



## AIR-RM21A Antenna System Technical Specification

This document outlines the electrical specifications the AIR-RM21A configurable antenna system. Included are general specs and E- and H-Plane patterns of the antennas over all of the available 5 GHz frequency range.

### 1. Introduction

The AIR-RM21A antenna system is composed of two omni-directional antennas to be used in a diversity fashion appropriate to the deployment of wireless LANs. These omni-directional antennas are both contained in a common housing that is rectangular in shape. These antennas are designed to work in any of the UNII bands including the new band between 5470 MHz and 5725 MHz (referred to here as the “middle band”).

This document describes the electrical specifications governing this antenna system and contains normalized patterns in the UNII-1 band, the UNII-2 band, the “middle band”, and the UNII-3 band. Both E- and H-Planes are shown.

### 2. Omni-directional Specifications

The omni-directional antennas are deployed when the antenna housing is oriented vertically with respect to the AIR-AP1200 series housing as shown in Figure 1. These omni-directional antennas have a peak gain of 5 dBi (nominal) and an E-Plane beamwidth of about 40 degrees. The majority of the H-plane ripple is primarily caused by the shape and size of the radome.



Figure 1.  
AP1200 with AIR-RM21A Omni-directional Antennas

Table 1 shows a summary of the electrical specifications for the omni-directional antennas. Normalized patterns are shown in Figures 2 through 6.

<b>5 dBi Omni Antenna - Electrical Specifications</b>					
	<b>Parameter</b>	<b>Design Goal</b>	<b>Minimum Acceptable</b>	<b>Maximum Acceptable</b>	<b>Notes</b>
1	Antenna Type	Omnidirectional			Diversity package.
2	Operating Frequency Range	5150 MHz - 5850 MHz			
3	Nominal Input Impedance	50 $\Omega$			
4	2:1 VSWR Bandwidth	5000 MHz - 6000 MHz	5150 MHz - 5850 MHz		
5	Peak Gain	5 dBi	4 dBi	6 dBi	Including Cable Loss
6	Polarization	Linear, Vertical			
7	E-Plane 3 dB Beamwidth	40 Degrees	35 Degrees		Maximum beam tilt is about 9 degrees downward.
8	H-Plane 3-dB Beamwidth	Omnidirectional			< 6 dB gain variation in H-Plane
9	Sidelobe Level	< -11 dBc		< -10 dBc	Referenced to the Peak Gain
10	Connector	Hirose U.FL			
11	Cable Type	Hirose U.FL-088			
12	Cable Length	3.25 inches			
13	Construction	Both antennas are printed on 21 mil GETEK. There is a patch of ground plane under the left antenna to enable a simple microstrip structure to feed the detect switch.			
14	Size	The overall board size is about 2.9 in Wide x 3.5 in Long.			

Table 1.  
AIR-RM21A Omni-directional Antenna Specifications

Kodiak Omni-directional Antenna, E- and H-Planes  
Frequency = 5150 MHz, Peak Gain = 5.4 dBi

