Technical Specification Sheet

5GHz 802.11a Antenna – 100-0932-001

General Description

This dual band, 2.4GHz and 5.2GHz, antenna has been designed specifically for the WDAP5000 Access Product. It features 802.11a active antenna elements and 802.11b passive elements. The 802.11a antenna has two different emission patterns selectable via software control, omni and front half circle. To connect to the 802.11a active elements a 2mm UMP connector is used. A coaxial UFL connector is used to feed each of the 802.11b elements.

Electrical Specifications

802.11a Array

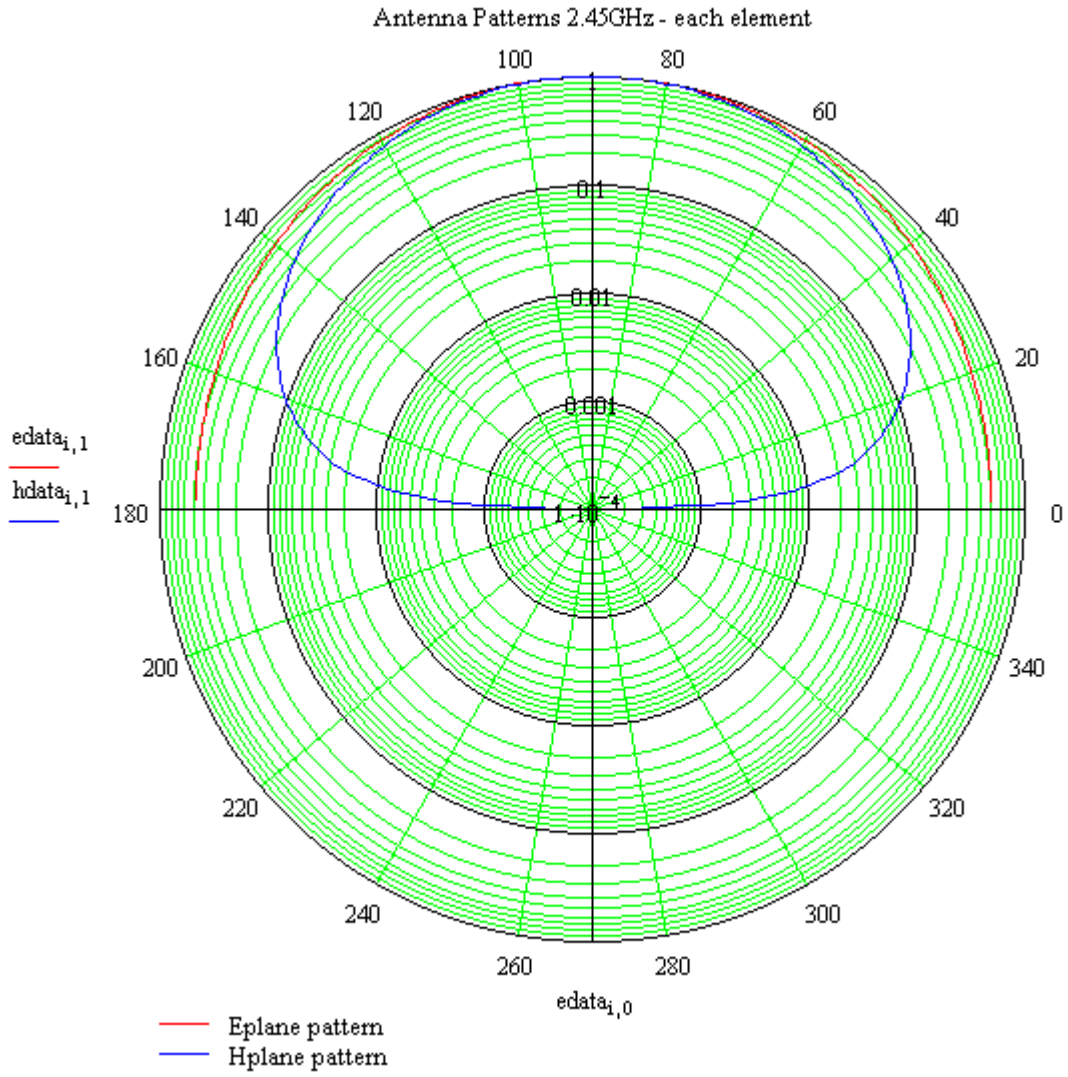
Frequency Range:	5.15 – 5.35 GHz
Peak Gain:	1.8dBi Omni, 5.6dBi Pattern
VSWR:	less than 2.0:1
Polarization:	Circular/Universal
Azimuth Beam-width:	Omni-directional/Pattern
Power Handling:	10Watt CW
Feed Point Impedance:	50 OHMS unbalanced

