

## Lark (VS80T) Headset Power Output and Antenna Gain

Antenna operating band: 2402 - 2480 MHz

Antenna type: Inverted-F

Connector Type: None – not removable

Peak gain (directional): -0.81 dBi maximum on artificial head at 2402 MHz, and -1.78dBi maximum in free space

### ANTENNA GAIN PATTERNS:

All Antenna Gain Patterns are derived from the measurements taken for power output and compared to conducted power measurements taken from the same device.

#### HEAD

Channel 0 = 2402MHz – Conducted power = 12.8 dBm

Max Gain = -0.81 dBi

Channel 39 = 2441MHz – Conducted power = 12.9 dBm

Max Gain = -1.12 dBi

Channel 78 = 2480MHz – Conducted power = 13.0 dBm

Max Gain = -4.23 dBi

#### FREE SPACE

Channel 0 = 2402MHz – Conducted power = 12.8 dBm

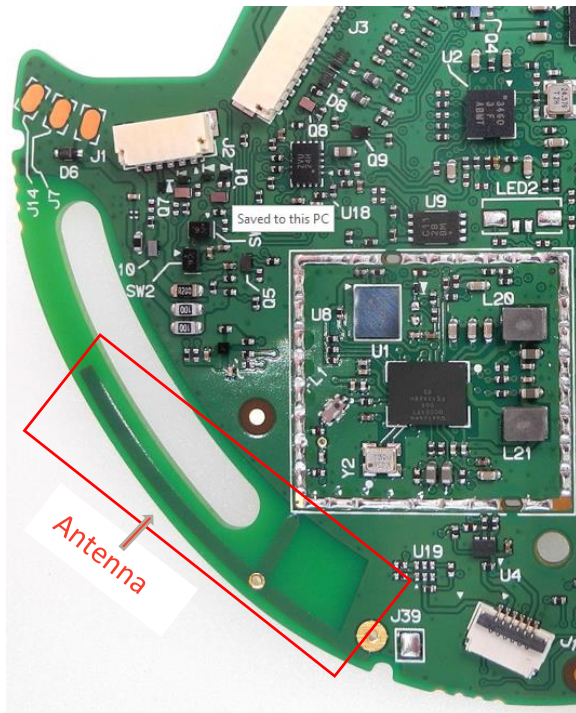
Max Gain = -1.78 dBi

Channel 39 = 2441MHz – Conducted power = 12.9 dBm

Max Gain = -3.35 dBi

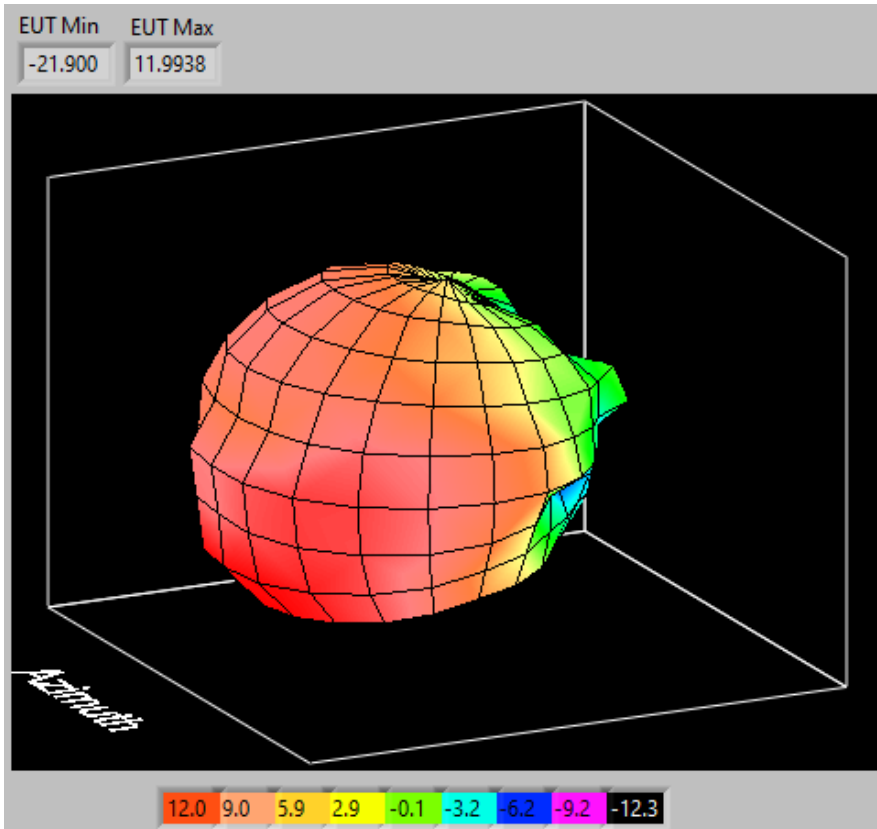
Channel 78 = 2480MHz – Conducted power = 13.0 dBm

