

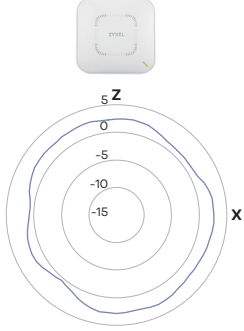
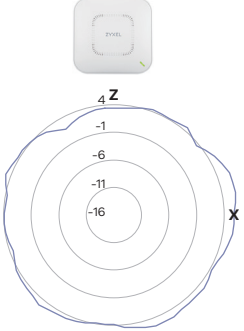
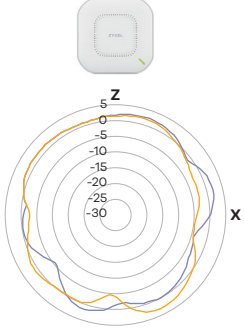
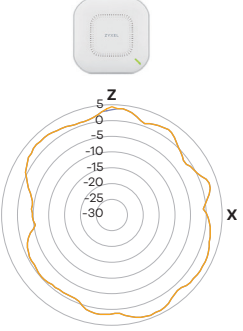
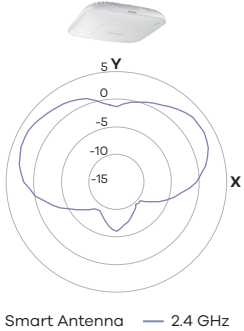
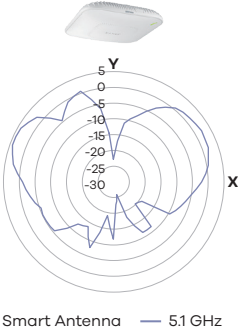
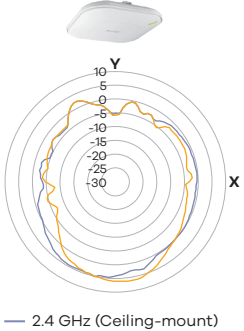
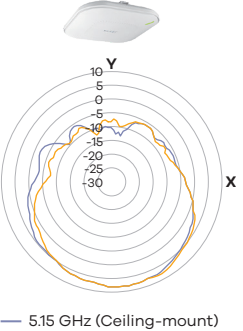


# Antenna Specification Matrix

Zyxel dedicates itself to antenna design optimization for deliver fast and reliable WiFi service. As antennas are the major component of Wireless LAN access points, it's imperative to pay attention to patterns optimal for different deployment scenarios. Most Zyxel Wireless LAN APs are designed for ceiling-mount typically at heights of 3 to 5 meters; if this is not allowed due to environment

restrictions, wall-mount installation is recommended for better performance. Please refer to the tables below for patterns of internal and bundled detachable antennas of Zyxel access points as a tool for planning the best wireless LAN deployments – especially when you have to cope with strong interference or deploy in high-density venues.

Model	WAX650S		WAX610D/NWA210AX	
Product photo				
Space	Embedded	Embedded	Embedded	Embedded
Frequency band (MHz)	2400 - 2500	5150 - 5825	2400 - 2500	5150 - 5825
Gain	3 dBi	5.8 dBi	5 dBi	6 dBi
VSWR	2:1 Max.	2:1 Max.	2:1 Max.	2:1 Max.
Polarization	Vertical & Horizontal	Vertical & Horizontal	Vertical & Horizontal	Vertical & Horizontal
<b>XZ-Plane E-Plane (Side view)</b>				
	Smart Antenna — 2.4 GHz	Smart Antenna — 5.1 GHz	— 2.4 GHz (Ceiling-mount) — 2.4 GHz (Wall-mount)*	— 5.15 GHz (Ceiling-mount) — 5.15 GHz (Wall-mount)*
<b>XY-Plane H-Plane (Top view)</b>				
	Smart Antenna — 2.4 GHz	Smart Antenna — 5.1 GHz	— 2.4 GHz (Ceiling-mount) — 2.4 GHz (Wall-mount)*	— 5.15 GHz (Ceiling-mount) — 5.15 GHz (Wall-mount)*

