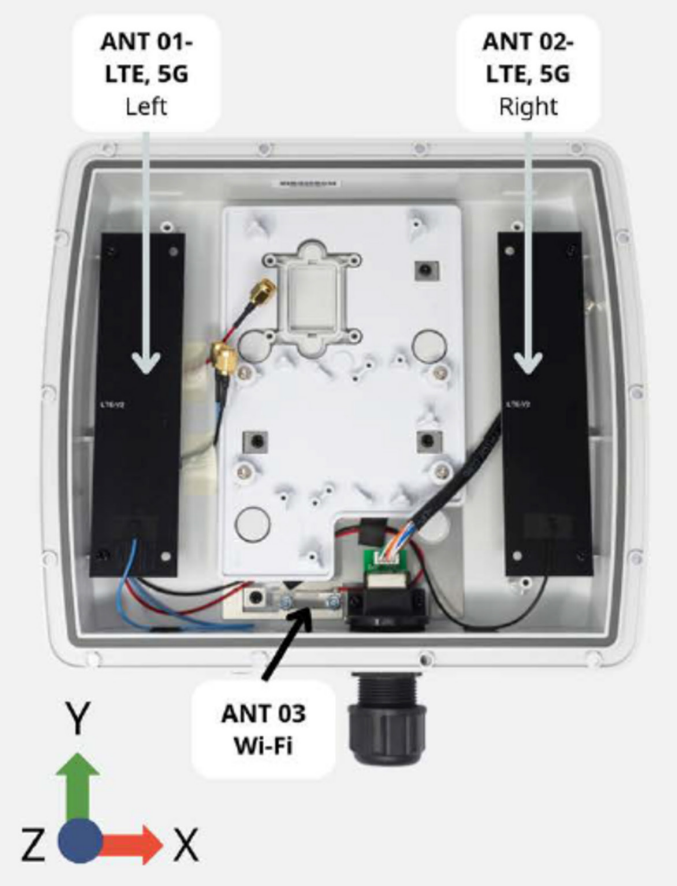
The mounting board gives flexibility to accomaodate multiple compute modules, top hats and accessories protected within the IP67 robust polycarbonate housing compatible with:

Raspberry Pi Pico
Raspberry Pi Zero
Raspberry Pi 3V
Raspberry Pi 4
Raspberry Pi 5
+ compute modules
Raspberry Pi 3
Raspberry Pi 4
Raspberry Pi 5
Raspberry Pi 5 IO





Omni Antenna Definition Diagram



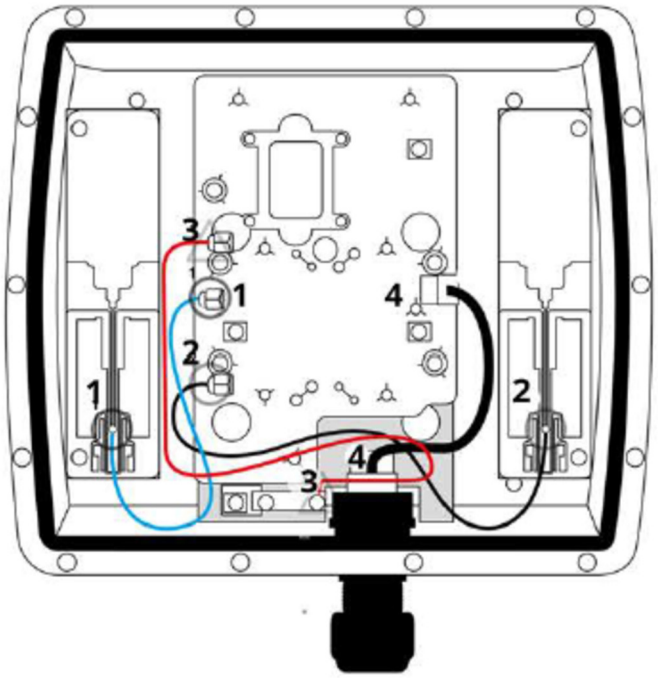
LTE, 5G - ANT 01 / ANT 02

617 - 960 MHz
1710 - 2170 MHz
2300 - 2690 MHz
3300 - 4200 MHz

Wi-Fi - ANT 03

2400 - 2500 MHz
5150 - 5850 MHz

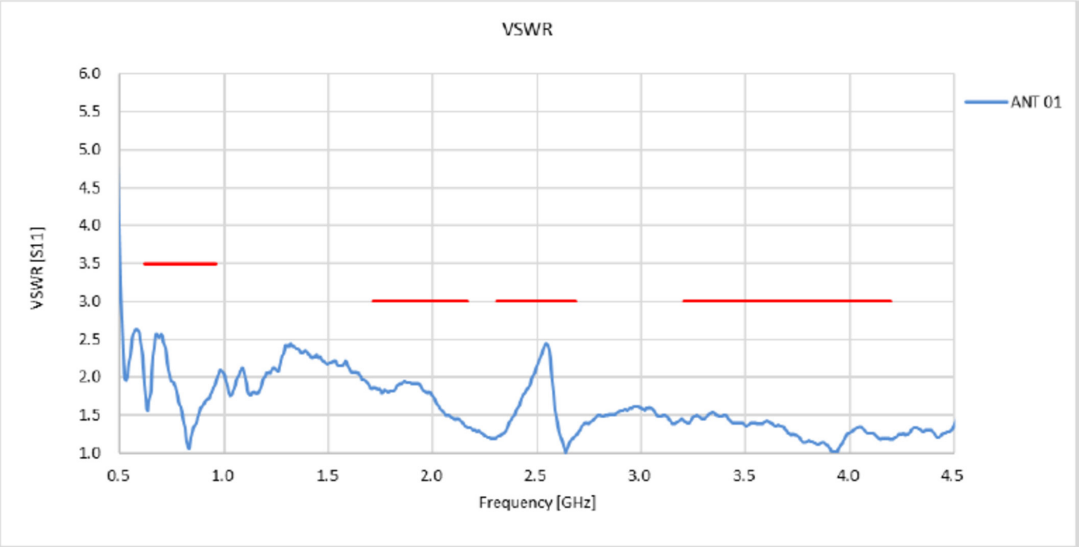
Omni Antenna Connection Diagram



1. 4G/LTE, 5G antenna left hand (**blue**) cable
2. 4G/LTE, 5G antenna right hand (**black**) cable
3. Wi-Fi antenna (**red**) cable
4. 2 x 4 pin housing to RJ45 (Cat 5e) 150mm cable (LAN)