Max Gain = -4.95 dBi

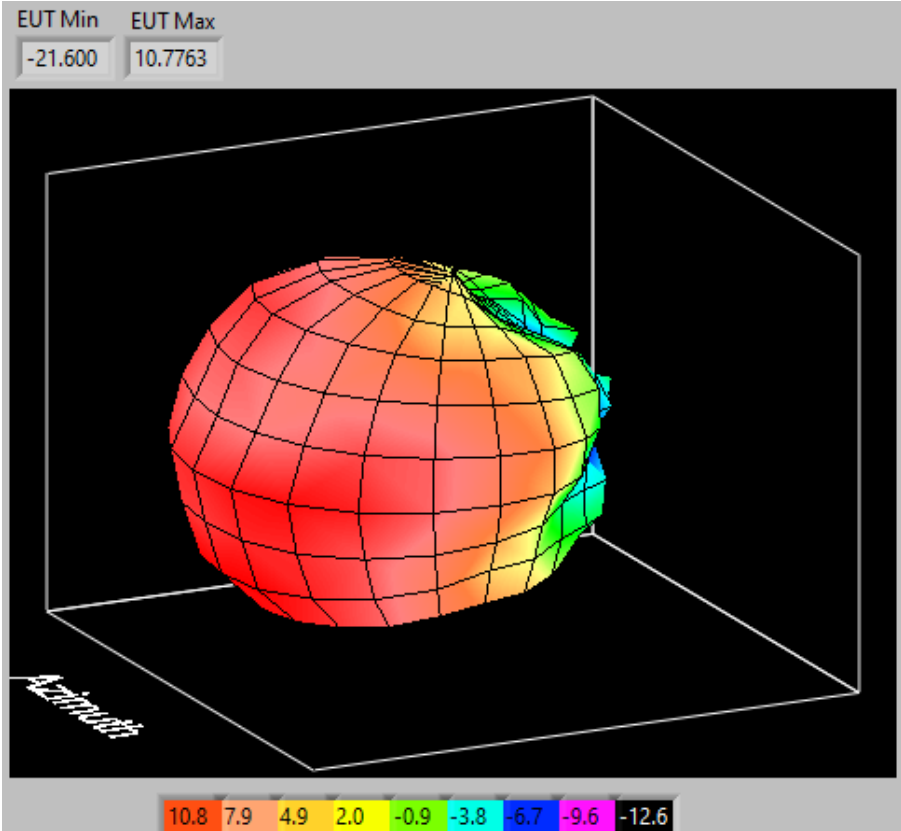


**POWER OUTPUT PATTERNS (ON HEAD):**

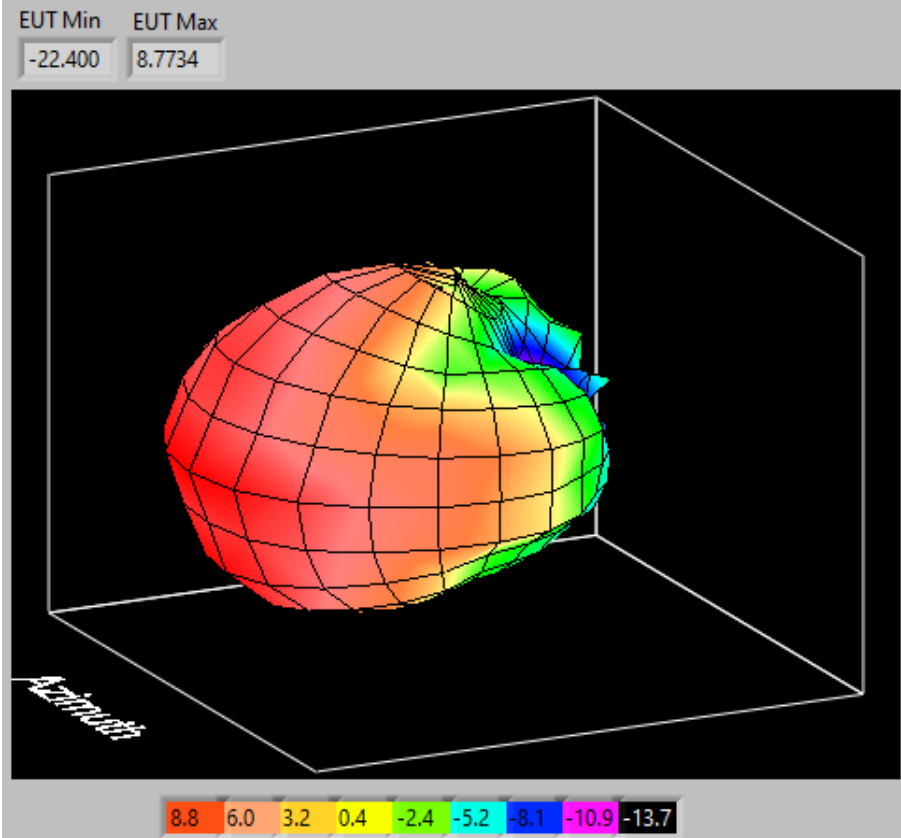
All power output patters were run using the greater circle meathod at 15 degree increments, with measurement taken for both horizontal and vertical polarizations at Low (CH0-2402 MHz), Middle (CH39-2441 MHz) and High (CH78-2480 MHz) portions of the overall bluetooth band. This was accomplished by setting the device in CW output mode at it's highest power setting. This first set of patterns are with Lark on a SAM (Semi-Anthropomorphic) Head that represents 'loading' as if in actual use.



EUT Serial # 0001JA Channel 0 (2402 MHz) Max power 11.99 dBm



EUT Serial # 0001JA Channel 39 (2441 MHz) Max power 11.78 dBm



EUT Serial # 0001JA Channel 78 (2480 MHz) Max power 8.77 dBm

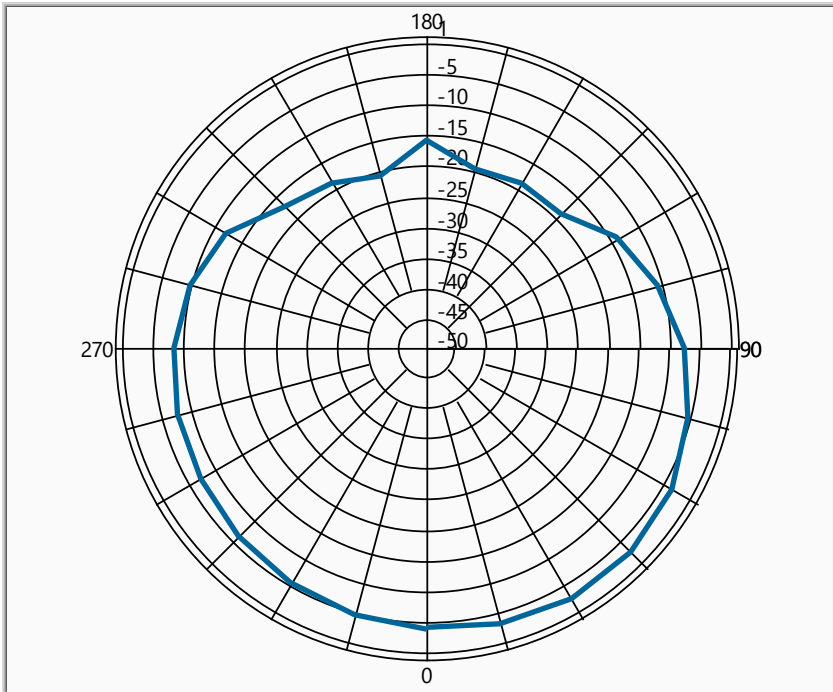
## ANTENNA GAIN PATTERNS (ON HEAD):

All Antenna Gain Patterns are derived from the measurements taken for power output and compared to conducted power measurements taken from the same device.