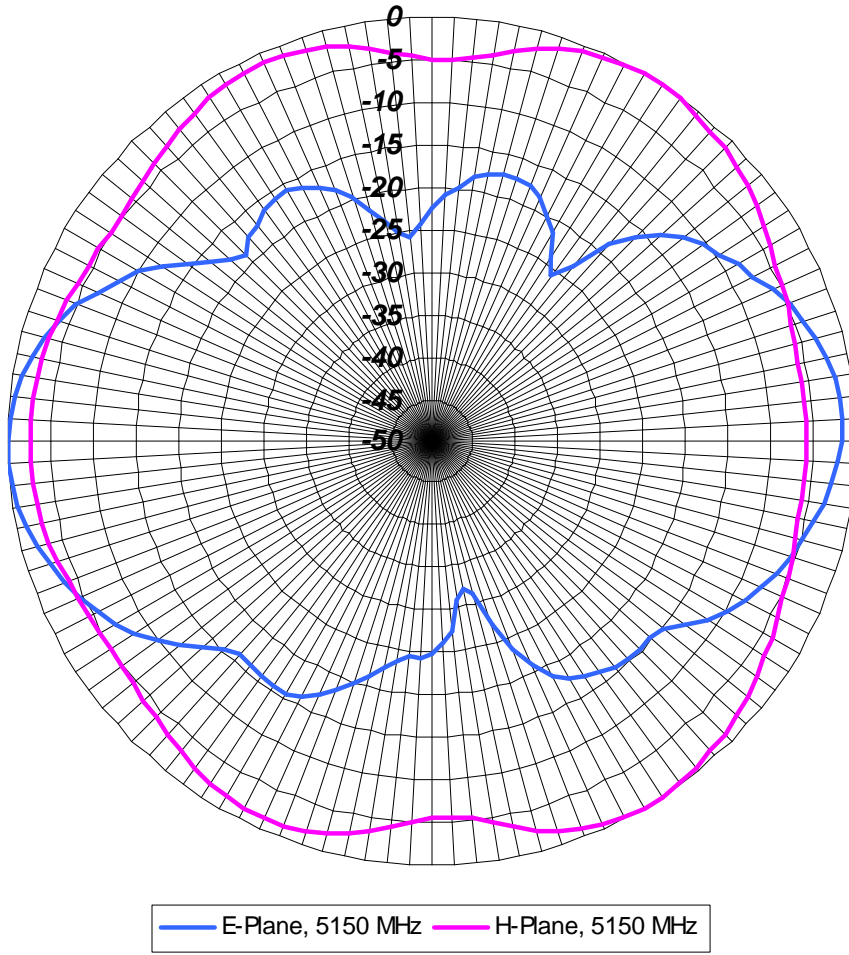


Figure 2.  
AIR-RM21A Omni-directional Patterns,  $f = 5150$  MHz

Kodiak Omni-directional Antenna, E- and H-Planes  
Frequency = 5300 MHz, Peak Gain = 4.7 dBi

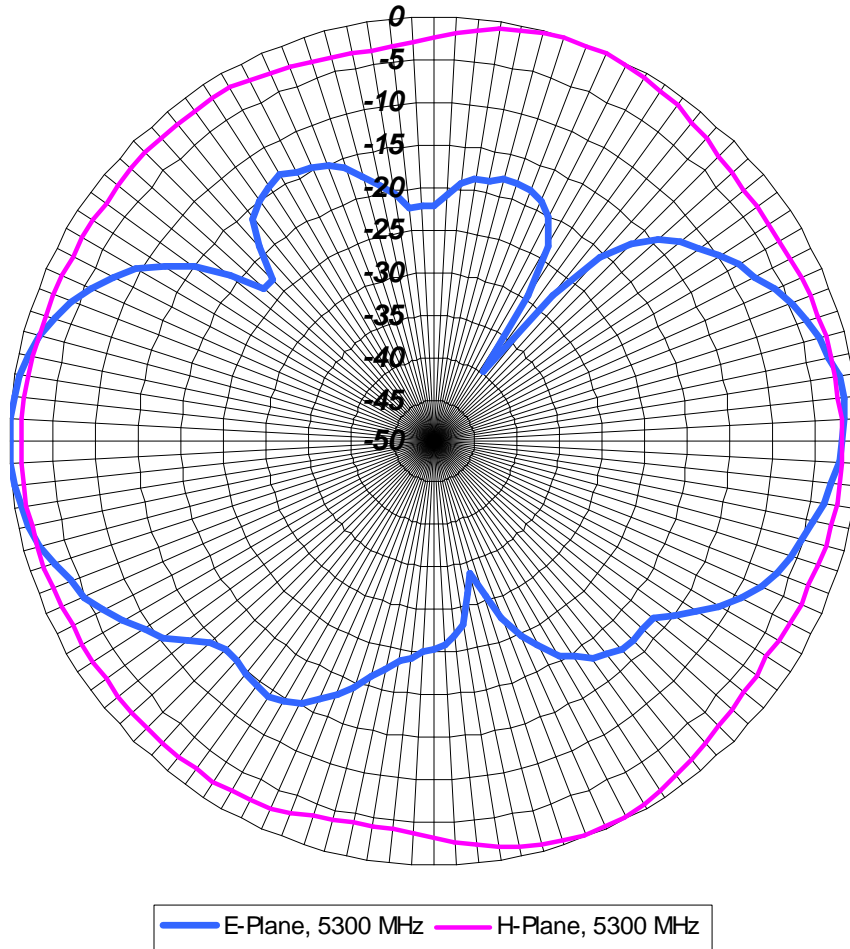


Figure 3.  
AIR-RM21A Omni-directional Patterns,  $f = 5300$  MHz

Kodiak Omni-directional Antenna, E- and H-Planes  
Frequency = 5500 MHz, Peak Gain = 5.0 dBi