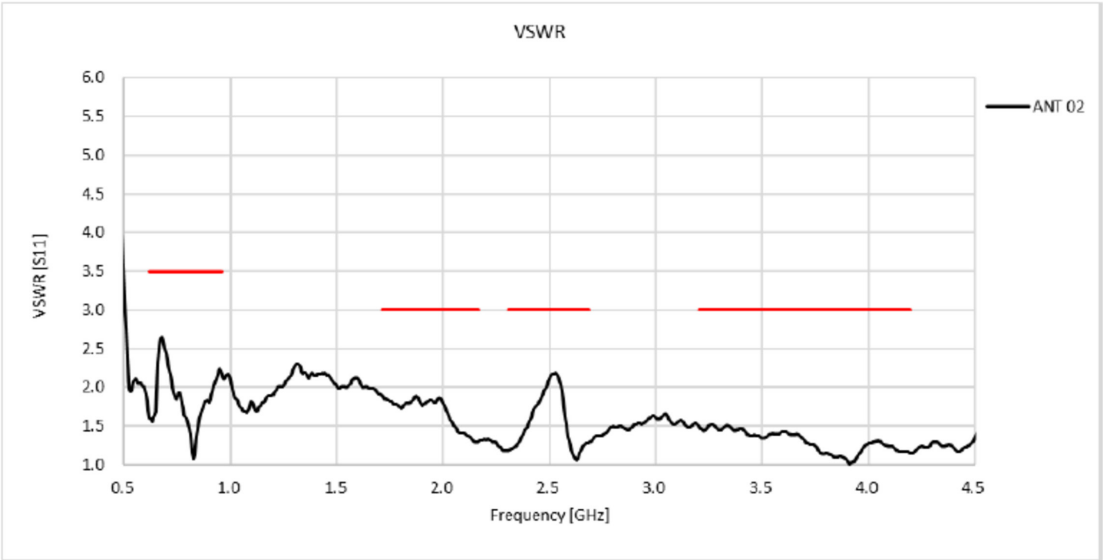
S-Parameters : VSWR - ANT 01 (4G/LTE, 5G)

Frequency (MHz)	ANT 01	Frequency (MHz)	ANT 01	Frequency (MHz)	ANT 01	Frequency (MHz)	ANT 01
617	2.1	1710	1.8	2300	1.2	3300	1.5
960	1.5	2170	1.7	2690	2.2	4200	1.4
698-960 MAX.	2.5	1710-2170 MAX.	2.0	2300-2690 MAX.	2.5	3300-4200 MAX.	1.5



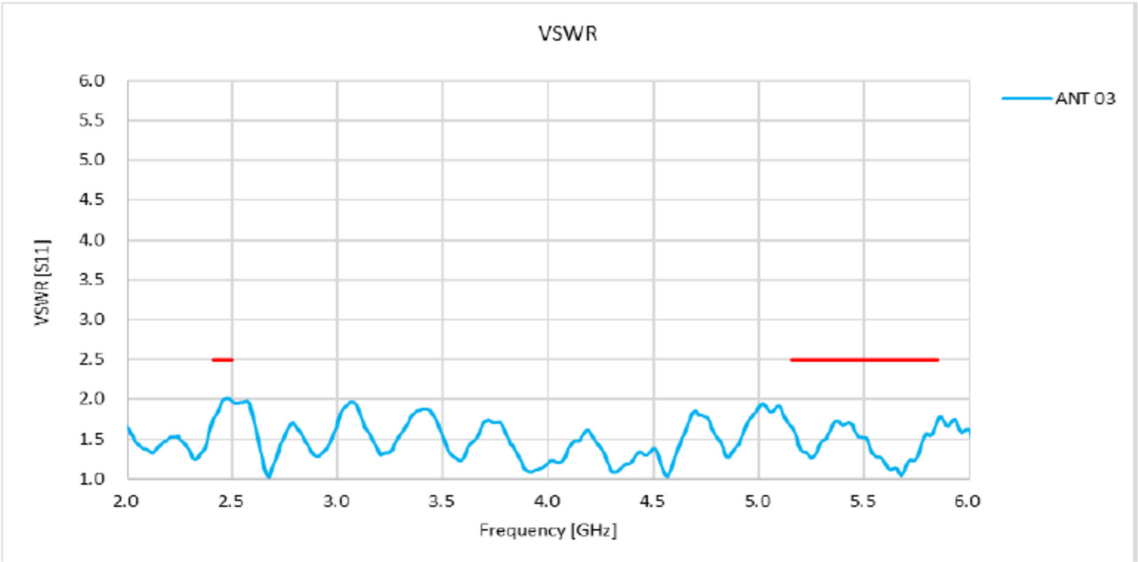
S-Parameters : VSWR - ANT 02 (4G/LTE, 5G)

Frequency (MHz)	ANT 01	Frequency (MHz)	ANT 01	Frequency (MHz)	ANT 01	Frequency (MHz)	ANT 01
617	1.7	1710	1.9	2300	1.2	3300	1.4
960	1.6	2170	1.8	2690	2.1	4200	1.4
698-960 MAX.	2.7	1710-2170 MAX.	1.9	2300-2690 MAX.	2.2	3300-4200 MAX.	1.5



S-Parameters : VSWR - ANT 03 (WiFi)

Frequency (MHz)	ANT 03	Frequency (MHz)	ANT 03
2400	1.7	5150	1.7
2500	2.0	5850	1.8
2400-92500 MAX.	2.1	5150-5850 MAX.	1.8



Peak Gain / Efficiency : ANT 01 (4G/LTE, 5G)