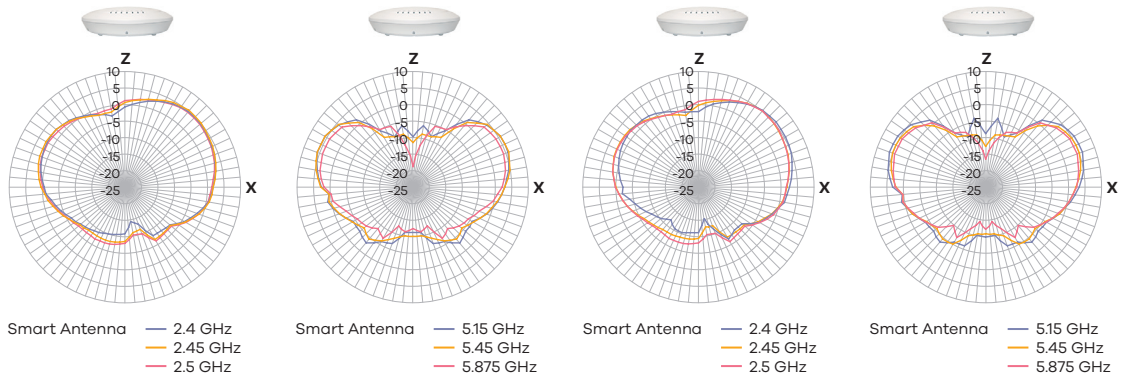
\* Wall-mount patterns for WAX610D only.

**Product photo**

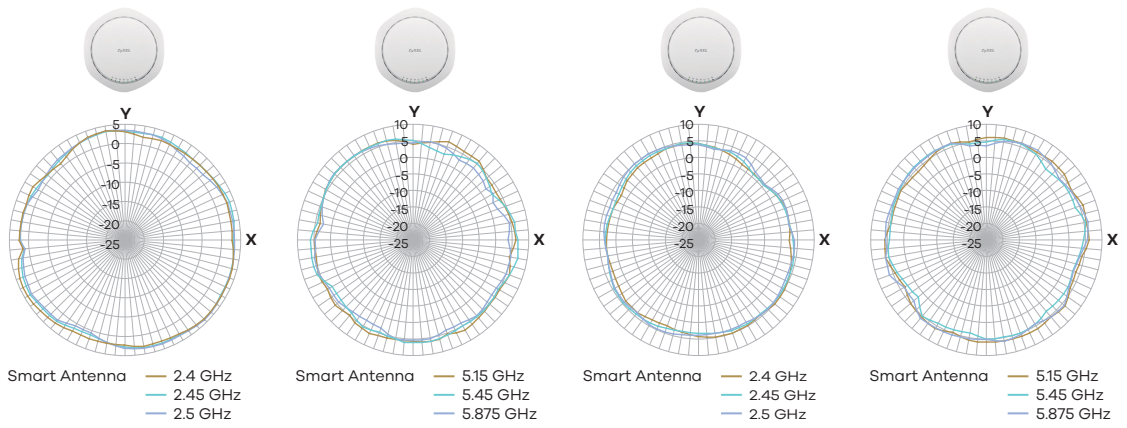


<b>Space</b>	Embedded	Embedded	Embedded	Embedded
<b>Frequency band (MHz)</b>	2400 - 2500	5150 - 5825	2400 - 2500	5150 - 5825
<b>Gain</b>	4 dBi	6 dBi	4 dBi	6 dBi
<b>VSWR</b>	2.0:1 Max.	2.0:1 Max.	2.0:1 Max.	2.0:1 Max.
<b>Polarization</b>	Vertical	Vertical	Vertical	Vertical

