

L-Band Planar Array Antennas

Transmit and Receive Antennas Offering Polarization for Point-to-Point, Transceivers, Satellite Communications, and RF Transmitters and Receivers



Features

- High Gain (Typical 14 dB)
- Wide Bandwidth
- Linear Polarization
- Low Return Loss (VSWR)
- Application Specific Custom Designs Available

API Technologies' Transmit and Receive L-Band Antenna Arrays (part numbers ARA11500060KXLF & ARA11650060KXLF) are designed for military and commercial markets and applications including point-to-point communications, satellite communications, and RF transmitters and receivers. This low profile, high gain, linearly polarized planar antenna array achieves wider bandwidth than similar sized antennas. API utilizes an in-house proprietary mix of substrate materials which allows wider than normal bandwidth for an antenna of this size and frequency range.

Custom solutions are available for application specific requirements which can include customer-defined frequencies, pattern & polarization, non-standard frequency ranges, form factor, and a variety of options providing optimized performance and packaging configurations.

Performance Specifications

Transmit Antenna Array (P/N: ARA11650060KXLF)

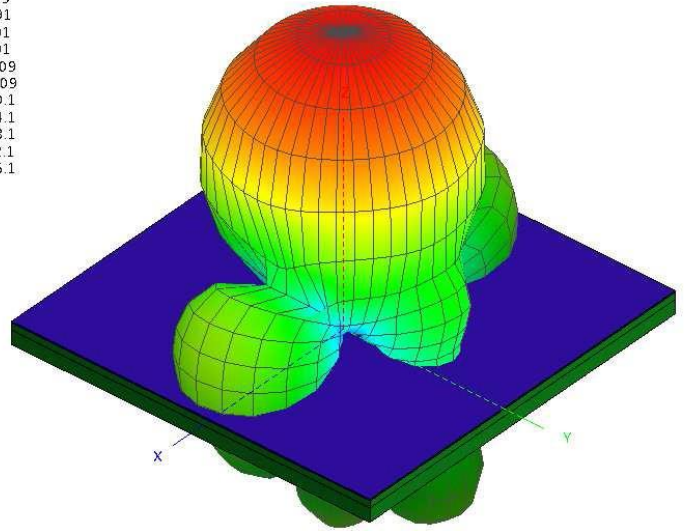
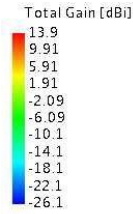
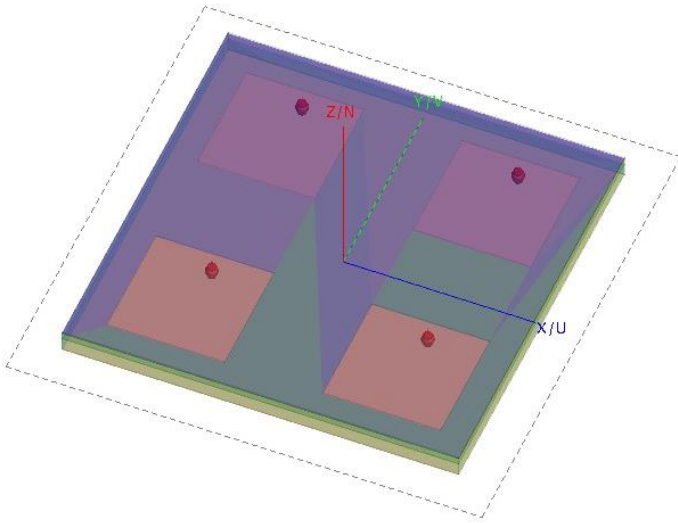
Specification	Typical
Frequency Range	1620-1680 MHz
Center Frequency	1650 MHz
Nominal Gain, Directivity	14 dB +/- 0.5 dB
Side Lobes H Plane	13.7 dB
Side Lobes V Plane	14.7 dB
3dB Beamwidth H plane	33.1 degrees
3dB Beamwidth V plane	33.0 degrees
VSWR	< 1.5:1
CW Power (1600,1620,1680,1700 MHz)	20 Watts (10 Minute dwell time)
Type Antenna	2x2 Linear Patch Array
Nominal Impedance	50 Ohms
Polarization	Linear
Size (L x W x H)	12 x 12 x 1.1 inch
Connector	SMA Female Rear Mount