ANT 01			
Frequency (MHz)	3D		
	Efficency	Avg. Gain	Peek Gain
617	41%	-3.9	1.3
698	41%	-3.9	1.4
704	42%	-3.8	1.6
746	42%	-3.8	1.5
760	48%	-3.2	1.8
787	63%	-2.0	2.6
791	68%	-1.6	2.7
824	85%	0.7	4.1
836	81%	-0.9	4.5
849	80%	-1.0	4.9
869	79%	-1.0	5.0
880	77%	-1.1	4.5
894	71%	-1.5	3.7
900	69%	-1.6	3.7
915	67%	-1.7	3.2
925	66%	-1.8	3.3
940	65%	-1.8	3.2
960	64%	-1.9	3.2

ANT 01			
Frequency (MHz)	3D		
	Efficency	Avg. Gain	Peek Gain
1710	72%	-1.4	4.3
1750	74%	-1.3	4.6
1785	74%	-1.3	4.5
1805	73%	-1.4	4.3
1840	72%	-1.4	3.9
1850	71%	-1.5	3.8
1880	70%	-1.6	4.0
1910	66%	-1.8	4.4
1920	65%	-1.9	4.6
1930	65%	-1.8	4.8
1950	65%	-1.8	5.1
1960	65%	-1.9	5.1
1980	64%	-1.9	5.0
1990	64%	-1.9	5.0
2110	74%	-1.3	5.4
2140	75%	-1.2	5.5
2170	78%	-1.1	5.4

ANT 01			
Frequency (MHz)	3D		
	Efficency	Avg. Gain	Peek Gain
2300	79%	-1.0	6.0
2400	70%	-1.6	5.5
2500	53%	-2.8	2.8
2570	56%	-2.6	3.4
2595	67%	-1.7	4.4
2600	70%	-1.6	4.5
2620	75%	-1.3	4.4
2690	75%	-1.2	4.2

ANT 01			
Frequency (MHz)	3D		
	Efficency	Avg. Gain	Peek Gain
3300	68%	-1.7	5.0
3400	70%	-1.6	5.1
3500	72%	-1.4	4.8
3550	71%	-1.5	4.8
3600	72%	-1.4	5.1
3700	74%	-1.3	5.3
3800	76%	-1.2	5.9
3900	74%	-1.3	6.3
3980	71%	-1.5	5.9
4000	69%	-1.6	5.2
4100	70%	-1.6	4.6
4200	72%	-1.4	4.7

Peak Gain / Efficiency : ANT 02 (4G/LTE, 5G)

ANT 02			
Frequency (MHz)	3D		
	Efficiency	Aug. Gain	Peak Gain
617	39%	-4.1	1.3
698	40%	-4.0	1.2
704	43%	-3.7	1.3
746	48%	-3.2	1.2
760	56%	-2.5	1.5
787	69%	-1.6	2.9
791	73%	-1.3	3.0
824	77%	-1.1	3.6
836	72%	-1.4	3.8
849	70%	-1.6	3.9
869	64%	-1.9	3.4
880	63%	-2.0	3.0
894	60%	-2.2	2.6
900	60%	-2.2	2.7
915	61%	-2.1	3.0
925	62%	-2.1	3.4
940	63%	-2.0	3.8
960	63%	-2.0	4.1

ANT 02			
Frequency (MHz)	3D		
	Efficiency	Aug. Gain	Peak Gain
1710	75%	-1.2	4.1
1750	76%	-1.2	4.4
1785	76%	-1.2	5.2
1805	76%	-1.2	5.2
1840	74%	-1.3	5.1
1850	73%	-1.4	5.0
1880	71%	-1.5	4.6
1910	66%	-1.8	4.5
1920	66%	-1.8	4.6
1930	66%	-1.8	4.8
1950	65%	-1.9	5.0
1960	64%	-1.9	5.0
1980	64%	-1.9	5.1
1990	64%	-1.9	5.1
2110	75%	-1.3	5.9
2140	75%	-1.3	5.8
2170	77%	-1.2	5.6

ANT 02			
Frequency (MHz)	3D		
	Efficiency	Aug. Gain	Peak Gain
2300	77%	-1.2	5.7
2400	68%	-1.7	4.9
2500	53%	-2.7	2.6
2570	49%	-3.1	2.1
2595	62%	-2.0	3.8
2600	65%	-1.9	4.1
2620	73%	-1.4	4.7
2690	74%	-1.3	4.6

