i-FlexPIFA

3-dBi inverted PIFA Antenna
2400-2480 MHz

FEATURES AND BENEFITS

- Quick and easy installation
- Adhesive holds to surface during humidity exposure and hot/cold cycles
- RoHS-compliant
- Radiation direction maximized on adhesive side for outward-facing orientation
- Patent Number: 9450307
- Can be installed in the following ways:
  - On different non-conductive surfaces and thicknesses
  - On flat or curved surfaces
  - MIMO array element
  - On the front or top face of an enclosure interior (alternative placement to FlexPIFA)

SPECIFICATIONS	
Frequency (MHz)	2400 - 2480
Peak Gain (dBi)	+3.1
Average Efficiency (dB)	> -2.1
VSWR (MHz)	< 2.5:1
Impedance (Ω)	50
Polarization	Linear

MECHANICAL SPECIFICATIONS	
Antenna Type	Inverted Ground Flexible Planar Inverted F Antenna (i-FlexPIFA)
Dimensions – mm (inches)	40.9 x 11.0 x 2.9 (1.61 x 0.43 x 0.114)
Weight – g (oz.)	1.13 (0.040)
Color	Clear yellow
Adhesive	3M 100MP
Connector Mating Height (max) – mm	MHF1 (U.FL) | 2.5 MHF4L | 1.4

ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature – °C (°F)	-40 to +85°C (-40 to +185°F)
Material Substance Compliance	RoHS

CONFIGURATION

PART NUMBER	CABLE LENGTH	CONNECTOR
EFG2400A3S-10MHF1	100 mm	MHF1
EFG2400A3S-10MHF4	100 mm	MHF4

Note: Specifications are based on the 100mm cable length, standard antenna version with MHF1 / U.FL connector. Varying the cable length or type or connector will cause variations in these antenna specifications.

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MECHANICAL DRAWING

Physical Dimensions (in mm) of the EFG2400A with a 100mm Long Cable

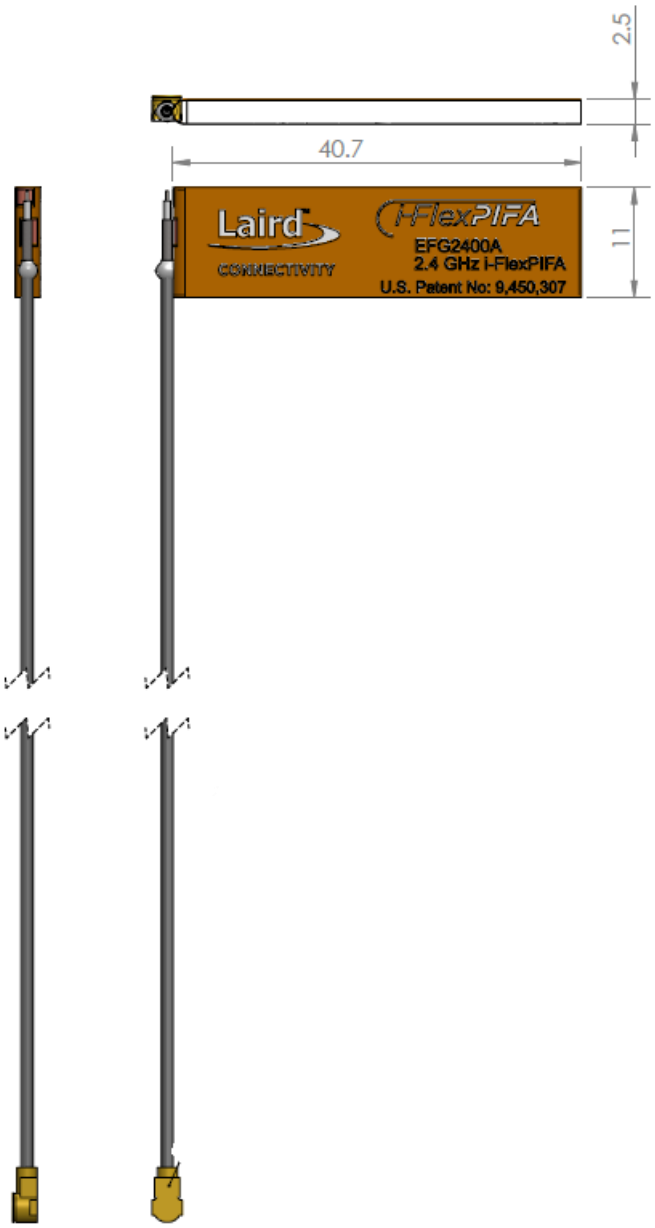

Figure 1: i-FlexPIFA mechanical drawing of EFG2400A Antenna

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Flat Surface Antenna measurements

Flat surface measurements were performed with the antenna centered on a 1.5 mm-thick plate of polycarbonate.