Receive Antenna Array (P/N: ARA11500060KXLF)

Specification	Typical
Frequency Range	1470-1530 MHz
Center Frequency	1500 MHz
Nominal Gain, Directivity	13 dB +/- 0.5 dB
Side Lobes H Plane	12.2 dB
Side Lobes V Plane	12.2 dB
3dB Beamwidth H plane	33.6 degrees
3dB Beamwidth V plane	35.4 degrees
VSWR	< 1.67:1
CW Power	2 Watts
Type Antenna	2x2 Linear Patch Array
Nominal Impedance	50 Ohms
Polarization	Linear
Size (L x W x H)	12 x 12 x 1.1 inch
Connector	SMA Female Rear Mount

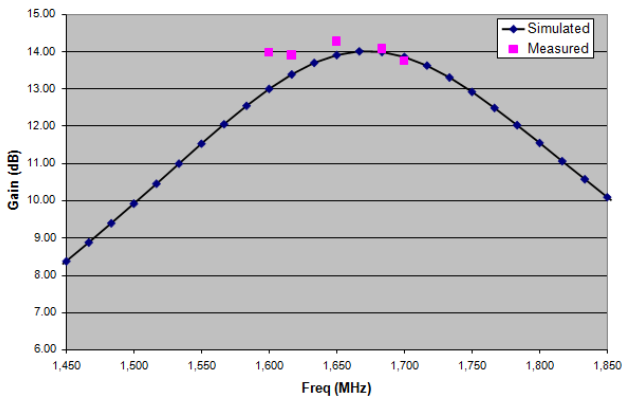
Transmit Antenna Array

Simulated And Measured Data Used To Verify The 1650 MHz Antenna Array Performance



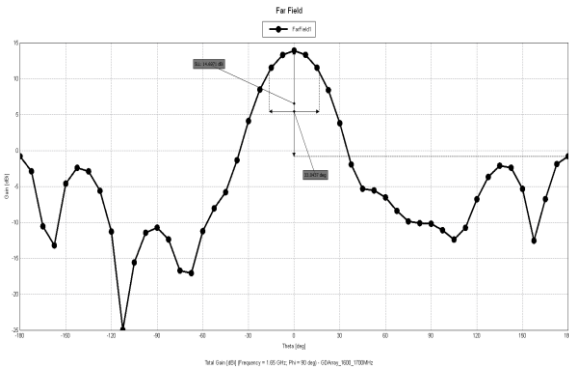
Note: The ground plane, dielectric substrate, 4 patches, air gap between radome, and plastic radome is modeled.

Boresite Gain, Measured Compared To Simulated



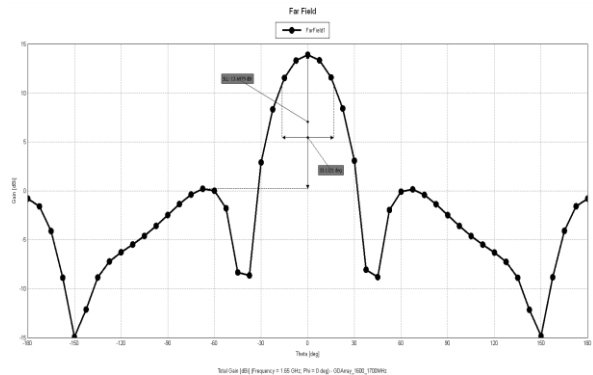
Measured compared to simulated boresite gain

Simulated Far Field Pattern Results



Theta = 0:180, Phi = 90 degrees, frequency = 1650 MHz.
Half power beam width (HPBW) is 33.0 degrees; Max Sidelobe Level (SLL) of 14.7 dB.