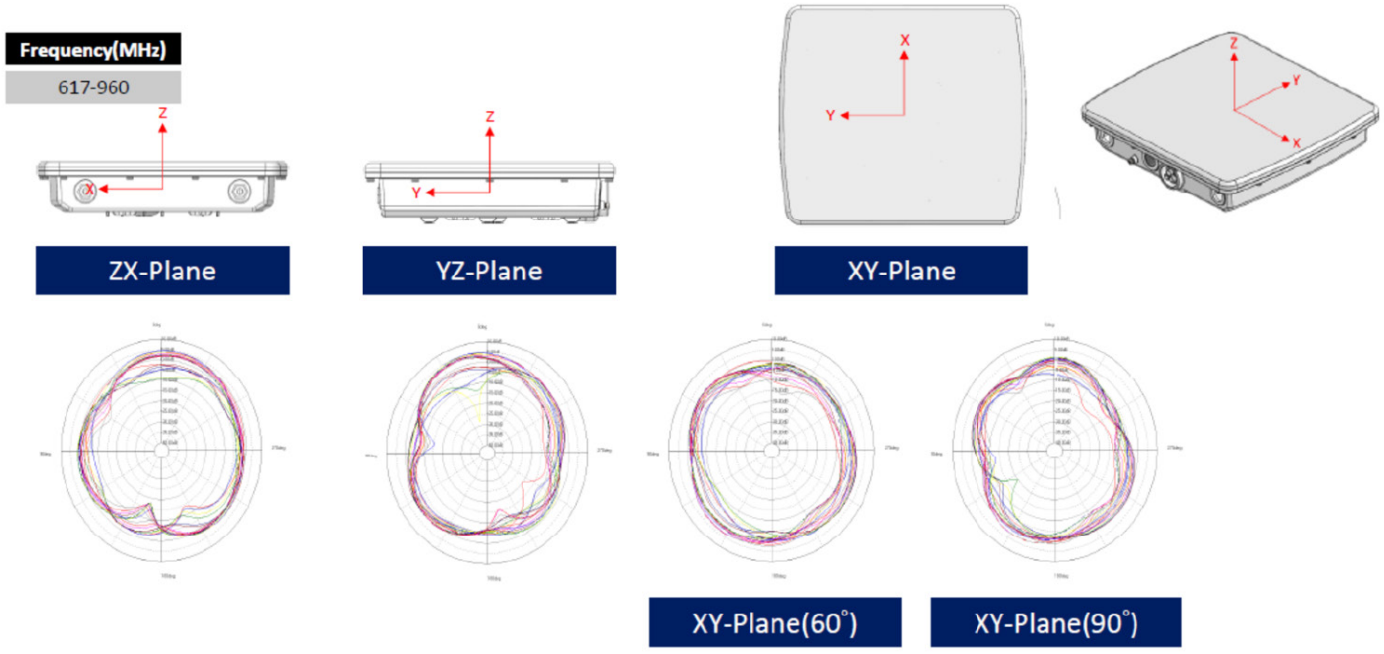
ANT 02			
Frequency (MHz)	3D		
	Efficiency	Aug. Gain	Peak Gain
3300	67%	-1.7	4.4
3400	69%	-1.6	4.4
3500	72%	-1.4	4.0
3550	71%	-1.5	4.0
3600	72%	-1.4	4.5
3700	74%	-1.3	4.9
3800	74%	-1.3	5.2
3900	73%	-1.4	5.8
3980	74%	-1.3	6.1
4000	72%	-1.4	6.0
4100	70%	-1.6	5.1
4200	71%	-1.5	4.6

Peak Gain / Efficiency : ANT 03 (WiFi)

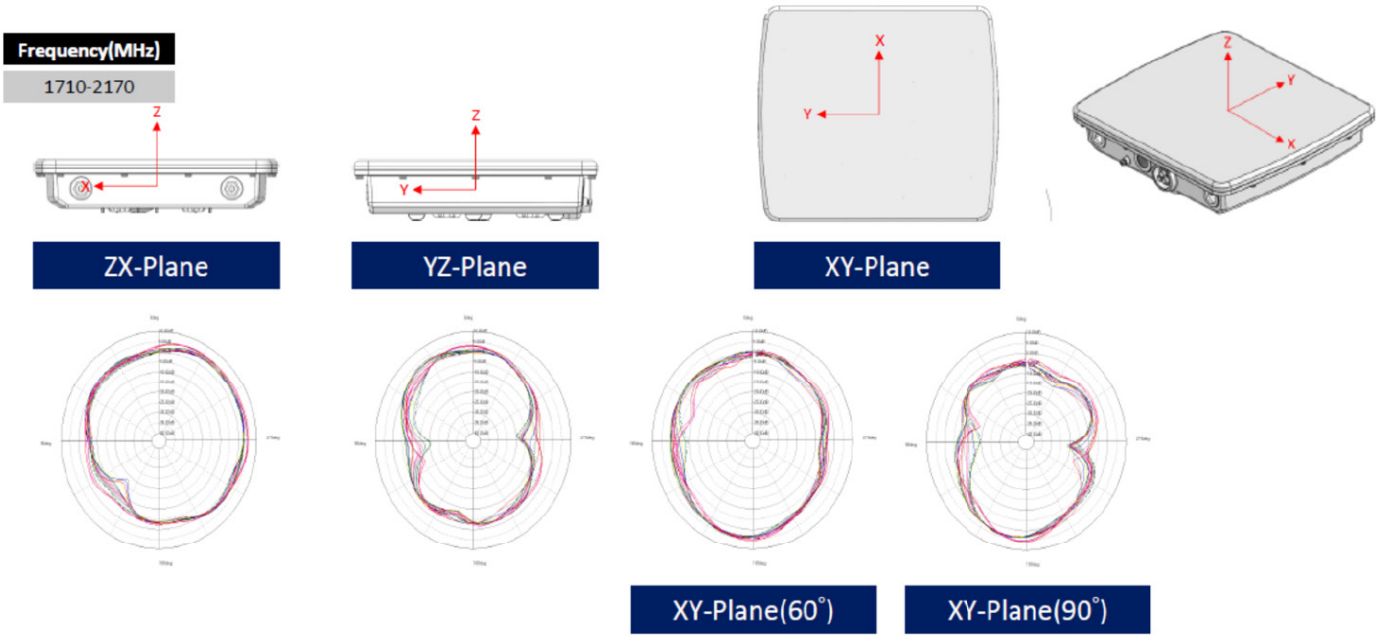
ANT 03			
Frequency (MHz)	3D		
	Efficiency	Avg. Gain	Peak Gain
2400	66%	-1.8	3.3
2450	67%	-1.7	3.9
2500	68%	-1.7	4.4

ANT 03			
Frequency (MHz)	3D		
	Efficiency	Avg. Gain	Peak Gain
5150	69%	- t 6	5.0
5200	70%	-1.5	5.2
5250	74%	-1.3	5.6
5300	76%	-1.2	5.5
5350	77%	-1.1	5.3
5470	75%	-1.2	5.2
5600	77%	-1.1	5.9
5725	77%	-1.2	5.5
5800	77%	-1.2	6.0
5850	76%	-1.2	6.2