**XZ-Plane  
E-Plane  
(Side view)**



**XY-Plane  
H-Plane  
(Top view)**

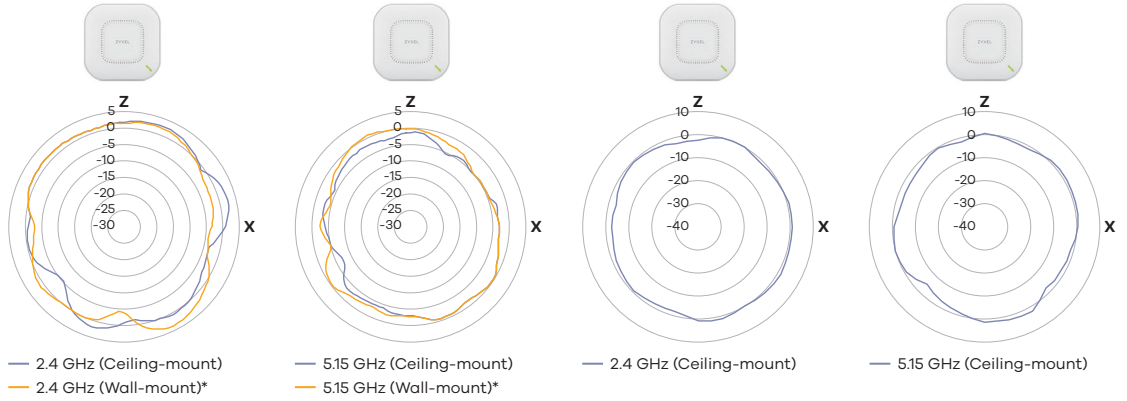


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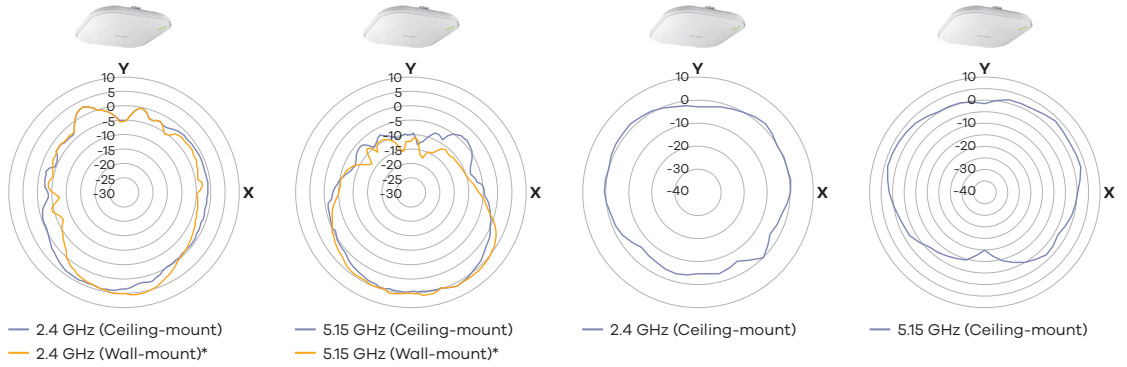


<b>Space</b>	Embedded	Embedded	Embedded	Embedded
<b>Frequency band (MHz)</b>	2400 - 2500	5150 - 5825	2400 - 2500	5150 - 5825
<b>Gain</b>	5 dBi	6 dBi	3 dBi	4 dBi
<b>VSWR</b>	2:1 Max.	2:1 Max.	2:1 Max.	2:1 Max.
<b>Polarization</b>	Vertical & Horizontal	Vertical & Horizontal	Vertical & Horizontal	Vertical & Horizontal

**XZ-Plane  
E-Plane  
(Side view)**



**XY-Plane  
H-Plane  
(Top view)**



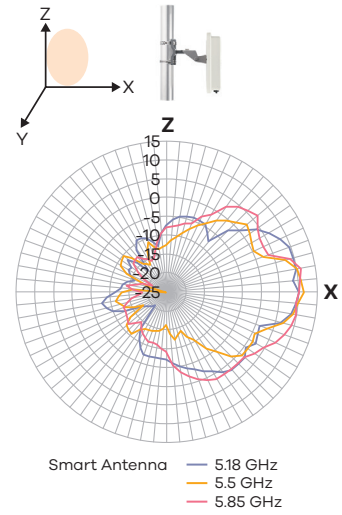
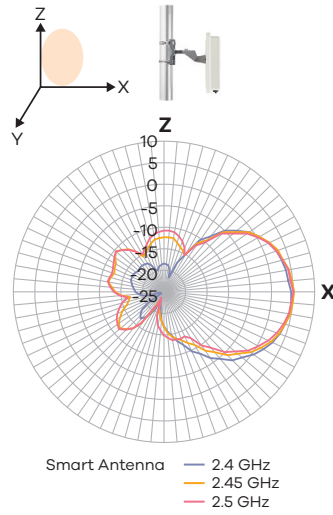
\* Wall-mount patterns for WAX510D only.