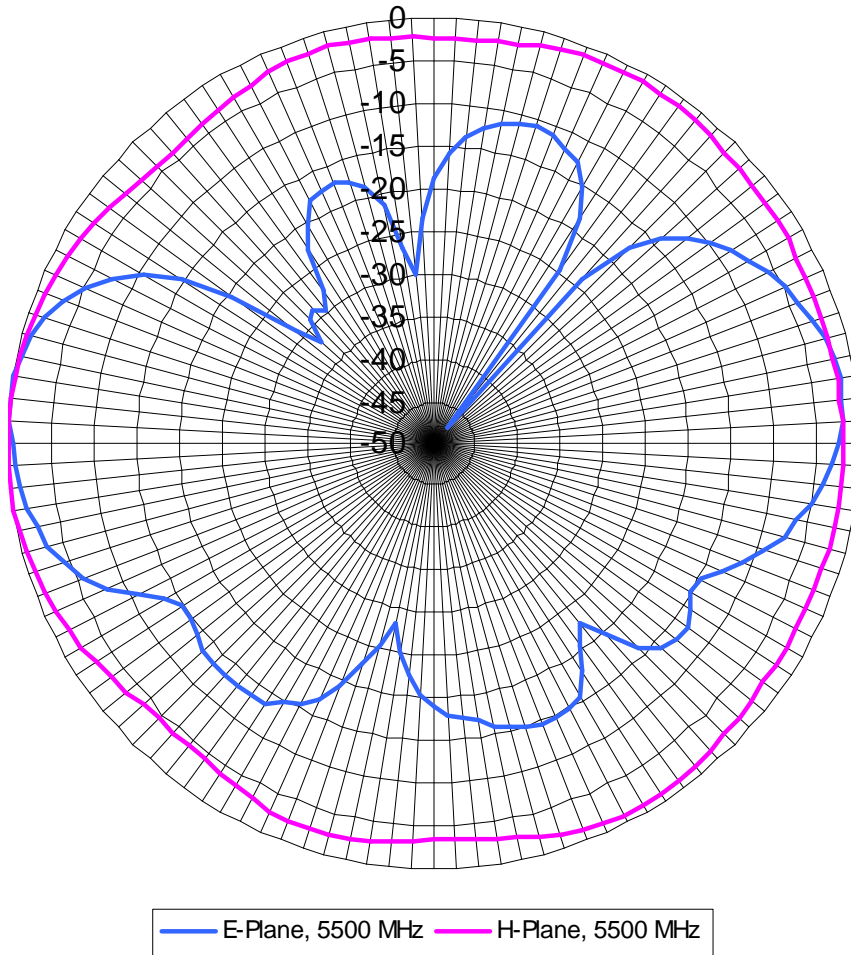


Figure 4.  
AIR-RM21A Omni-directional Patterns,  $f = 5500$  MHz

Kodiak Omni-directional Antenna, E- and H-Planes  
Frequency = 5750 MHz, Peak Gain = 5.4 dBi