VSWR

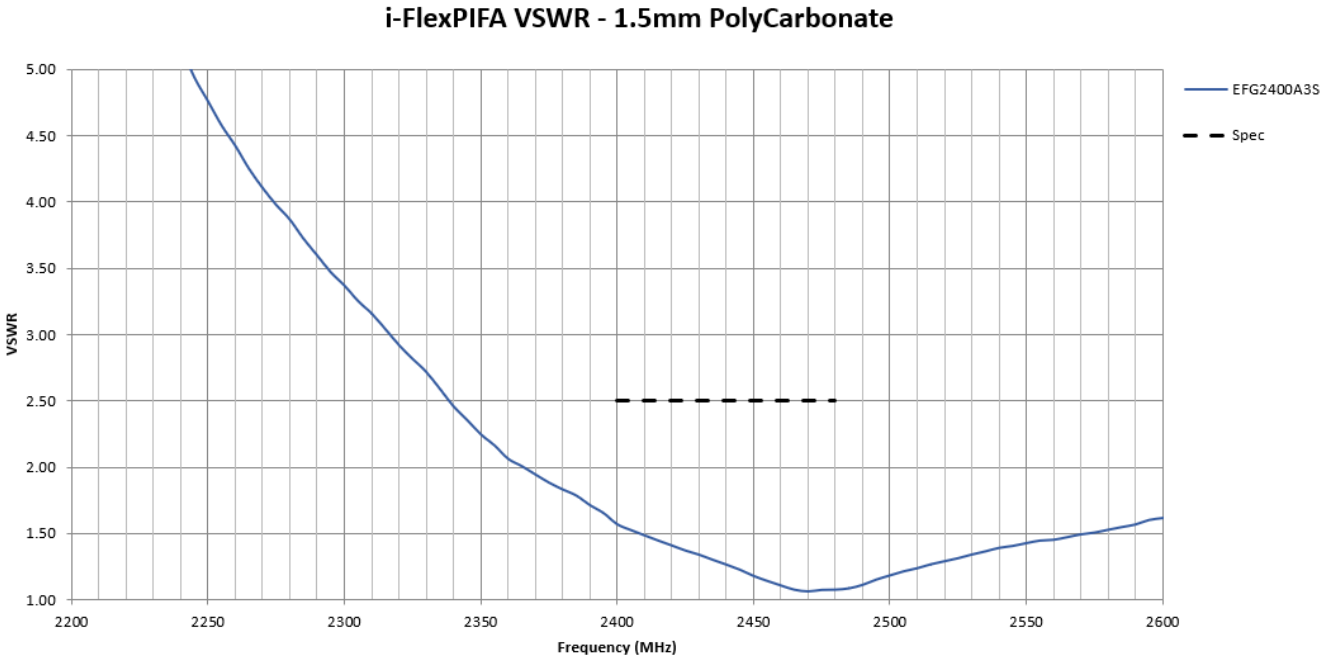

Figure 2: Antenna VSWR measured on a 1.5 mm-thick plate of polycarbonate with a nominal value of 1.45 across a sample size mounted on 1mm-3mm polycarbonate and both MHF1/MHF4 connector options