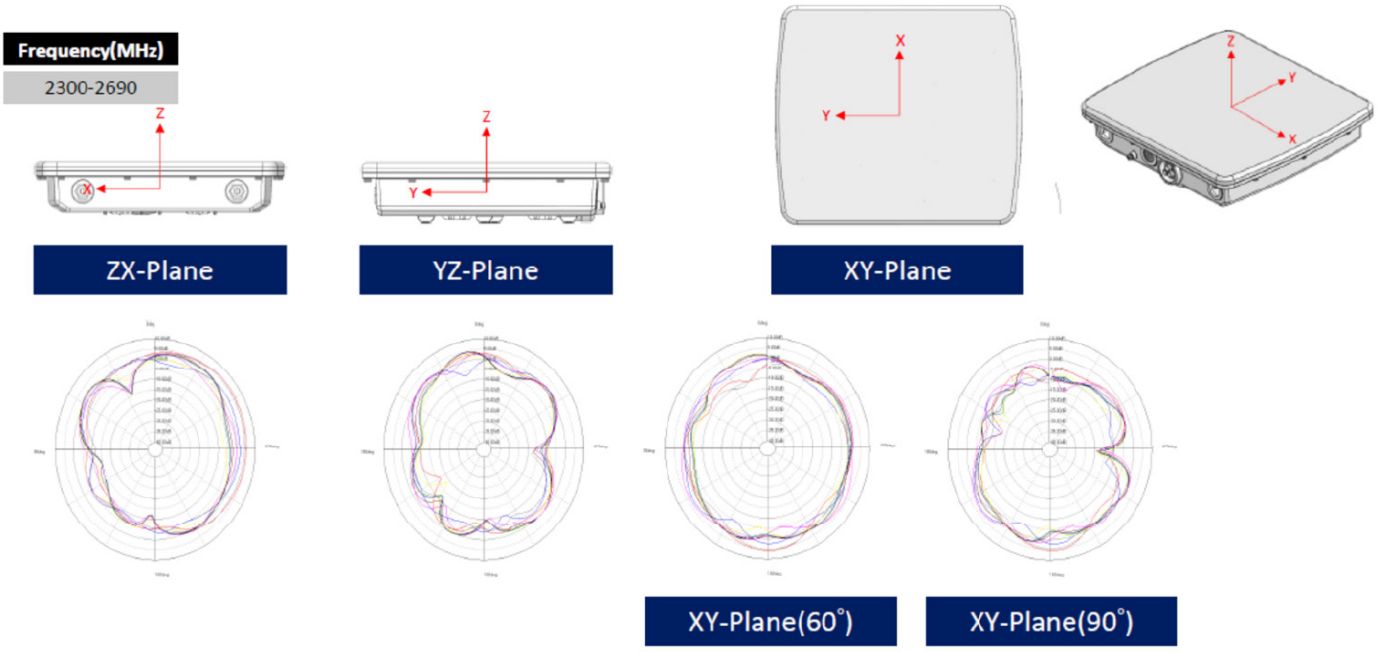
Far-fields : ANT 01 (4G/LTE, 5G)



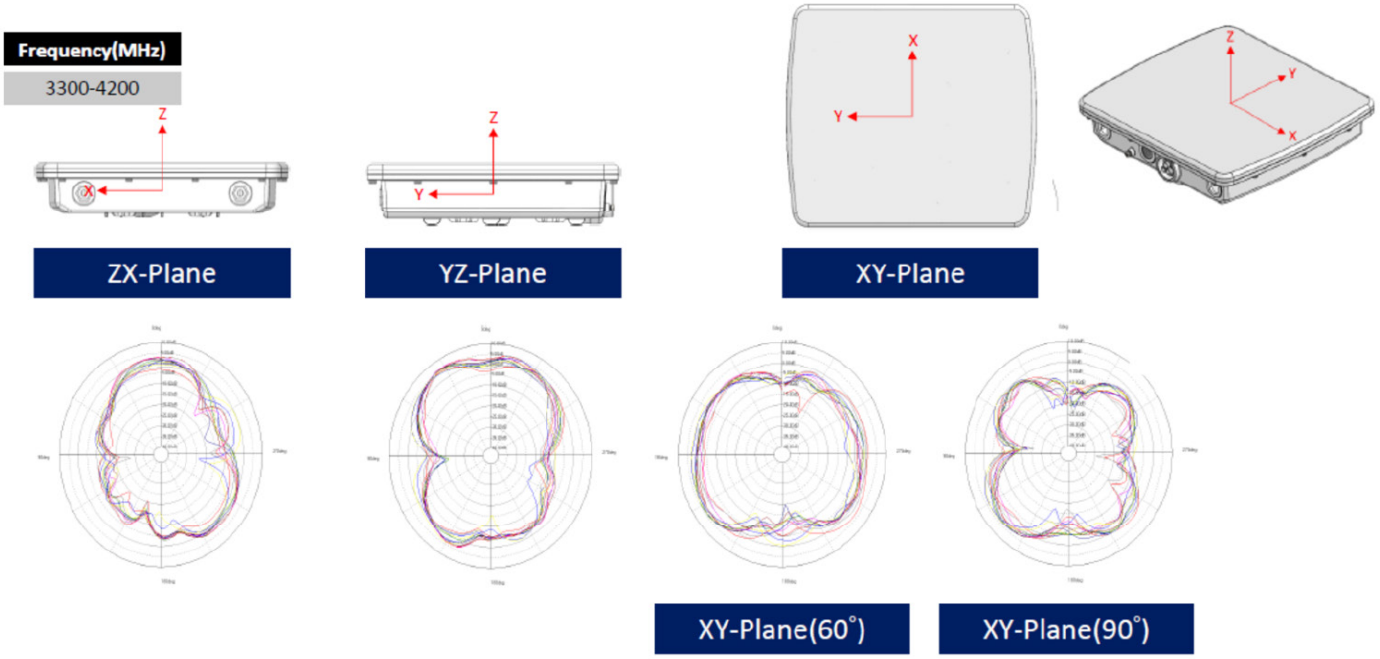
Far-fields : ANT 01 (4G/LTE, 5G)