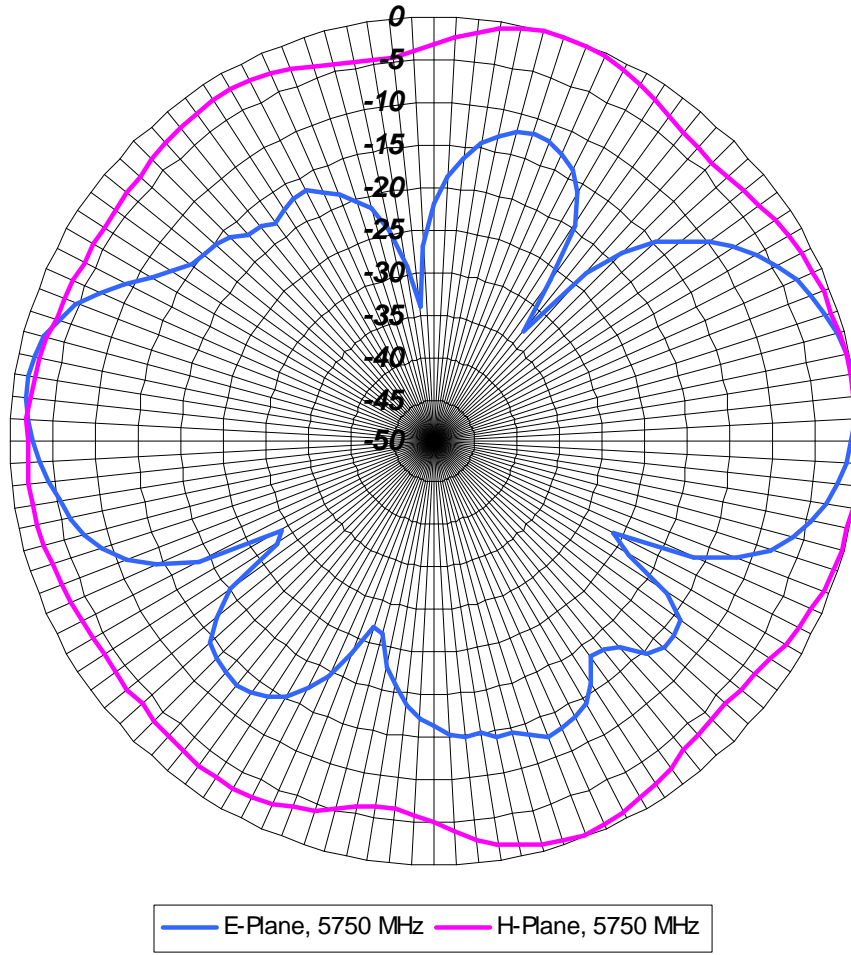


Figure 5.  
AIR-RM21A Omni-directional Patterns,  $f = 5750$  MHz

Kodiak Omni-directional Antenna, E- and H-Planes  
Frequency = 5850 MHz, Peak Gain = 5.4 dBi

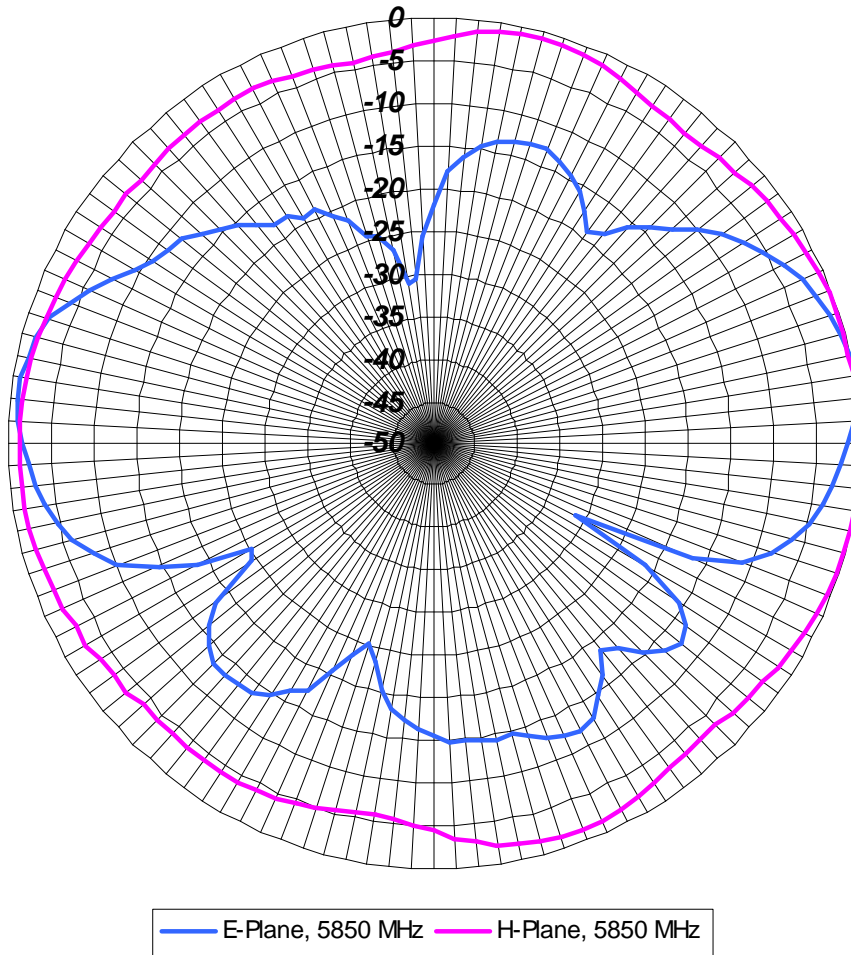


Figure 6.  
AIR-RM21A Omni-directional Patterns,  $f = 5850$  MHz