RETURN LOSS

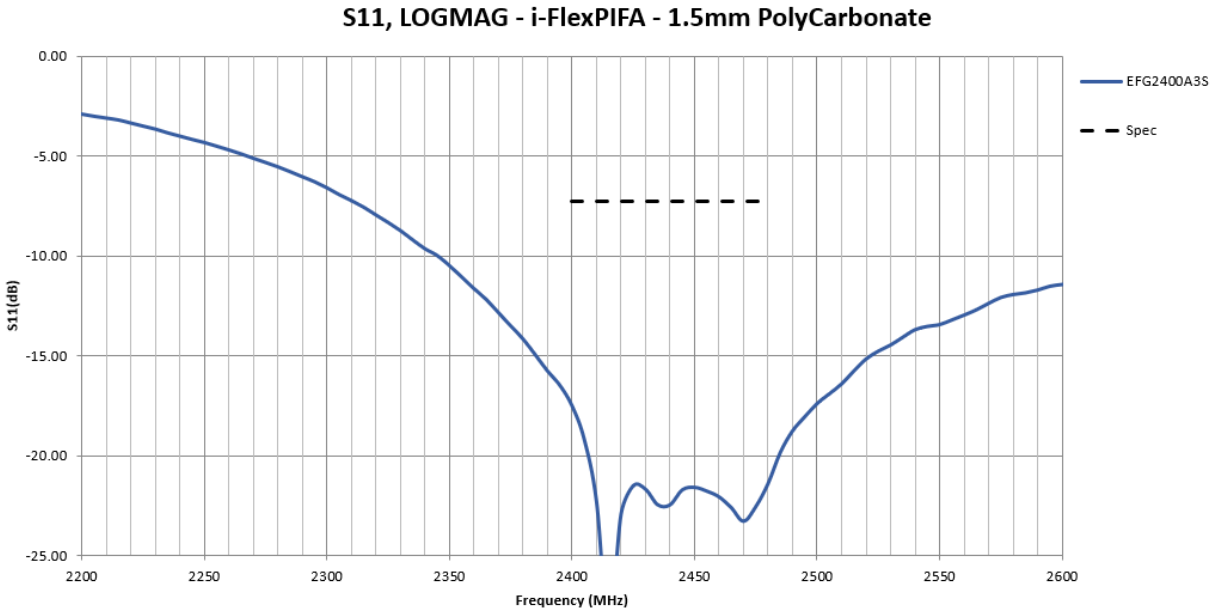

Figure 3: Antenna Return Loss measured on a 1.5 mm-thick plate of polycarbonate with a nominal value of -22.3dB

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Antenna Chamber Test Setup

Antenna measurements such as VSWR and S11 were measured with an Agilent E5071C vector network analyzer. Radiation patterns were measured with a Rohde & Schwarz ZNB8-4PORT vector network analyzer in a Howland Company 3100 chamber equivalent. Phase center is nine inches above the Phi positioner.