Channel 0 = 2402MHz – Conducted power = 12.8 dBm  
Channel 39 = 2441MHz – Conducted power = 12.9 dBm  
Channel 78 = 2480MHz – Conducted power = 13.0 dBm

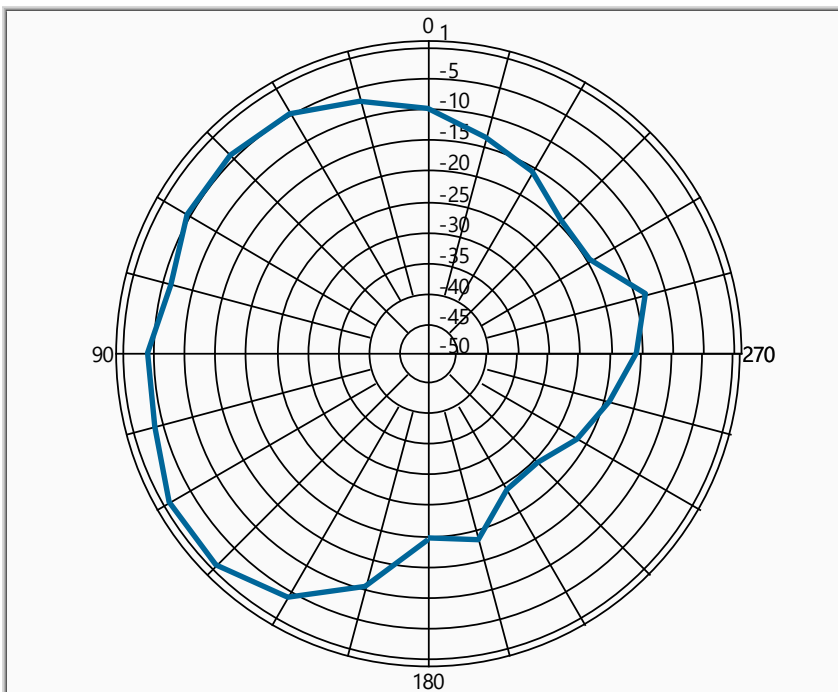
Max Gain = -0.81 dBi  
Max Gain = -1.12 dBi  
Max Gain = -4.23 dBi

Polar Plot



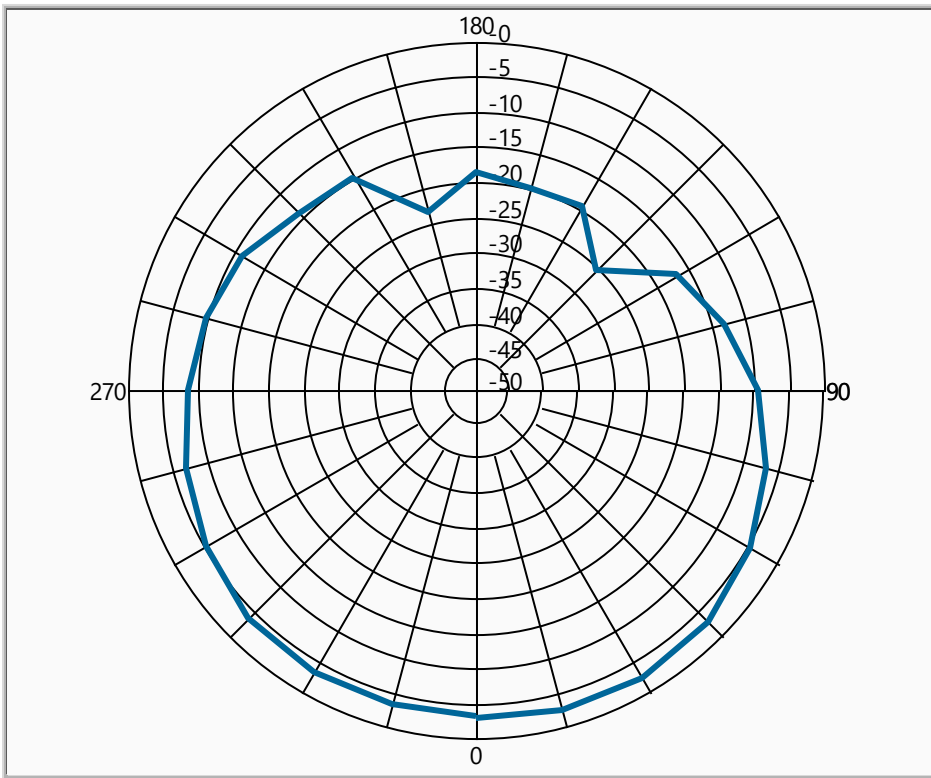
EUT Serial # 0001JA Channel 0 (2402 MHz) Max Gain -0.81 dBi (Azimuth Cut)