Product photo

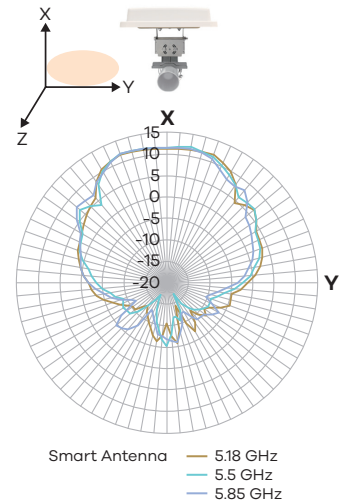
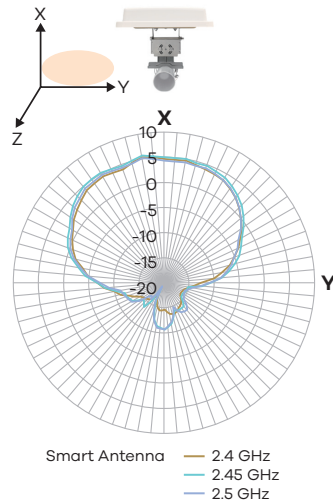


Space	Embedded	Embedded
Frequency band (MHz)	2400 - 2500	5150 - 5825
Gain	5 dBi	10 dBi
VSWR	2.0:1 Max.	2.0:1 Max.
Polarization	Vertical	Vertical

XZ-Plane  
E-Plane  
(Side view)



XY-Plane  
H-Plane  
(Top view)

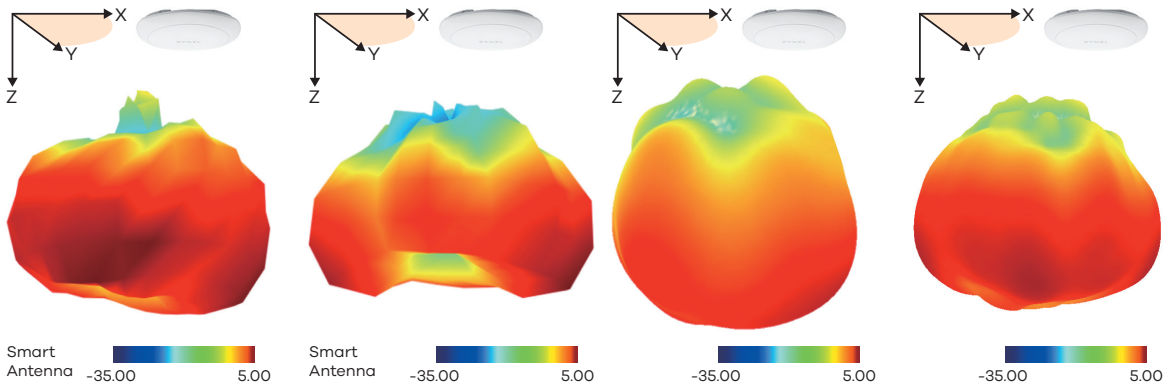


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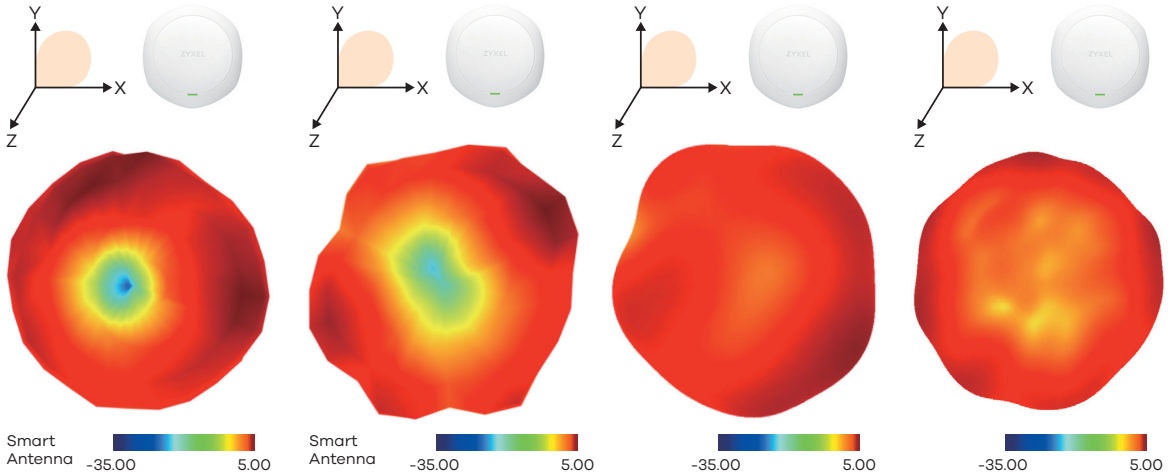


<b>Space</b>	Embedded	Embedded	Embedded	Embedded
<b>Frequency band (MHz)</b>	2400 - 2500	5150 - 5825	2400 - 2500	5150 - 5825
<b>Gain</b>	3 dBi	4 dBi	3 dBi	3 dBi
<b>VSWR</b>	2.0:1 Max.	2.0:1 Max.	2.0:1 Max.	2.0:1 Max.
<b>Polarization</b>	Vertical	Vertical	Vertical	Vertical