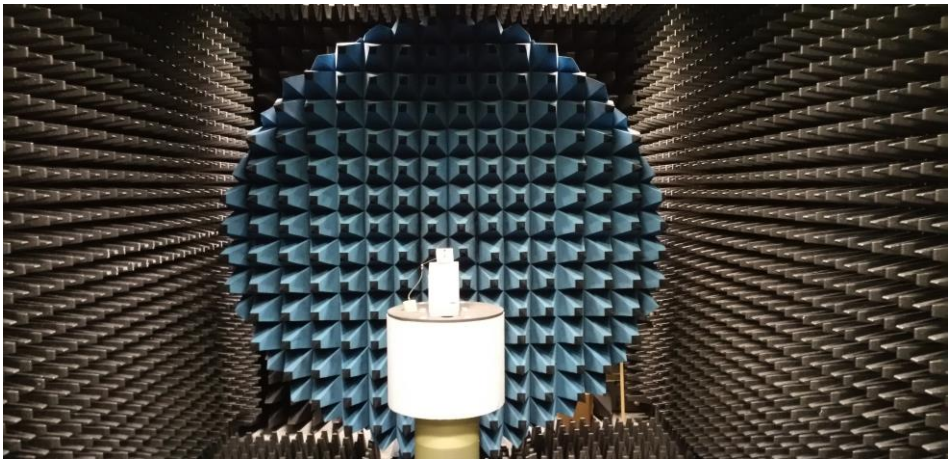

Figure 4: Howland Company 3100 Antenna chamber

Antenna Radiation Performance

FlexPIFA centered on a 1.5 mm-thick plate of polycarbonate

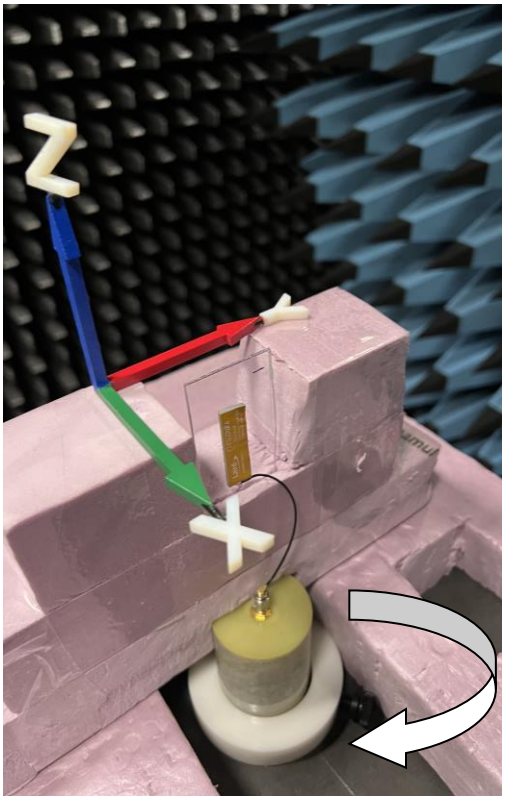

Figure 5: Flat surface setup

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EFFICIENCY

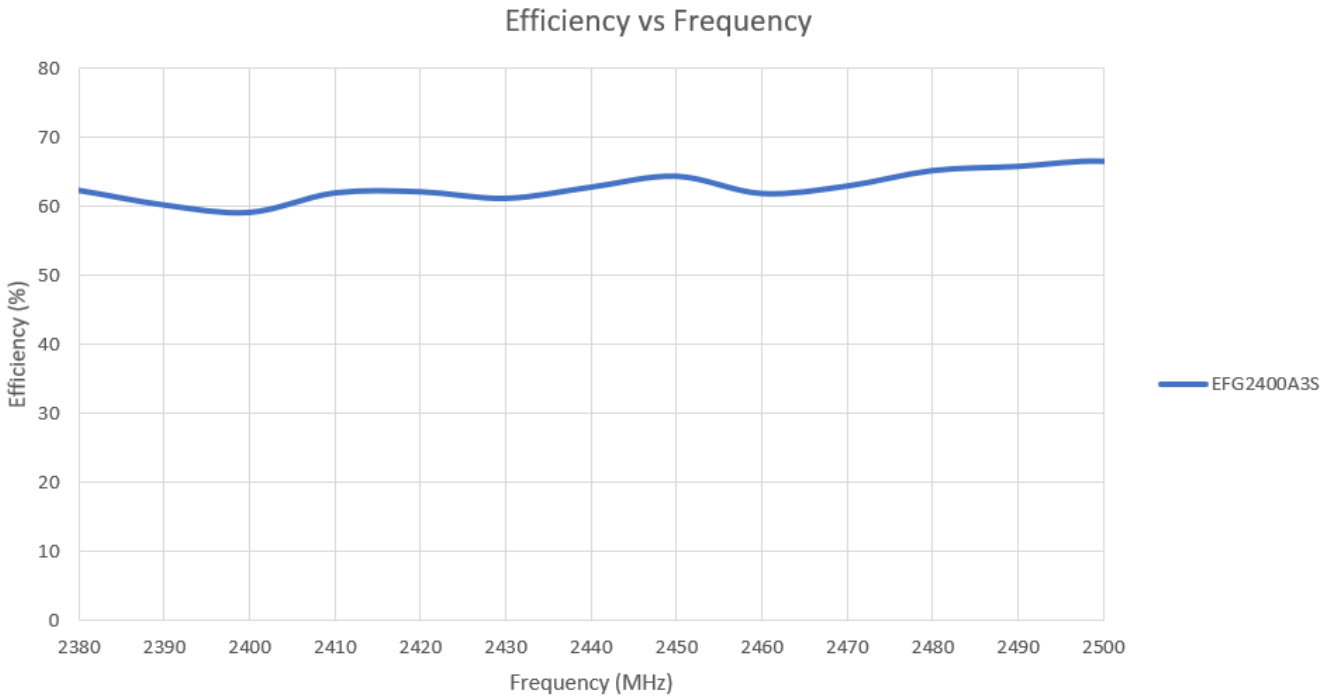

Figure 6: Antenna Efficiency measured on a 1.5 mm-thick plate of polycarbonate with a nominal value of -2.0dB across the operating frequency