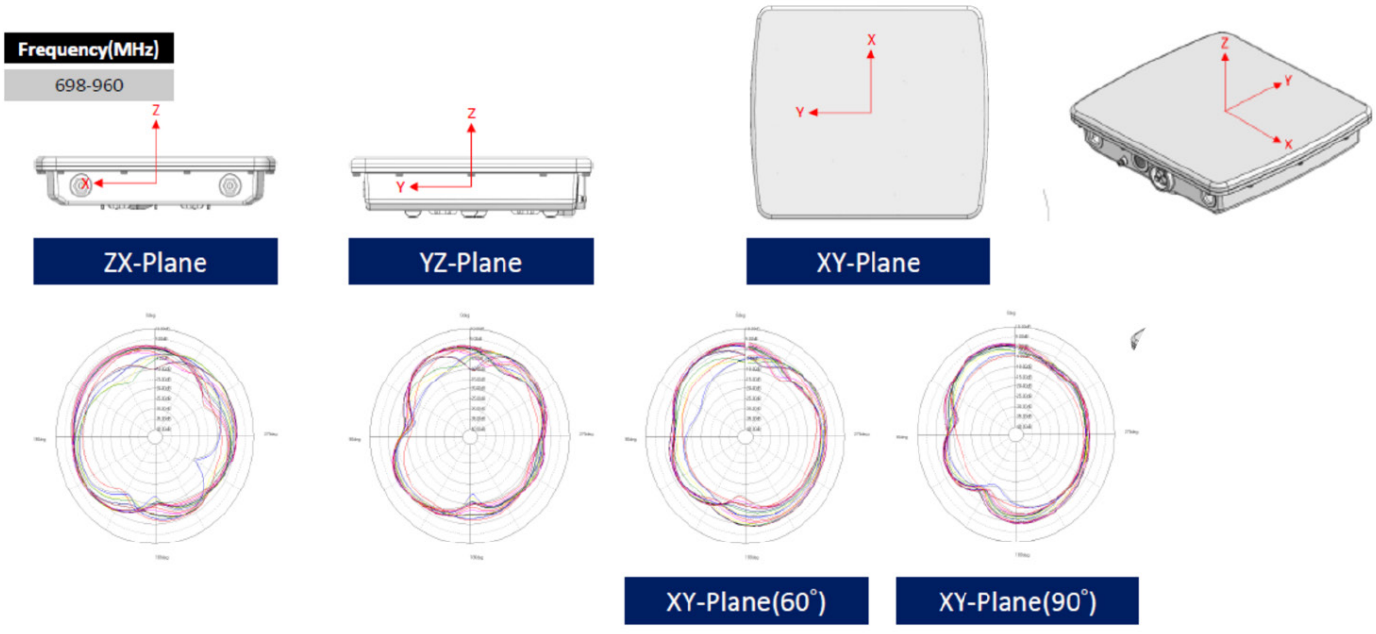
Far-fields : ANT 01 (4G/LTE, 5G)



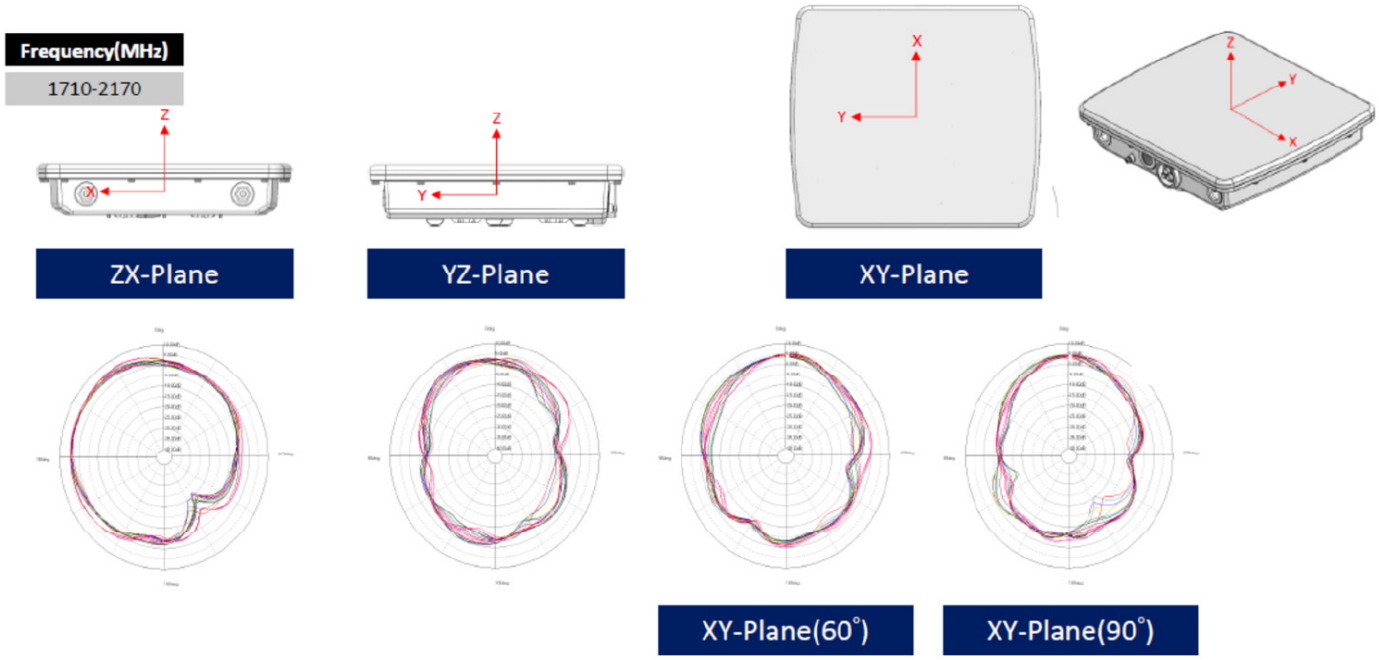
Far-fields : ANT 01 (4G/LTE, 5G)