Polar Plot 2



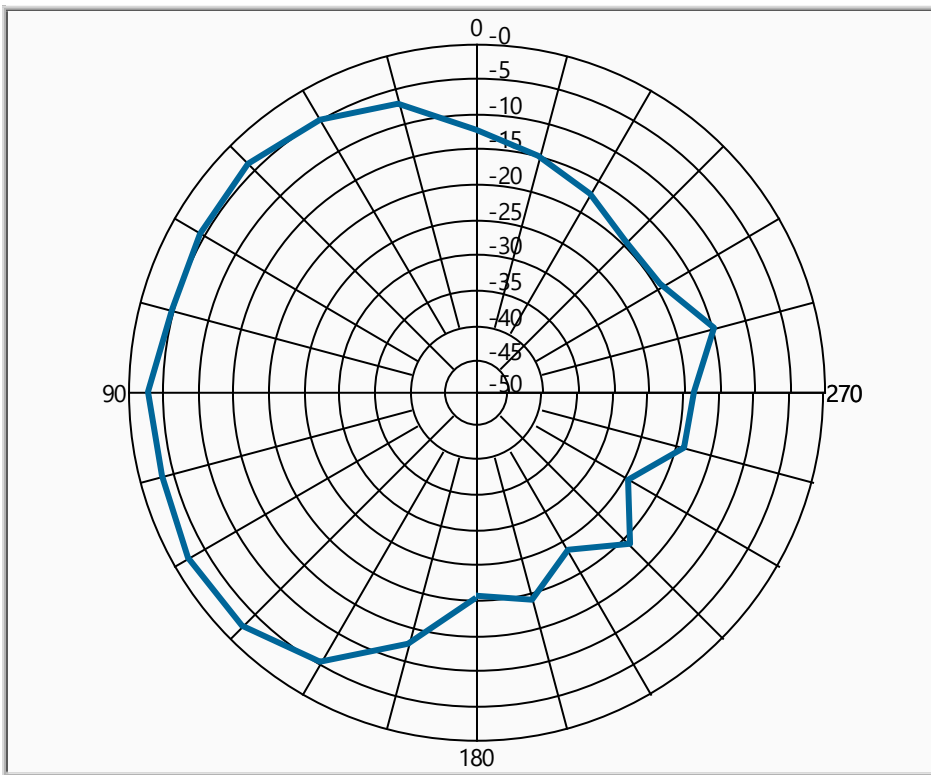
EUT Serial # 0001JA Channel 0 (2402 MHz) Max Gain -0.81 dBi (Elevation Cut)

Polar Plot

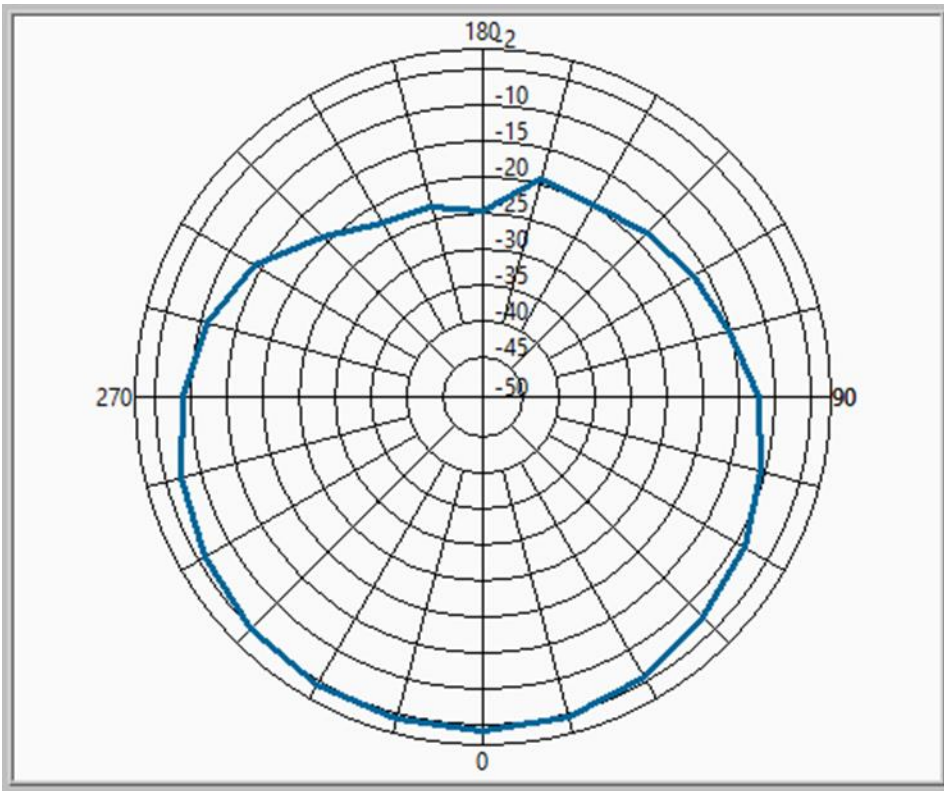


EUT Serial # # 0001JA Channel 39 (2441 MHz) Max Gain -1.12 dBi (Azimuth Cut)

Polar Plot 2

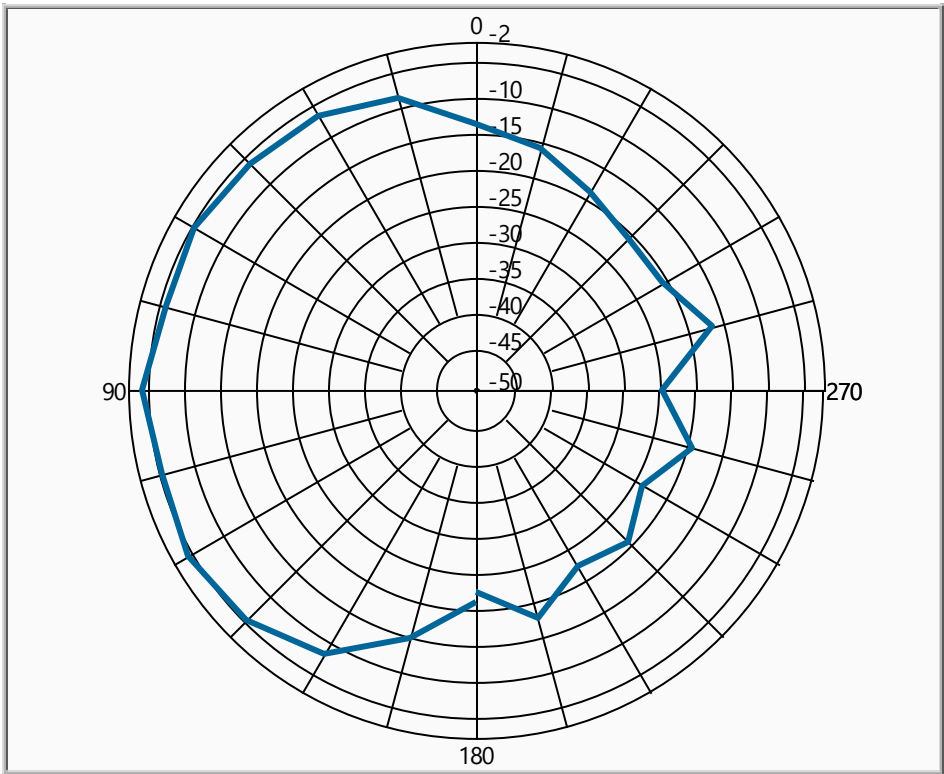


EUT Serial # # 0001JA Channel 39 (2441 MHz) Max Gain -1.12 dBi (Elevation Cut)