ANTENNA GAIN

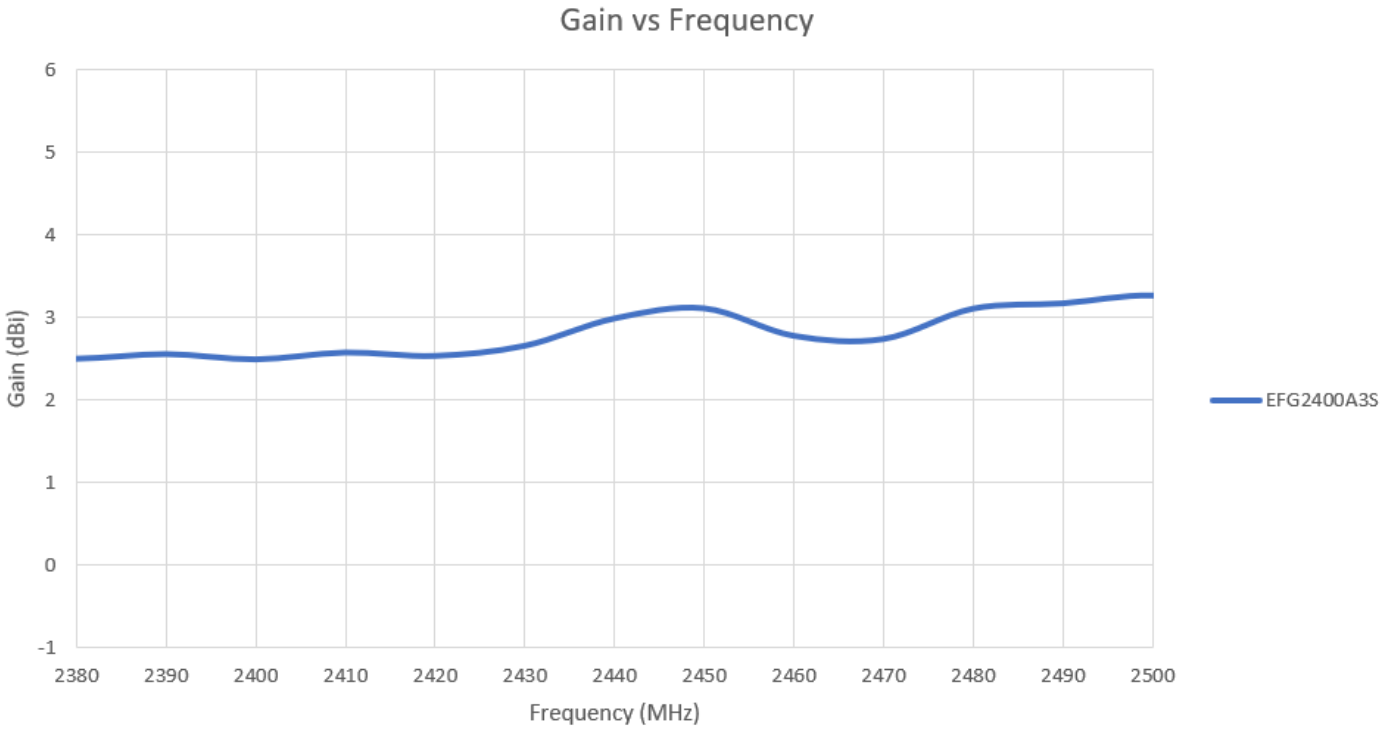

Figure 7: Antenna Gain measured on a 1.5 mm-thick plate of polycarbonate with a nominal value of 2.8dBi across the operating frequency

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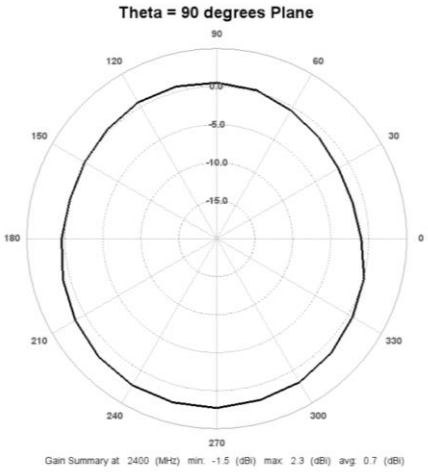
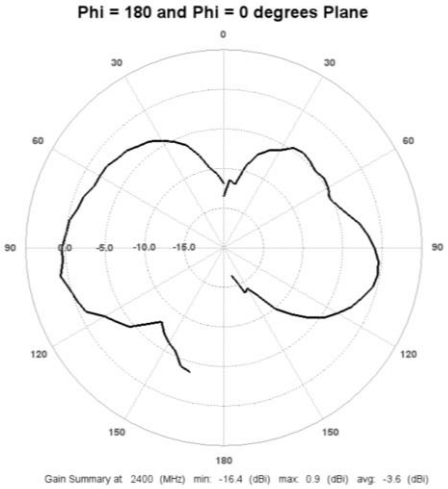
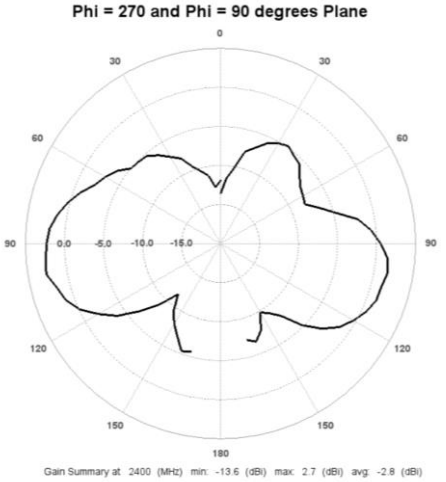
RADIATION PATTERNS – 2D Plots