**XZ-Plane E-Plane (Side view)**



**XY-Plane H-Plane (Top view)**

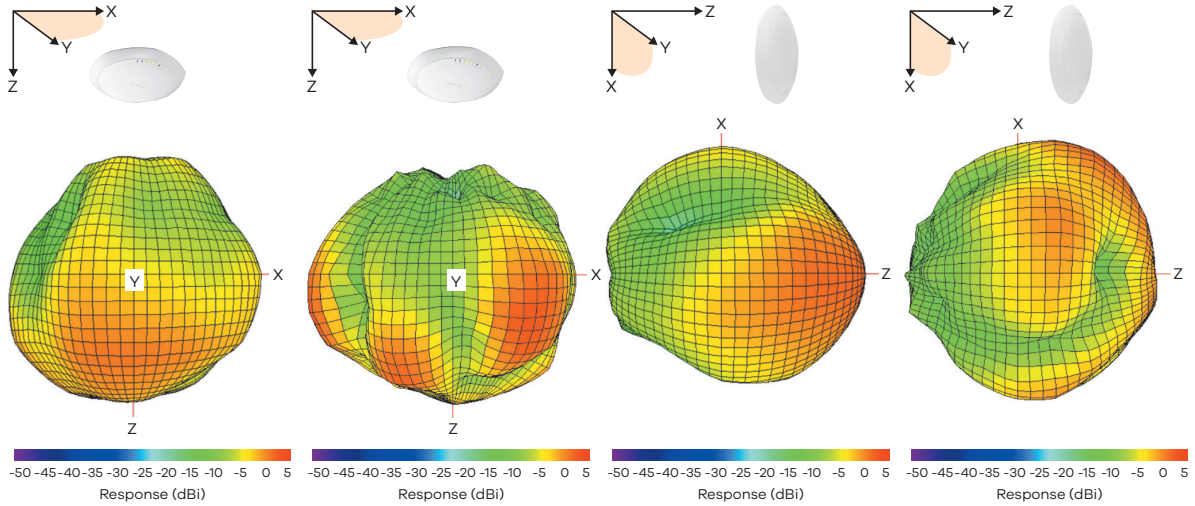


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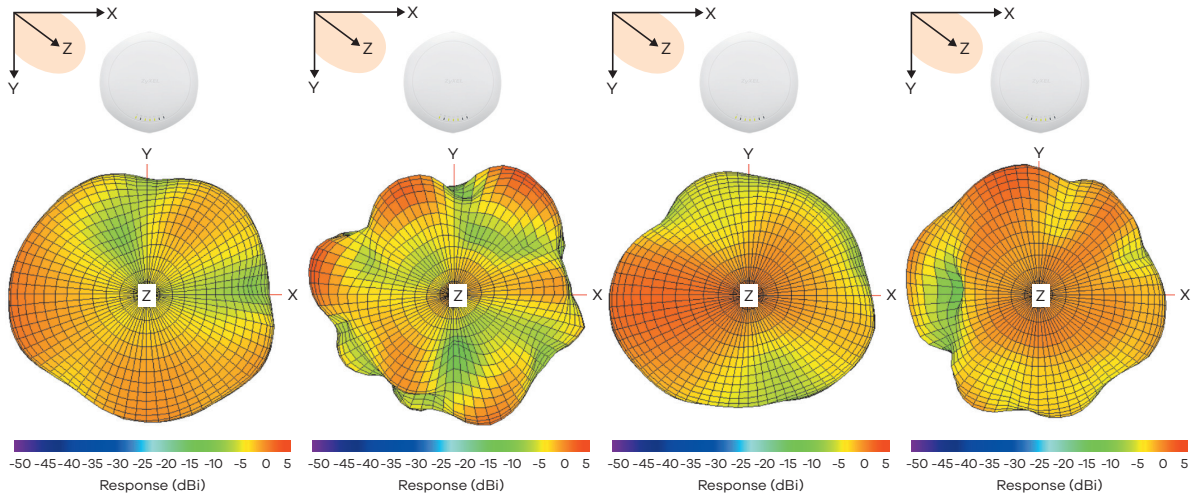