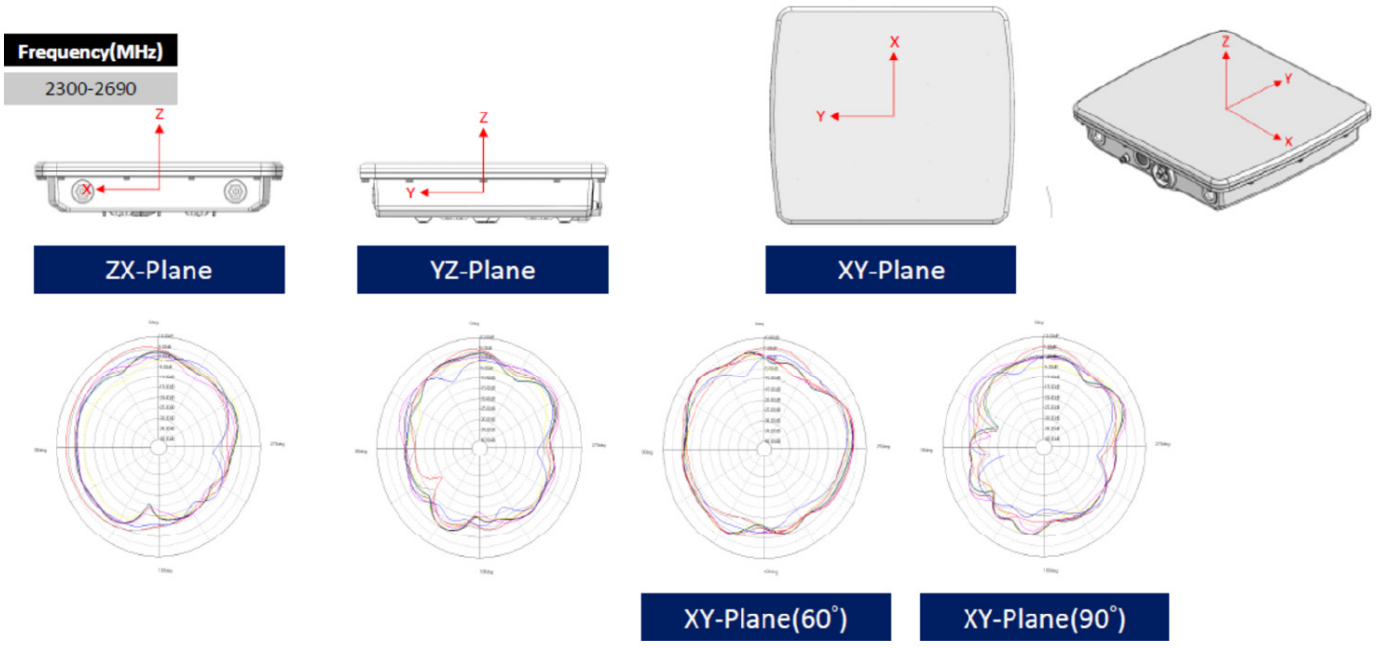
Far-fields : ANT 02 (4G/LTE, 5G)



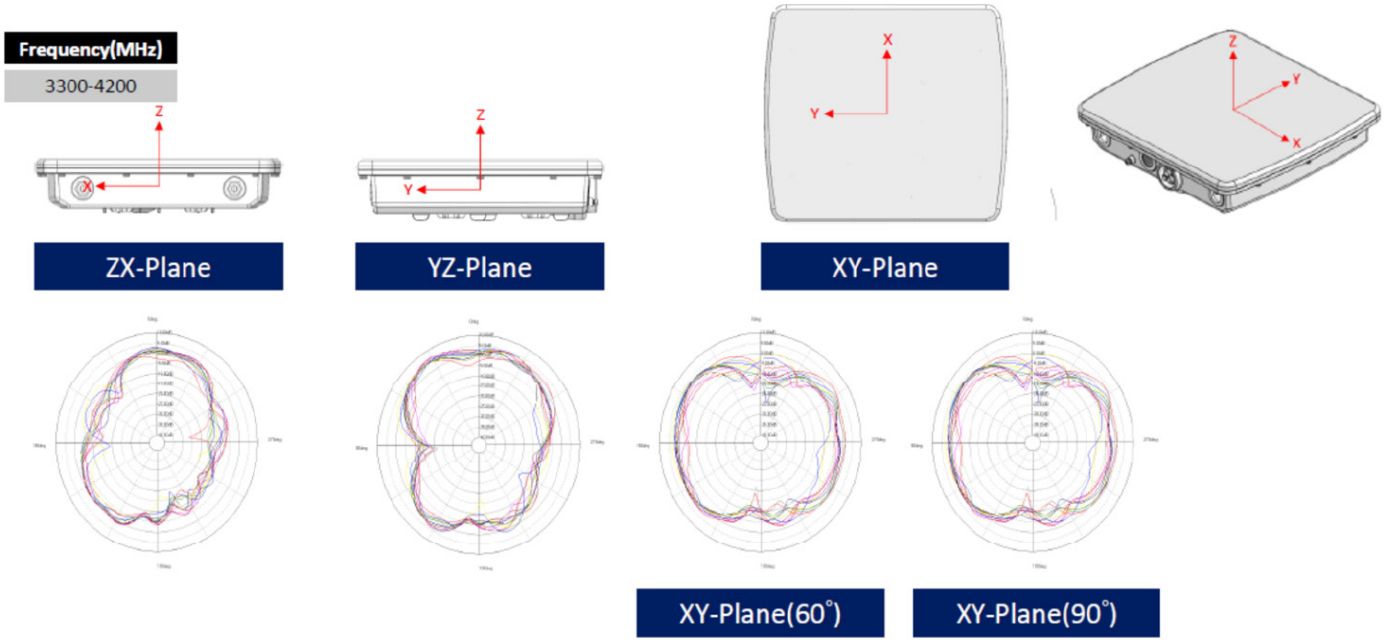
Far-fields : ANT 02 (4G/LTE, 5G)