EUT Serial # # 0001JA Channel 78 (2480 MHz) Max Gain -4.23 dBi (Azimuth Cut)

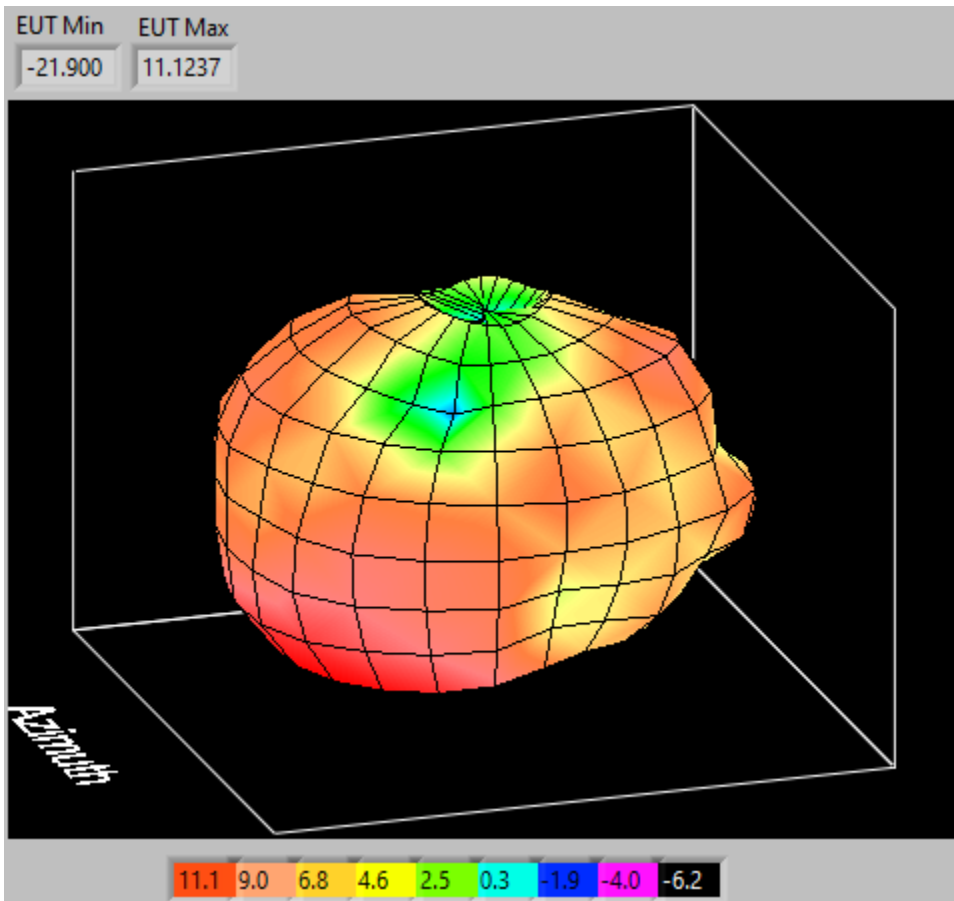
Polar Plot 2



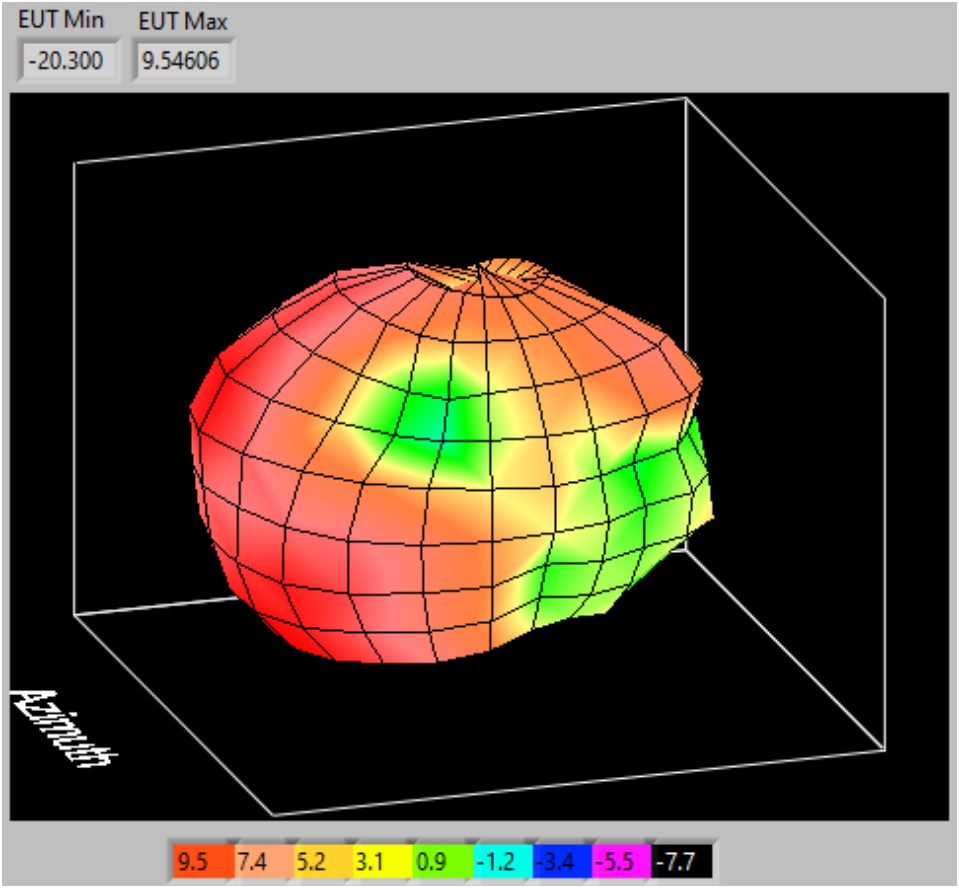
EUT Serial # # 0001JA Channel 78 (2480 MHz) Max Gain -4.23 dBi (Elevation Cut)