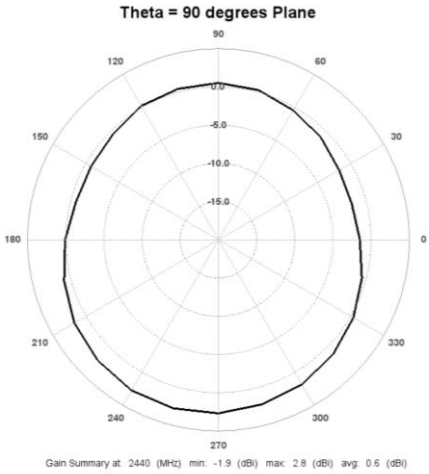
2D Plots at 2400 MHz

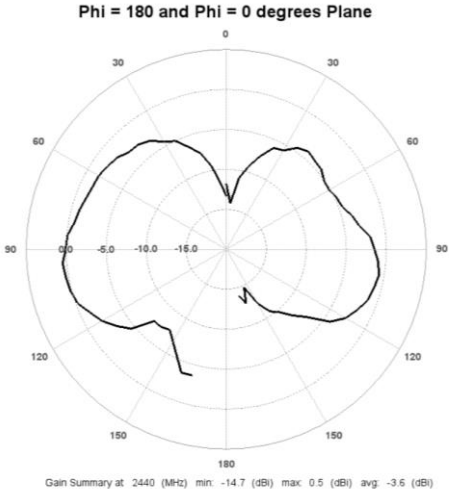


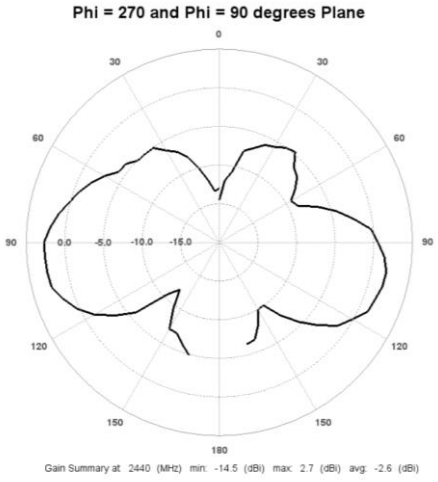




2D Plots at 2440 MHz







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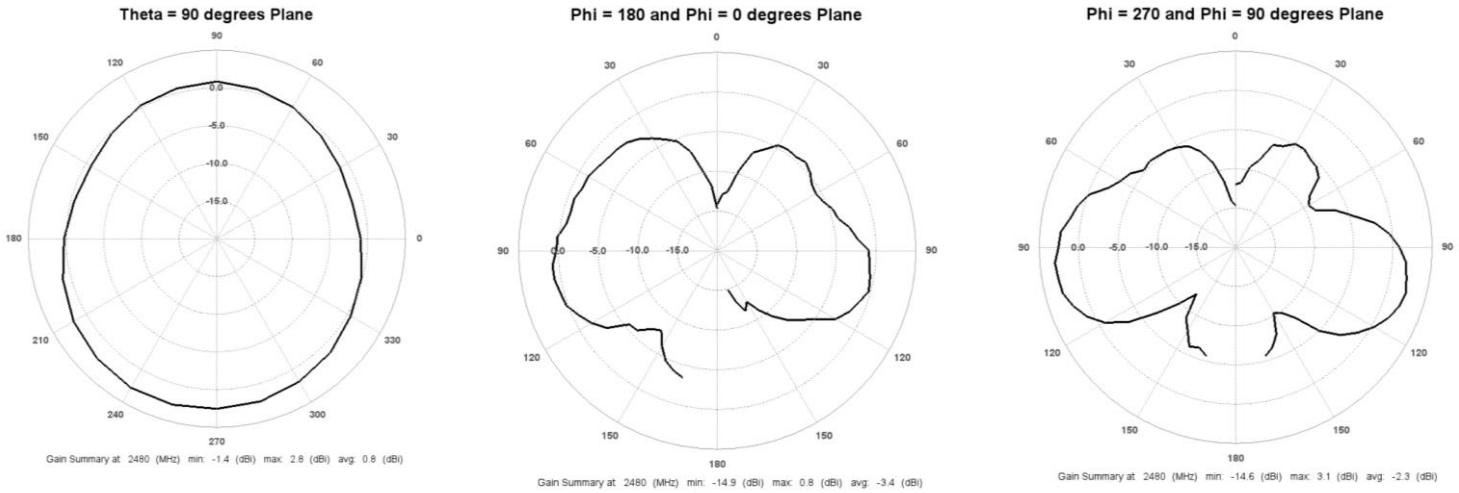