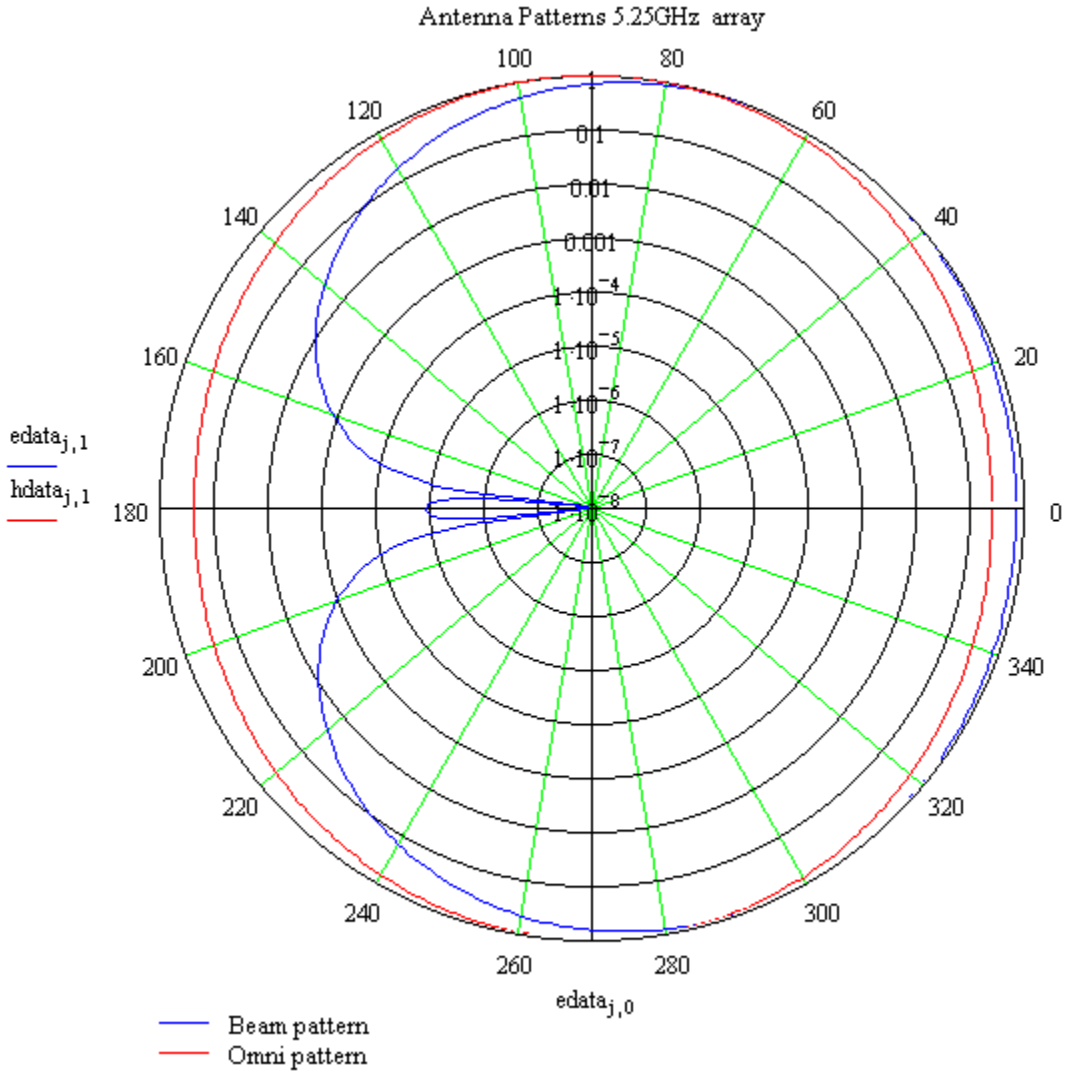
802.11b Elements

Frequency Range:	2.41 – 2.49 GHz
Peak Gain:	6.2dBi
VSWR:	less than 2.0:1
Polarization:	Linear
Azimuth Beam-width:	Omni-directional
Power Handling:	10Watt CW
Feed Point Impedance:	50 OHMS unbalanced

Mechanical Specifications

Size:	6.378 x 2.467 x 0.123 Inches
Weight:	1.5 oz
Mounting:	Snap on 12 pin Connector and slots


Antenna Patterns 2.45GHz - each element
100
80
120
60
140
40
160
20
180
0
200
340
220
320
240
300
260
280
0.1
0.01
0.001
1·10^-4
edata_i,1
hdata_i,1
edata_i,0
Eplane pattern
Hplane pattern


Antenna Patterns 5.25GHz array
100
80
120
60
140
40
160
20
180
0
200
340
220
320
240
300
260
280
0.1
0.01
0.001
edata j,1
hdata j,1
edata j,0
Beam pattern
Omni pattern

MPE Calculations

FCC part 1.1310, Table 1 limits the power density for uncontrolled exposure to 1mW/ cm^2 for systems operating in the UNII bands. The distance, d(cm) from the antenna at which the power density, P_d (mW/cm^2) is below this limit is calculated from the maximum EIRP, P_t (mW) using the equation:

$$P_d = P_t /(4 \eth d^2)$$

Re-arranging for the distance at which the power density is 1mW/cm2 gives:

$$d = \sqrt{} (P_t /(4 \eth))$$

The device under test is designed to use an integral antenna with a gain of 6.2 dBi. The maximum output power for the two modes and all channels is dBm.

The maximum EIRP is, therefore, 15.3 dBm + 6.2 dBi = 21.5 dBm (141.3 mW):

$$d = \sqrt{} (141.3 / (4 \eth)) = \mathbf{\underline{3.35\ cm}}$$

The distance from the antenna that the power density is 1mW/ cm^2 is, therefore, 3.39 cm.

The users guide instructs the user to install the device such that it has a separation of at least 20cm from persons (see text below) to comply with the FCC's requirements. This separation of 20cm more than meets the FCC's and Industry Canada RF exposure requirements.

Mode	EIRP	Pd at 20cm	Calculated distance (in cm) where Pd < 1mW/ cm^2
Normal	21.5 dBm (141.3 mW)	0.0281 mW/ cm^2	3.35

RF Exposure Requirements

To ensure compliance with FCC RF exposure requirements, the antenna used for this device must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or radio transmitter. Installers and end-users must follow the installation instructions provided in this user guide.

Extract From User's Manual