### POWER OUTPUT PATTERNS (FREE SPACE):

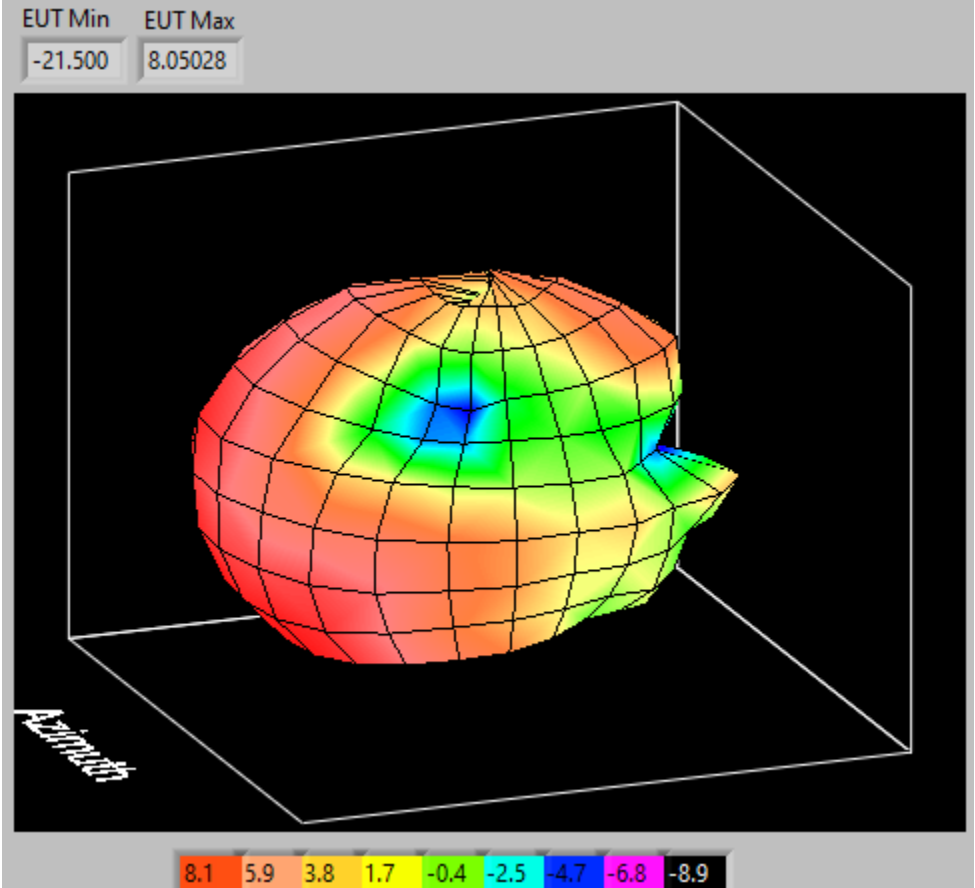
This second set of patterns are with the same Lark EUT on a polystyrene head that is RF transparent and allows for orinthonginal placement of the EUT as it was in the patterns taken above for direct comparison.



EUT Serial # # 0001JA Channel 0 (2402 MHz) Max power 11.12 dBm



EUT Serial # # 0001JA Channel 0 (2441 MHz) Max power 9.55 dBm



EUT Serial # # 0001JA Channel 0 (2480 MHz) Max power 8.05 dBm



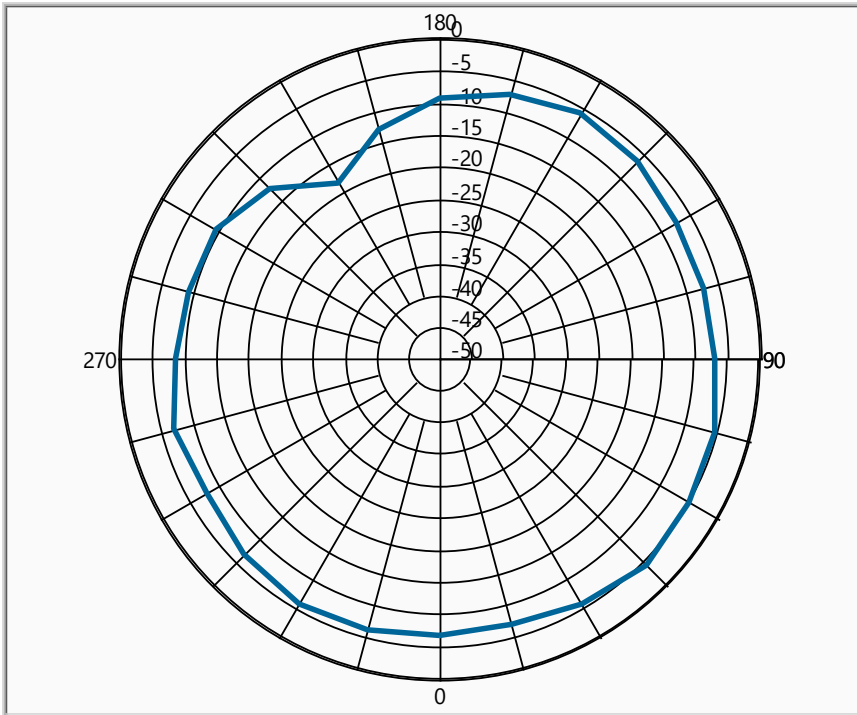
## ANTENNA GAIN PATTERNS (FREE SPACE):

All Antenna Gain Patterns are derived from the measurements taken for power output and compared to conducted power measurements taken from the same device.