<b>Space</b>	Embedded	Embedded	Embedded	Embedded
<b>Frequency band (MHz)</b>	2400 - 2500	5150 - 5825	2400 - 2500	5150 - 5825
<b>Mounting option</b>	Ceiling-mount	Ceiling-mount	Wall-mount	Wall-mount
<b>Gain</b>	3 dBi	4 dBi	4 dBi	5 dBi
<b>VSWR</b>	3.5:1 Max.	2.9:1 Max.	2.3:1 Max.	2.9:1 Max.
<b>Polarization</b>	Vertical	Vertical	Vertical	Vertical

**XZ-Plane E-Plane (Side view)**



**XY-Plane H-Plane (Top view)**

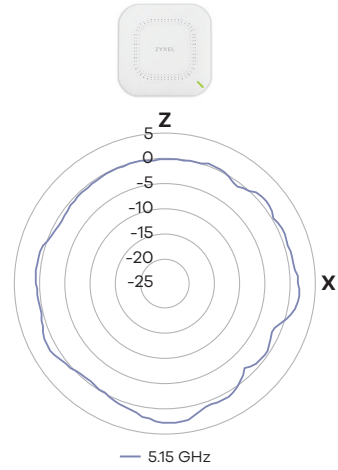
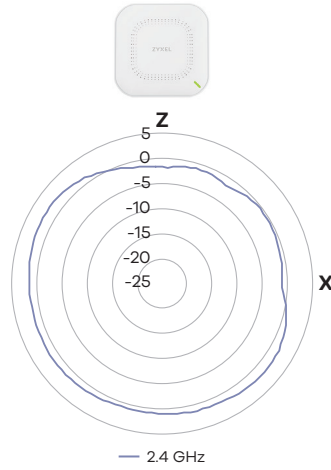


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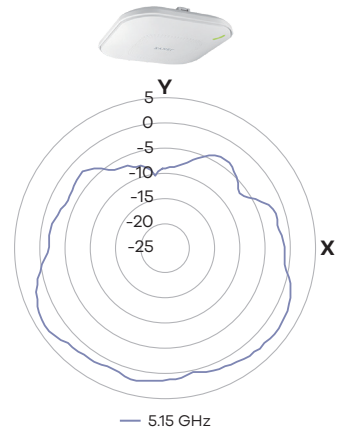
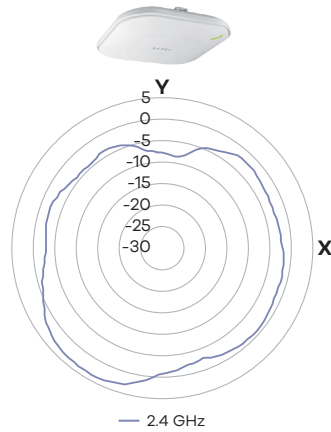


Space	Embedded	Embedded
Frequency band (MHz)	2400 - 2500	5150 - 5825
Gain	3 dBi	4 dBi
VSWR	2:1 Max.	2:1 Max.
Polarization	Vertical & Horizontal	Vertical & Horizontal

XZ-Plane  
E-Plane  
(Side view)



XY-Plane  
H-Plane  
(Top view)



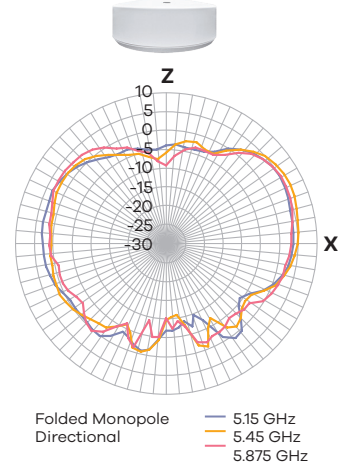
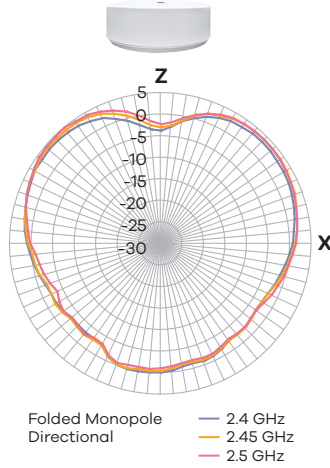
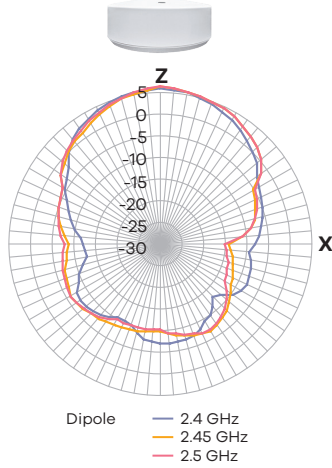
Model	NWA5121-NI	NWA5123-AC/NAP102/NWA1123-ACv2	
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Product photo