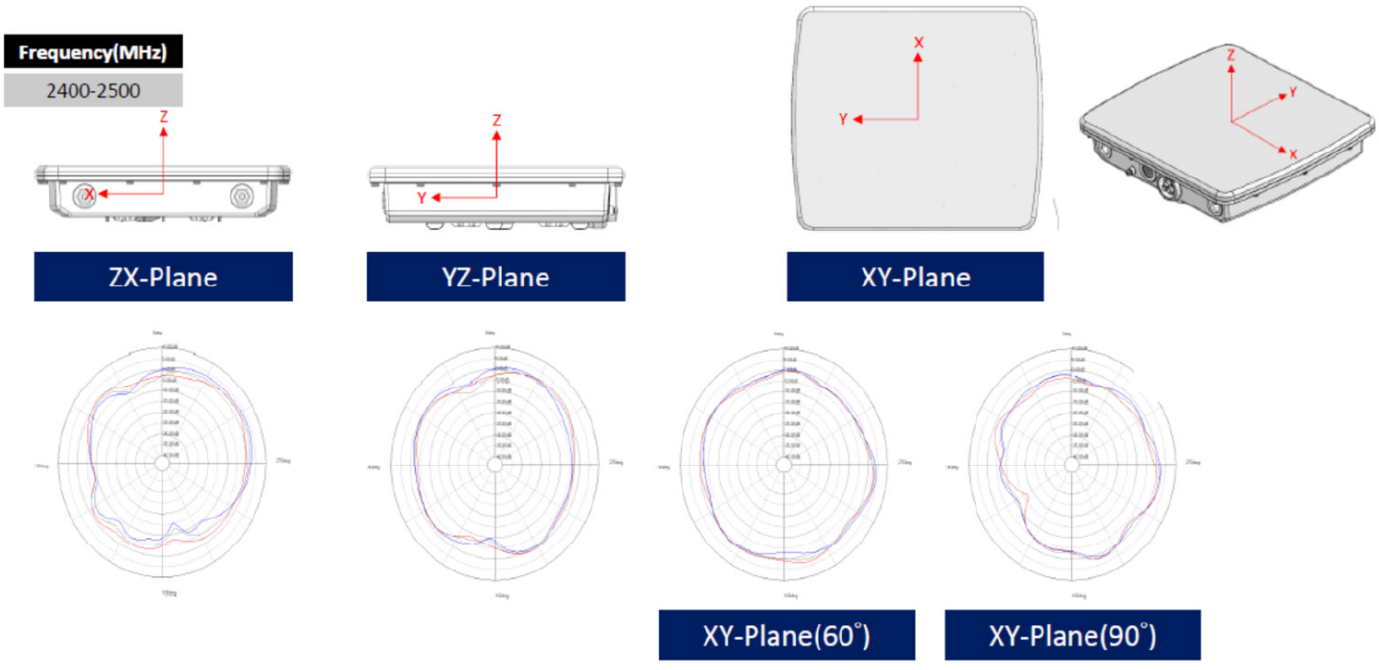
Far-fields : ANT 02 (4G/LTE, 5G)



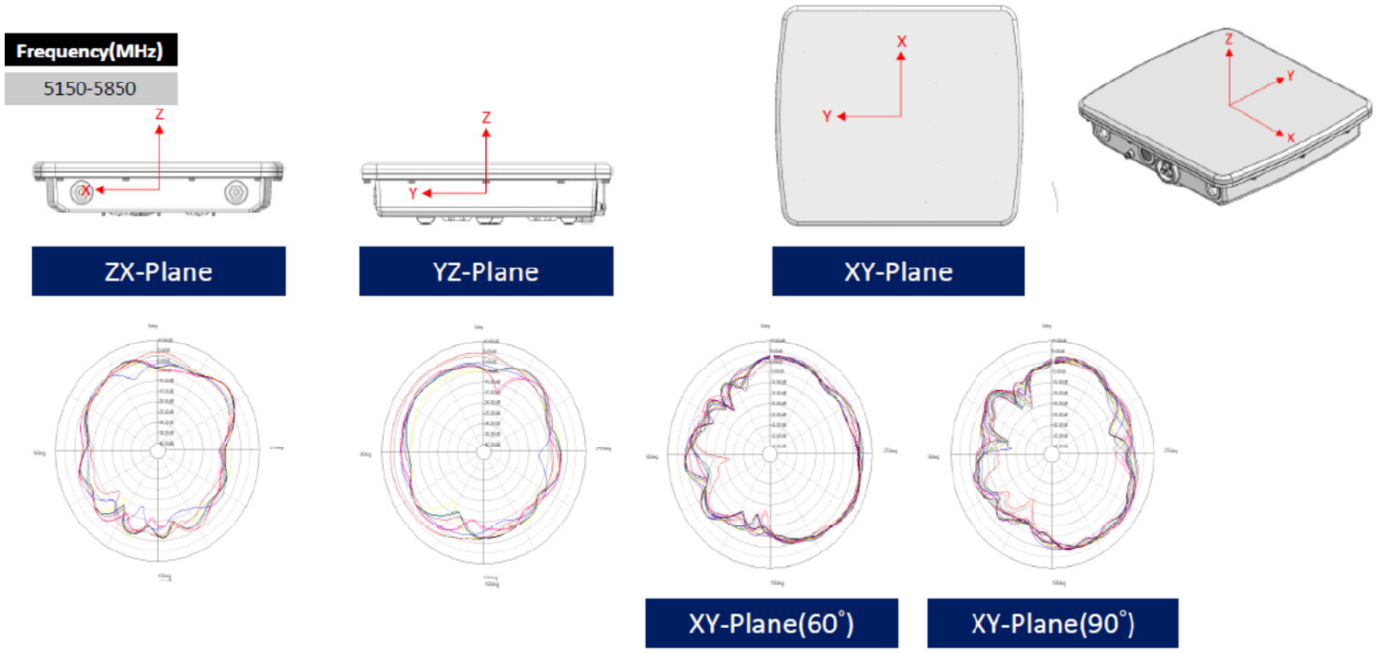
Far-fields : ANT 02 (4G/LTE, 5G)



Far-fields : ANT 03 (WIFI)



Far-fields : ANT 03 (WIFI)



Part Number Table

Description	Part Number
Raspberry PI Enclosure Kit LTE/WIFI	MP015781