Channel 0 = 2402MHz – Conducted power = 12.8 dBm  
Channel 39 = 2441MHz – Conducted power = 12.9 dBm  
Channel 78 = 2480MHz – Conducted power = 13.0 dBm

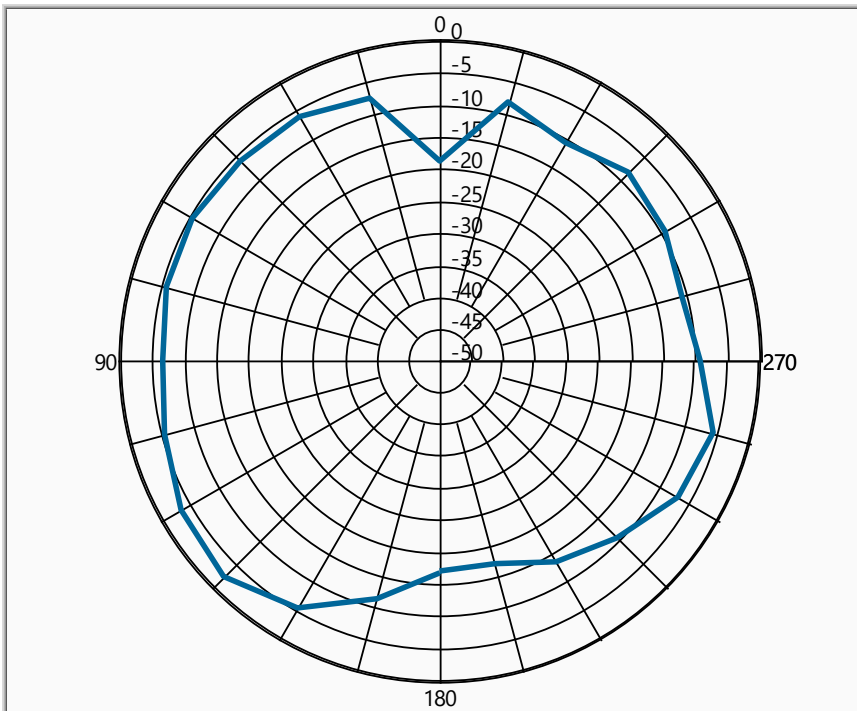
Max Gain = -1.78 dBi  
Max Gain = -3.35 dBi  
Max Gain = -4.95 dBi

Polar Plot



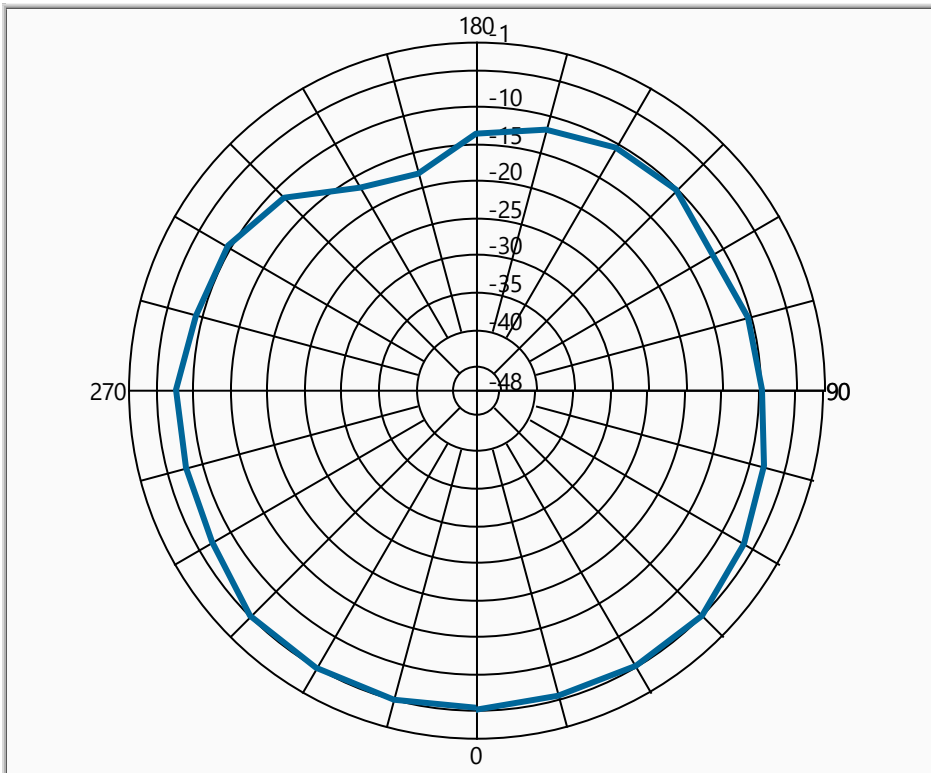
EUT Serial # 0001JA Channel 0 (2402 MHz) Max Gain -1.78 dBi (Azimuth Cut)

Polar Plot 2



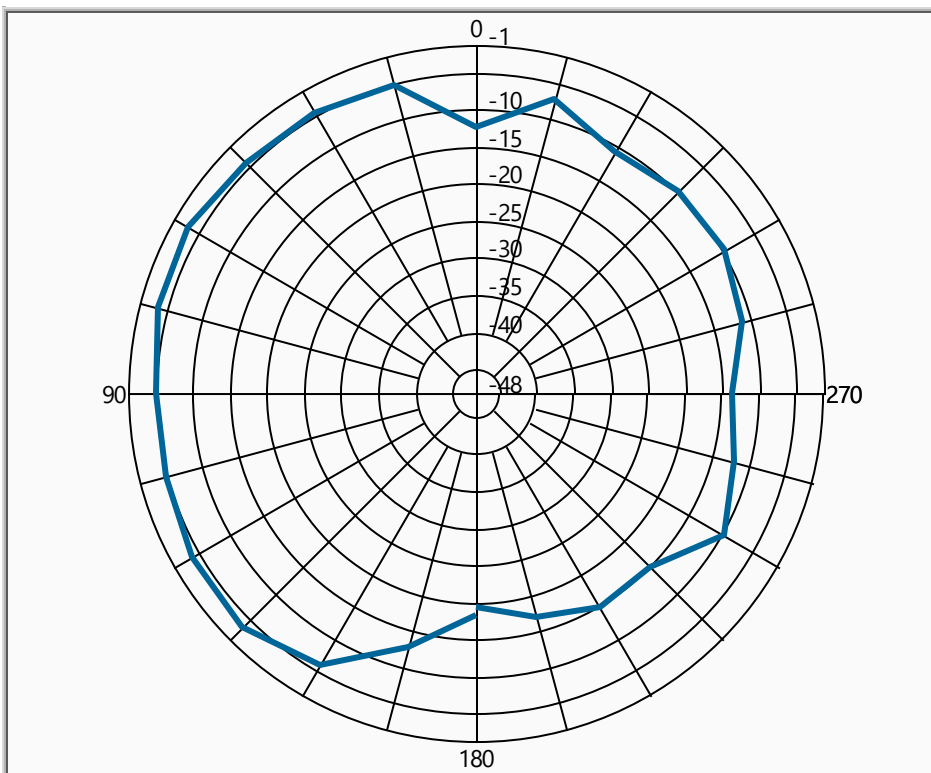
EUT Serial # 0001JA Channel 0 (2402 MHz) Max Gain -1.78 dBi (Elevation Cut)

