

# WLAN 8100 Series External Antenna Guide

## Introduction

This document outlines the external antenna portfolio available for the WLAN Access Points 8120-E.

## Benefits

Benefits of external WLAN 8100 external antennas include:

- o Improved deployment flexibility – Planners can choose an antenna pattern that meets coverage requirements while allowing for convenient AP placement and installation.
- o Improved coverage and performance – External antennas allow planners to optimize coverage and deliver higher available data rates to user concentrations.
- o Can provide a low cost fix for trouble spots – Appropriately outfitting existing APs with external antennas can greatly improve coverage and available data rates in areas that are not adequately serviced.
- o Increased security – Perimeter access points outfitted with directional external antennas can focus energy inwards and increase security by preventing signal “leakage” outside the office.
- o Improved aesthetics – External antennas feature a 3 foot cable that allows the connected access point to be installed out-of-sight.
- o Lower cost of coverage – External antennas improve overall system efficiency by effectively directing available energy to where it’s needed. This ensures overall system utility is maximized for any installation.

## Glossary of Common Antenna Terminology

The following glossary includes basic antenna terminology that can help in the selection and/or recommendation of a particular antenna. This terminology is used in the table that follows.

- Omnidirectional (Omni) – Refers to the antenna coverage pattern. In theory, a perfectly omnidirectional antenna would create a spherical coverage pattern. However, in practice, this is impossible to achieve and most antennas labeled as an “omni antennas” are actually weaker directly above and below their endpoints creating a coverage pattern that resembles a “doughnut” shape around the antenna. This characteristic is



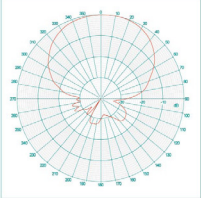
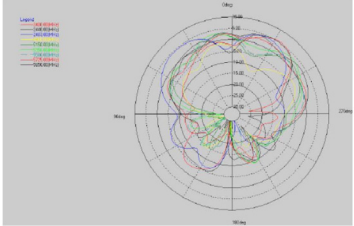
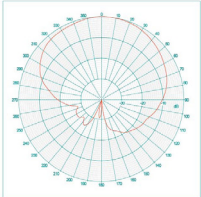
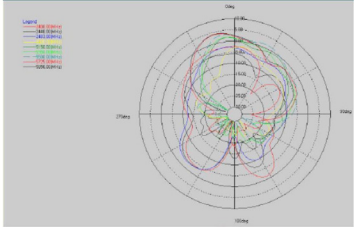
represented by the familiar dual-lobe pattern shown on the E-plane graphs of omni antennas. Omni antennas attempt to provide uniform coverage and are suitable for most general deployments.

- Directional – Refers to the antenna coverage pattern. A directional antenna focuses its radiation in a specific direction. This design increases the transmitted power (gain) and communication distance in a specific direction at the expense of uniform coverage. Directional antennas must be “aimed” at the intended coverage zone.
- Gain – Expressed in dBi, indicates the relative increase in radiated energy over that emitted from a perfectly omnidirectional point source (which would have a gain of

0 dBi by definition). Each 3 dBi increment of gain effectively doubles the radiated energy. For example, a directional antenna with a gain of 9 dBi radiates 8 times ( $2 \times 2 \times 2 = 8$ ) the peak energy vs. a perfectly omnidirectional source. Higher gain translates into greater range.

- E-Plane graph – The elevation plane graph shows the radiated antenna coverage pattern as a vertical cross section - as if looking directly at the antenna from the side.
- H-Plane graph – The horizontal plane graph shows the radiated antenna coverage pattern as a horizontal cross section - as if looking directly at the antenna from above.

## WLAN 8100 Series External Antenna Matrix

	70o Directional Dual Band Indoor/Outdoor	180o Omni-directional Dual Band Indoor/Outdoor
<b>Antenna</b>	Laird Technologies S24517PT	Tyco Electronics P/N 1513461-1
<b>Avaya Order Code</b>	WL81AT070E6: External Dual Band MIMO Antenna 70o for WAP 8120E (3 element). MSRP: \$500 US	WL81AT180E6: External Dual Band MIMO Antenna 180o for WAP 8120E (6 element) MSRP: \$1100 US
<b>Description</b>	3x3 element, dual-band, panel antenna. Each of the 3 MIMO antennas connect to the WLAN AP via low loss, plenum rated, coax pigtail. For use with WLAN AP 8120-E (Two 70o antennas required per 8120-E)	6 element, dual-band, Omni-directional antenna for use in 802.11n MIMO applications For use with WLAN AP 8120-E
<b>Market</b>	Articulating feature allows customizable antenna pattern Applications include any 802.11n enterprise AP deployment including educational, healthcare and public safety.	Omnidirectional Antenna offers uniform coverage and is suitable for most general deployments including large, indoor open spaces.
<b>VSWR (50 Ohms)</b>	2.0:1	<2.5:1
<b>Polarization</b>	Linear, 2 vertical, 1 Horizontal	Linear
<b>Maximum Power</b>	1 watt	2 watts max
<b>Impedance</b>	50 ohms	50 ohms (typical)
<b>Connector</b>	Reverse SMA (3x)	Reverse SMA (6x)
<b>Dimensions</b>	10.2 x 10.2 x 1.3 (259.1x259.1x33.5)	
<b>Weight</b>	1.8 kg	
<b>Operating Temperature</b>	-30 to +65C	To +65C operating & storage
<b>Mounting</b>	Wall / Mast	Wall / Mast
<b>Cable</b>	36" (914) Plenum Rated Cable (Optional: 10 ft extension cable - Order Code: WL81AT010E6)	6x 36" plenum rated cable. (Optional: 10ft extension cable - Order Code: WL81AT010E6)
<b>Photo</b>	3 element Directional Antenna 	6 element Omni Antenna 
<b>Frequency Range</b>	2.4-2.5 GHz	5.150-5.875 GHz
<b>Gain, dBi</b>	8@2450MHz	10.7@5500 MHz
<b>3dB beamwidth F</b>	75o @ 2.45 GHz	55o @ 5.5 GHz
<b>Vertical Gain (E-plane)</b>		
<b>Horizontal Gain (H-plane)</b>		

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