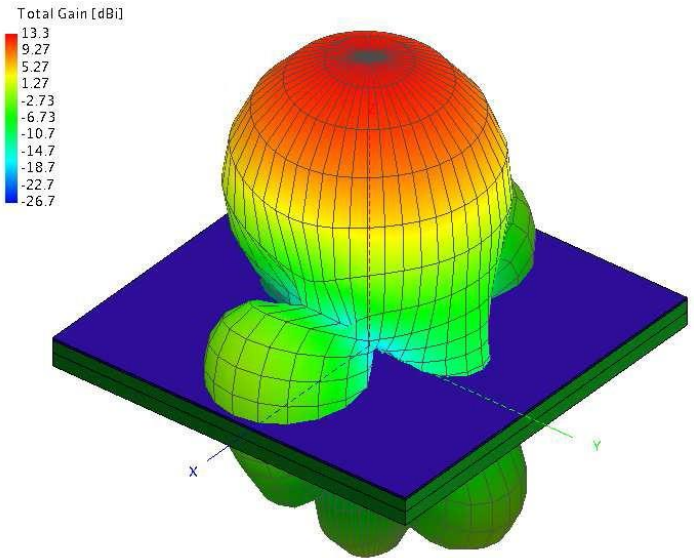
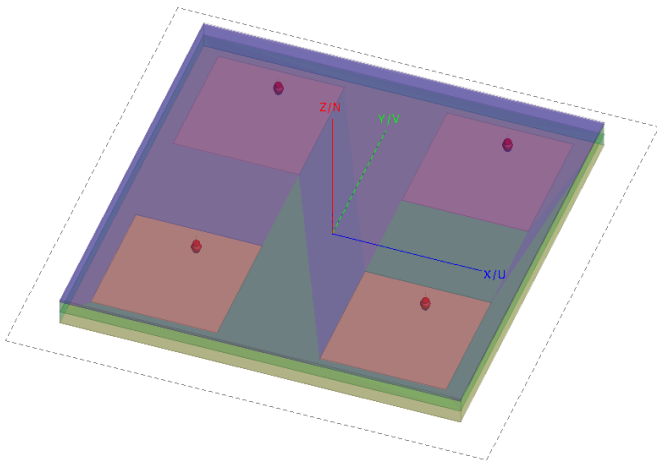
Simulated Far Field Pattern Results



Theta = 0:180, Phi = 0 degrees, Frequency = 1650 MHz.
Half power beam width (HPBW) is 33.1 degrees; Max Sidelobe Level (SLL) of 13.7 dB.

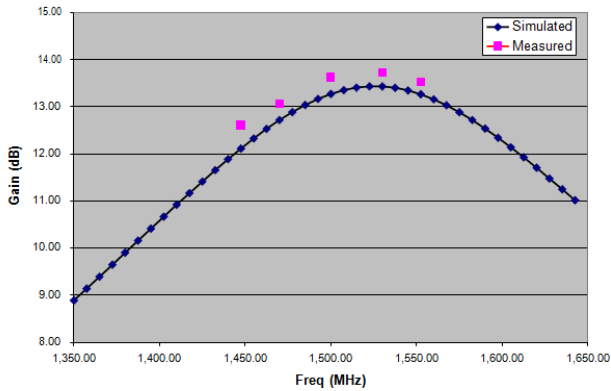
Receive Antenna Array

Simulated And Measured Data Used To Verify The 1500 MHz Antenna Array Performance



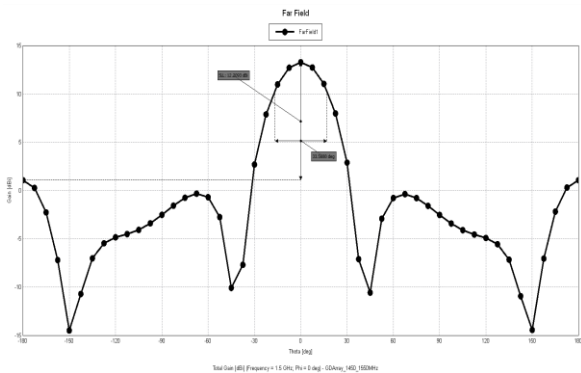
Note: The ground plane, dielectric substrate, 4 patches, air gap between radome, and plastic radome is modeled.