2D Plots at 2480 MHz



RADIATION PATTERNS – 3D Plots

3D Plots at 2400 MHz

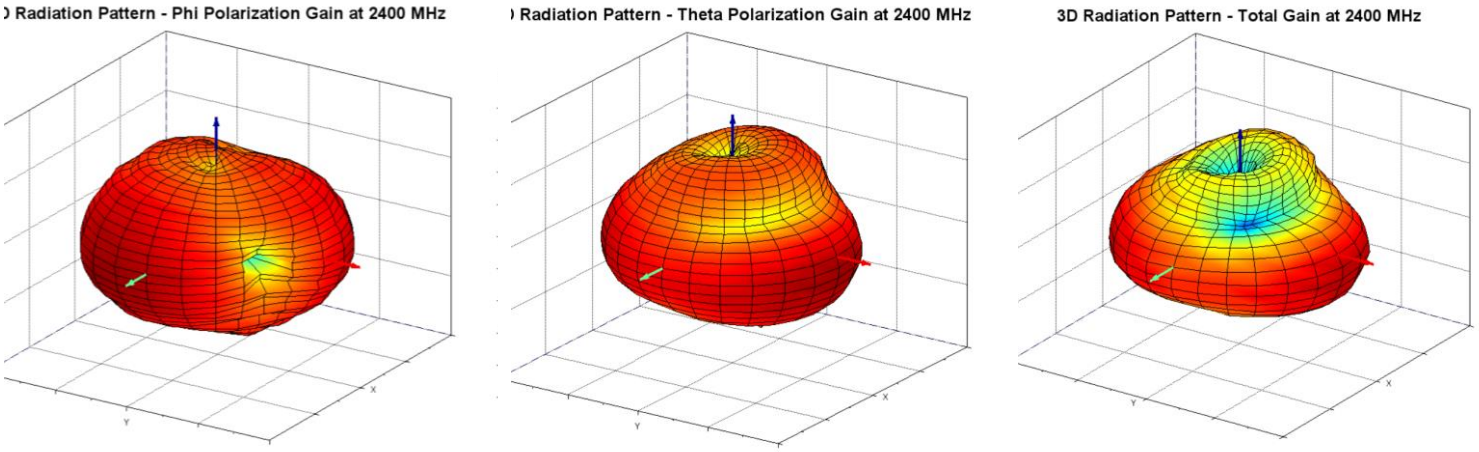


Figure 8: Phi polarization, Theta polarization and, and total gain plots – 2400 MHz