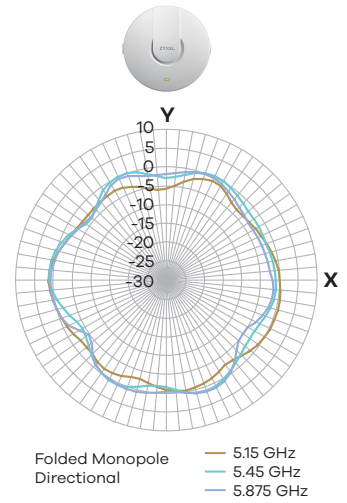
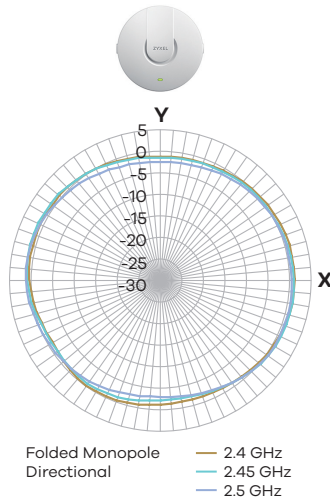
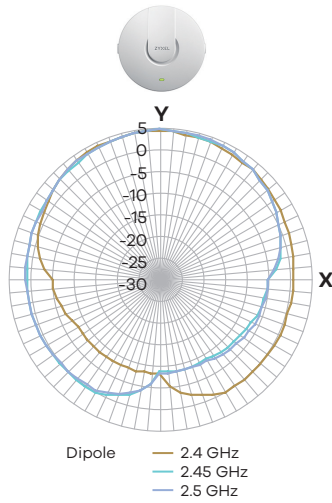


Space	Embedded	Embedded	Embedded
Frequency band (MHz)	2400 - 2500	2400 - 2500	5150 - 5825
Gain	7 dBi	3 dBi	4 dBi
VSWR	1.92:1 Max.	2.0:1 Max.	2.0:1 Max.
Polarization	Linear, vertical	Linear, vertical	Linear, vertical







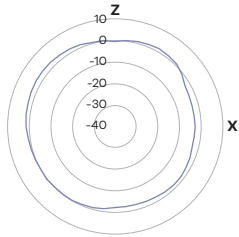

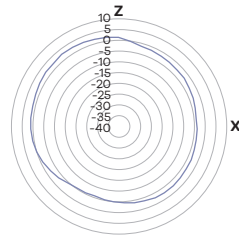
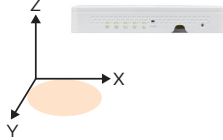
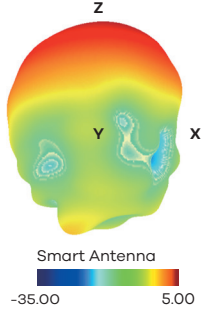
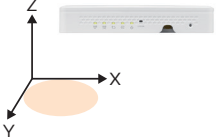
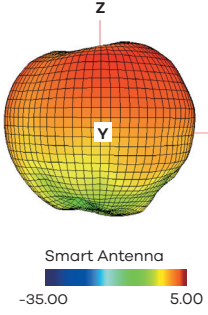

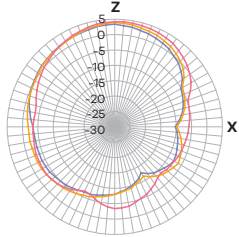

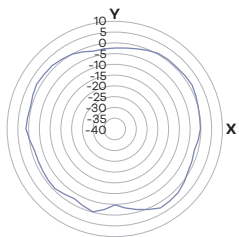

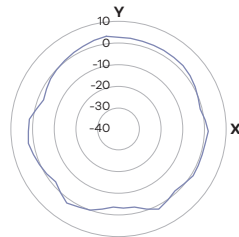
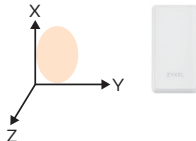
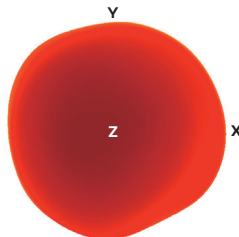
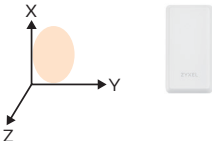
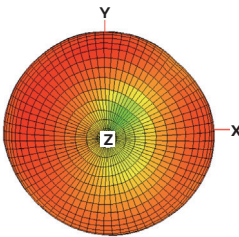