Polar Plot



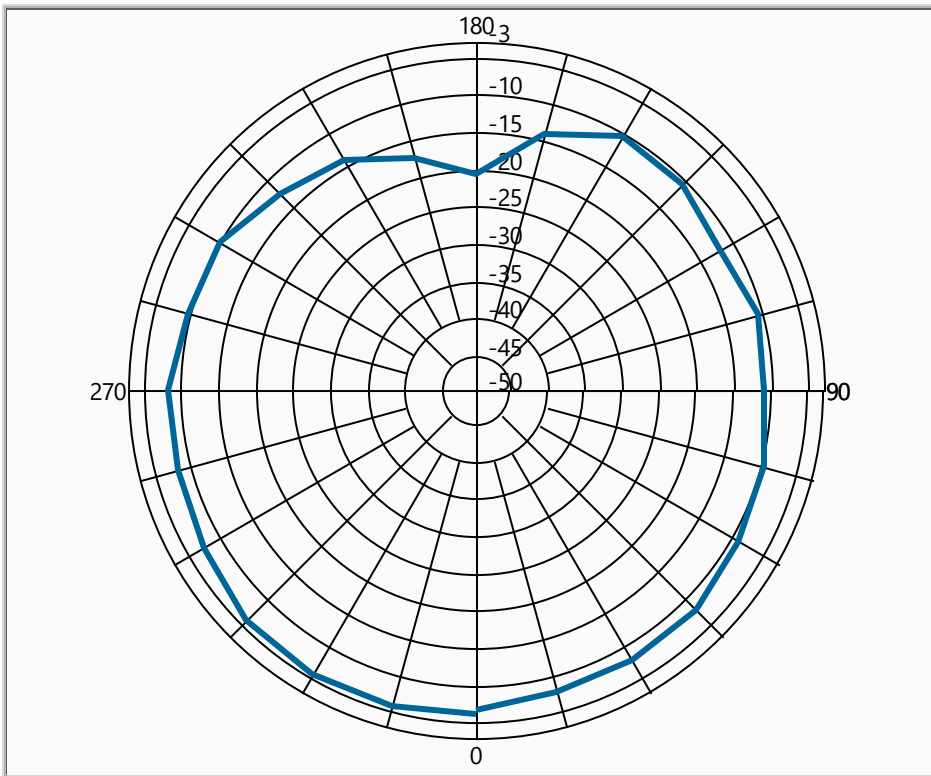
EUT Serial # 0001JA Channel 0 (2441 MHz) Max Gain -3.35 dBi (Azimuth Cut)

Polar Plot 2

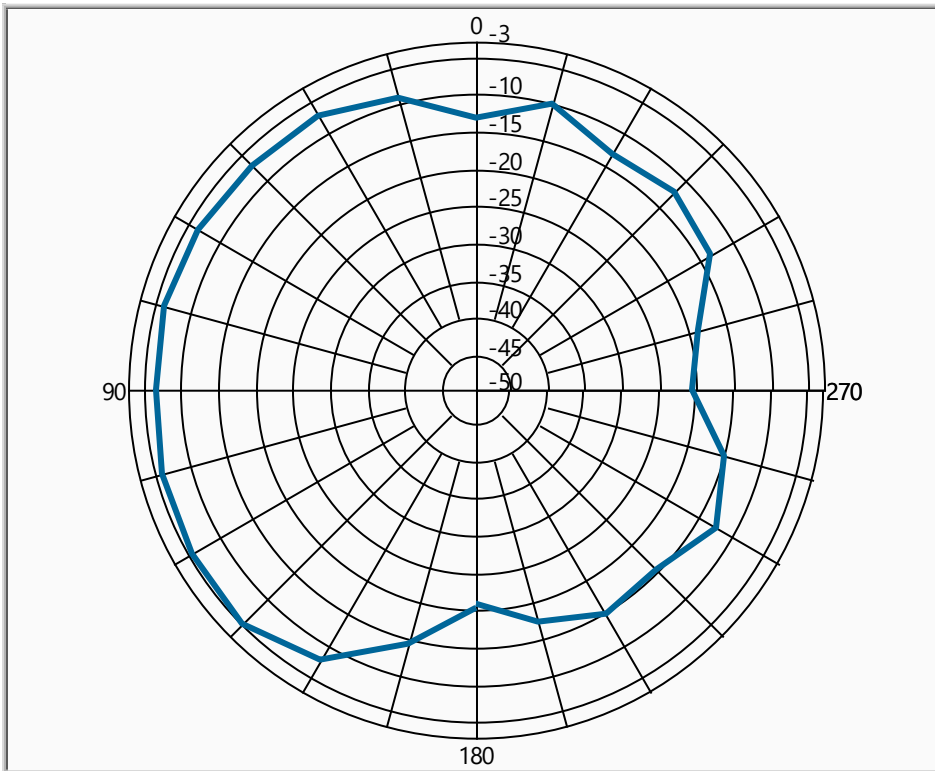


EUT Serial # 0001JA Channel 0 (2441 MHz) Max Gain -3.35 dBi (Elevation Cut)

Polar Plot



EUT Serial # 0001JA Channel 0 (2480 MHz) Max Gain -4.95 dBi (Azimuth Cut)  
Polar Plot 2



EUT Serial # 0001JA Channel 0 (2480 MHz) Max Gain -4.95 dBi (Elevation Cut)