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3D Plots at 2440 MHz

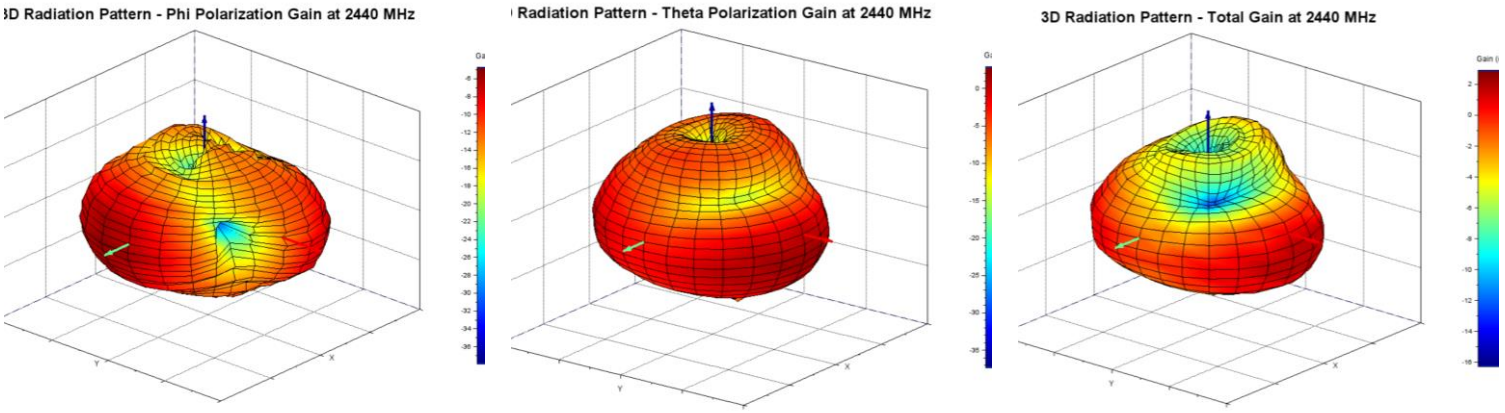

Figure 9: Phi polarization, Theta polarization and, and total gain plots – 2440 MHz

3D Plots at 2480 MHz

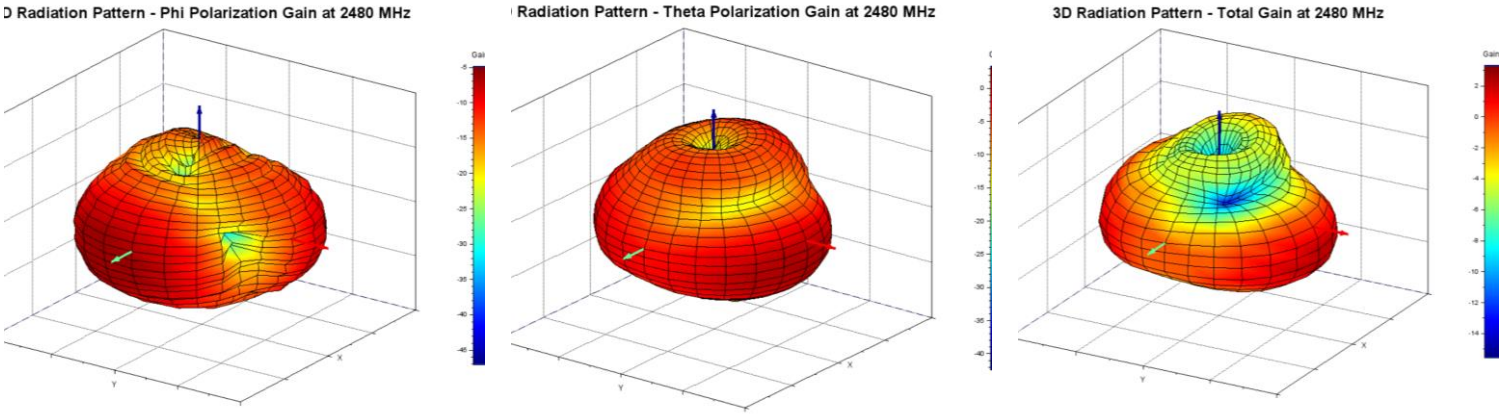

Figure 10: Phi polarization, Theta polarization and, and total gain plots – 2480 MHz

Rev 2.0 - Initial Production Release

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Additional Assistance

Please contact your local Laird Connectivity sales representative or our support team for further assistance:

Support Center	https://www.lairdconnect.com/resources/support	
Phone	Americas:	+1-800-492-2320
	Europe:	+44-1628-858-940
	Hong Kong:	+852 2762 4823
Web	https://www.lairdconnect.com/internal-antennas	
Address	Laird Connectivity 50 S. Main Street, Ste 1100 Akron, OH 44308	

sales@lairdconnect.com
support@lairdconnect.com
www.lairdconnect.com