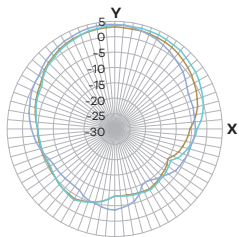
XZ-Plane  
E-Plane  
(Side view)


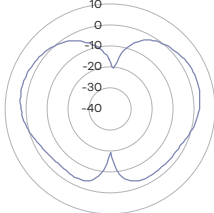
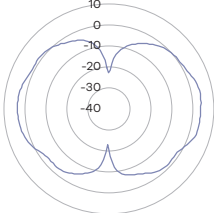
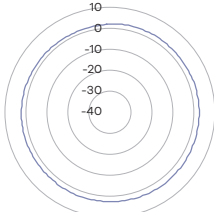
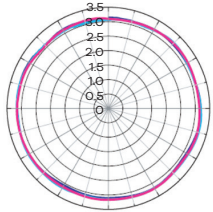


XY-Plane  
H-Plane  
(Top view)





Model	WAC500H		WAC5302D-Sv2/NWA1302-AC		NWA5301-NJ
<b>Product photo</b>					
<b>Space</b>	Embedded	Embedded	Embedded	Embedded	Embedded
<b>Frequency band (MHz)</b>	2400 - 2500	5150 - 5825	2400 - 2500	5150 - 5825	2400 - 2500
<b>Gain</b>	3 dBi	4 dBi	5 dBi	5 dBi	5 dBi
<b>VSWR</b>	2:1 Max.	2:1 Max.	2.0:1 Max.	2.0:1 Max.	2.0:1 Max.
<b>Polarization</b>	Vertical & Horizontal	Vertical & Horizontal	Vertical, horizontal	Horizontal	Linear
<b>XZ-Plane E-Plane (Side view)</b>	  — 2.4 GHz	  — 5.15 GHz	  Smart Antenna -35.00 5.00	  Smart Antenna -35.00 5.00	  Loop — 2.4 GHz — 2.45 GHz — 2.5 GHz
<b>XY-Plane H-Plane (Top view)</b>	  — 2.4 GHz	  — 5.15 GHz	  Smart Antenna -35.00 5.00	  Smart Antenna -35.00 5.00	  Loop — 2.4 GHz — 2.45 GHz — 2.5 GHz

Model	NWA55AXE		NWA5121-N
Product photo			
Space	External antenna	External antenna	External antenna
Frequency band (MHz)	2400 - 2500	5150 - 5850	2400 - 2500
Gain	3.74 dBi	4.58 dBi	3.0 dBi
VSWR	3.0:1 Max.	3.0:1 Max.	2.0:1 Max.
Polarization	Linear	Linear	Linear, vertical
XZ-Plane E-Plane (Side view)	 — 2.4 GHz	 — 5.15 GHz	 — 2.4 GHz — 2.45 GHz — 2.5 GHz
XY-Plane H-Plane (Top view)	 — 2.4 GHz	 — 5.15 GHz	 — 2.4 GHz — 2.45 GHz — 2.5 GHz
HPBW/Horizontal	● 360°	● 360°	● 360°
HPBW/Vertical	▶ 75°	▶ 90°	▶ 80°
Front to back ratio	-	-	-
Impedance	50 Ω	50 Ω	50 Ω
Connector	RP-SMA plug	RP-SMA plug	RP-SMA plug
Survival wind speed	-	-	-
Temperature	-20°C to 65°C/-4°F to 149°F	-20°C to 65°C/-4°F to 149°F	-20°C to 65°C/-4°F to 149°F
Humidity	10% to 95%	10% to 95%	95% @ 40°C (104°F)
Radome color	White	White	White
Radome material	TPEE	TPEE	TPEE/PC/PBT
Dimensions (WxDxH)(mm/in.)	162.8 x 13 x 13/ 6.41 x 0.51 x 0.51	162.8 x 13 x 13/ 6.41 x 0.51 x 0.51	137 x 12.5 x 12.5/ 5.40 x 0.49 x 0.49
Weight (g/lb.)	15/0.03	15/0.03	13/0.03





For more product information, visit us on the web at [www.zyxel.com](http://www.zyxel.com)

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