Boresite Gain, Measured Compared To Simulated



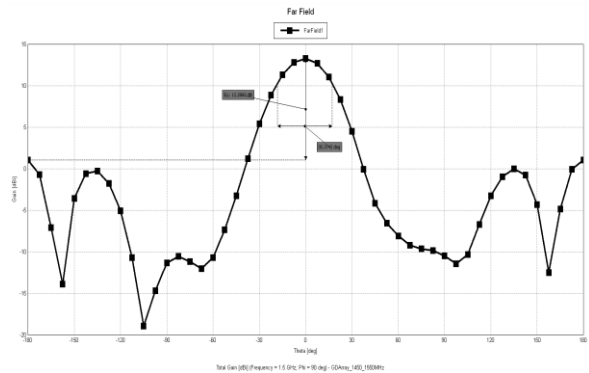
Measured compared to simulated boresite gain

Simulated Far Field Pattern Results



Theta = 0:180, Phi = 0 degrees, frequency = 1500 MHz.
Half power beam width (HPBW) is 33.6 degrees; Max Sidelobe Level (SLL) of 12.2 dB.

Simulated Far Field Pattern Results

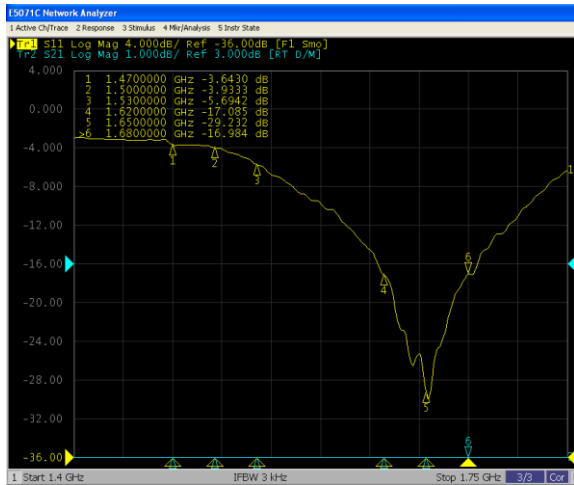


Theta = 0:180, Phi = 90 degrees, frequency = 1500 MHz.
Half power beam width (HPBW) is 35.4 degrees; Max Sidelobe Level (SLL) of 12.2 dB.

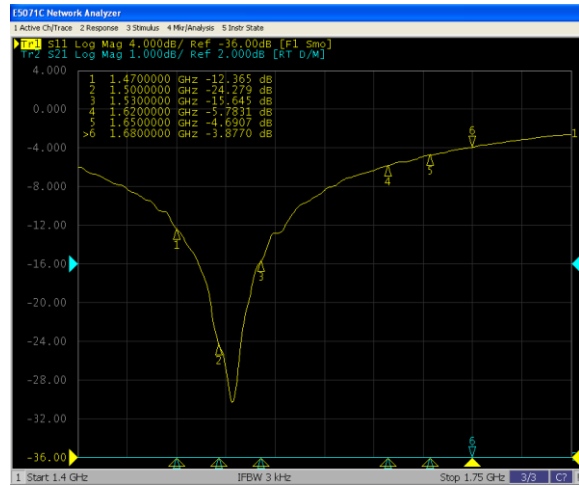
ARA11500060KXLF & ARA11650060KXLF

Measurements Of The Serialized Arrays

Transmit Array Return Loss



Receive Array Return Loss



Outline Drawing

