

"High Frequency Ceramic Solutions"

802.11 a/c Dual Band 2.45/5.40 GHz Mini Chip Antenna

P/N 2450AD46A5400

Detail Specification: 2/4/2016

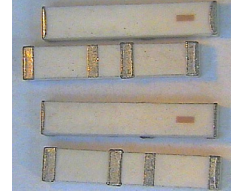
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AEC-Q200 qualification available.

Let us help you with the antenna design, optimization, and tuning!

General Specifications

| | | | | |
|---|----------------------------------|----------------------------------|------------------------------|--------------|
| Part Number | 2450AD46A5400 | | | |
| Frequency (MHz) | 2400 - 2500 | 4900 - 5900 | | |
| Return Loss (dB) | 8.5 min. | 8.5 min. | | |
| Peak Gain (dBi typ.) | 1.0 dBi typ. (XZ-V) | -1.5 dBi typ. (YZ-V) | | |
| Average Gain (dBi typ.) | -2.5 dBi typ. (XZ-V) | -2.5 dBi typ. (YZ-V) | Input Power | 3 Watts max. |
| Total Measured Radiated Efficiency | 76% (measured on 20x47mm EVB) | 85% (measured on 20x47mm EVB) | Impedance | 50 Ω |
| | | | Operating Temperature | -40 to +85°C |
| | | | Reel Quantity | 1,000 |

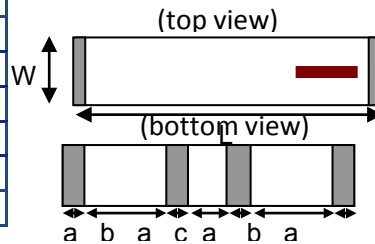
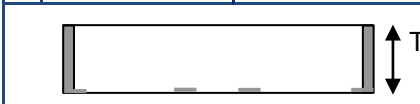


Part Number Explanation

| | | | | |
|-------------------|-------------------------|--|-----------------|-----------------------------|
| P/N Suffix | Packing Style | Bulk (loose) | Suffix = S | e.g.. 2450AD46A5400S |
| | | T & R | Suffix = E | e.g.. 2450AD46A5400E |
| | | 100% Tin | Suffix = E or S | e.g.. 2450AD46A5400(E or S) |
| | Evaluation Board | 2450AD46A5400-EB1SMA (To order, click here: www.johansontechnology.com/request-a-sample) | | |

Mechanical Dimensions

| | In | mm |
|----------|--------------------|------------------|
| L | 0.335 ± 0.008 | 8.50 ± 0.20 |
| W | 0.063 ± 0.008 | 1.60 ± 0.20 |
| T | 0.047 +.004 /-.008 | 1.20 +0.1 / -0.2 |
| a | 0.020 ± 0.006 | 0.51 ± 0.15 |
| b | 0.104 ± 0.006 | 2.64 ± 0.15 |
| c | 0.046 ± 0.006 | 1.18 ± 0.15 |



Terminal Configuration

| No. | Function |
|-----|----------------|
| 1 | 5G Band Feed |
| 2 | 2.4G Band Feed |
| 3 | NC |
| 4 | NC |

¹Make sure to have Pins 3 & 4 soldered to its PCB land pad but not connected to GND or input, they must be NC (or floating). If unsoldered, it may affect improper antenna resonance and drop-shock resistance.

Find out more about our antenna design assistance services at:
www.johansontechnology.com/ipc-antenna-services

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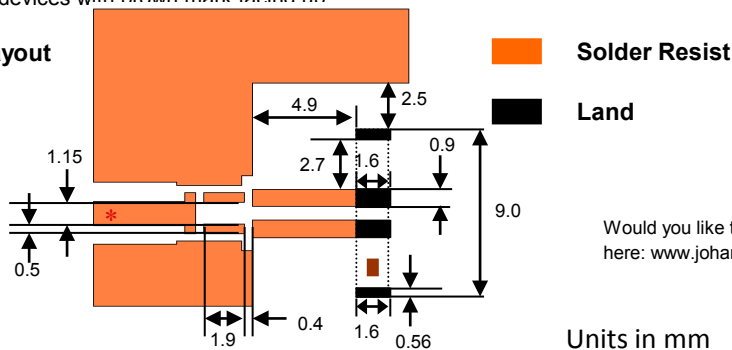
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Mounting Considerations 1: Single, combined feed (2&5G on the same trace)

Mount these devices with brown mark facing in

PCB Layout

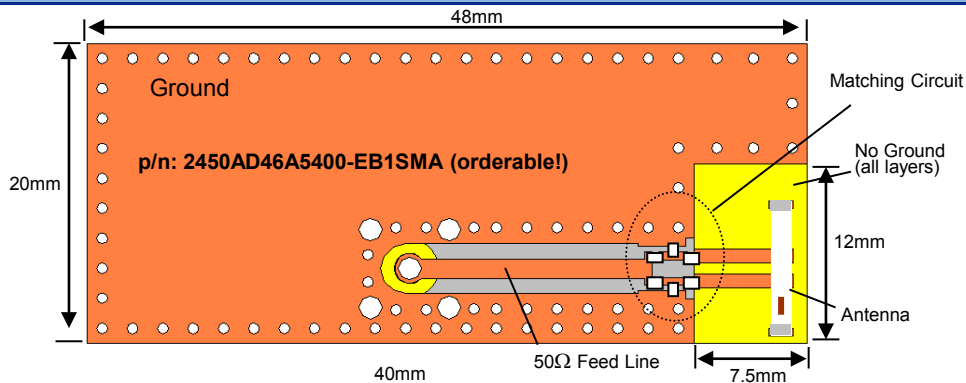


Would you like the layout file? Request it by clicking here: www.johansontechnology.com/ask-a-question

Units in mm

*50ohm trace recommended to be a grounded CPWG (<http://chemandy.com/calculators/coplanar-waveguide-with-ground-calculator.htm>)

Mounting Consideration 1: Evaluation Board



Matching circuits and component values will be different on the client's design, depending on PCB layout, geometry, etc.

Need help laying out the antenna, want us to review your antenna design (free!), require the Gerber files for this EVB, or would like us to validate the new tuning values of your PCB (fee may apply) go to: www.johansontechnology.com/ask-a-question Orderable EVB for evaluation, it comes with a female SMA connector. To order, click here: www.johansontechnology.com/request-a-sample and ask for p/n: 2450AD46A5400-EB1SMA

Would you like the layout file of the above? Have antenna tuning issues? Contact our applications engineers at: www.johansontechnology.com/ask-a-question

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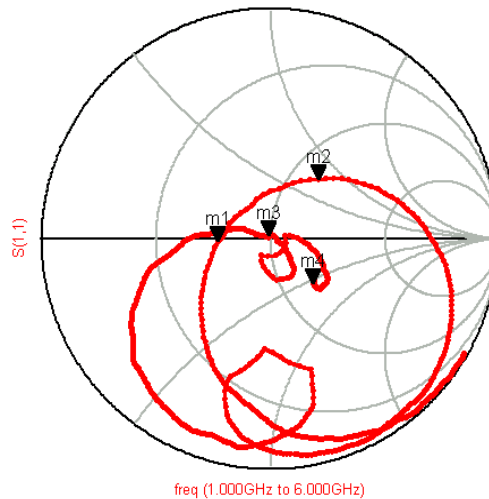
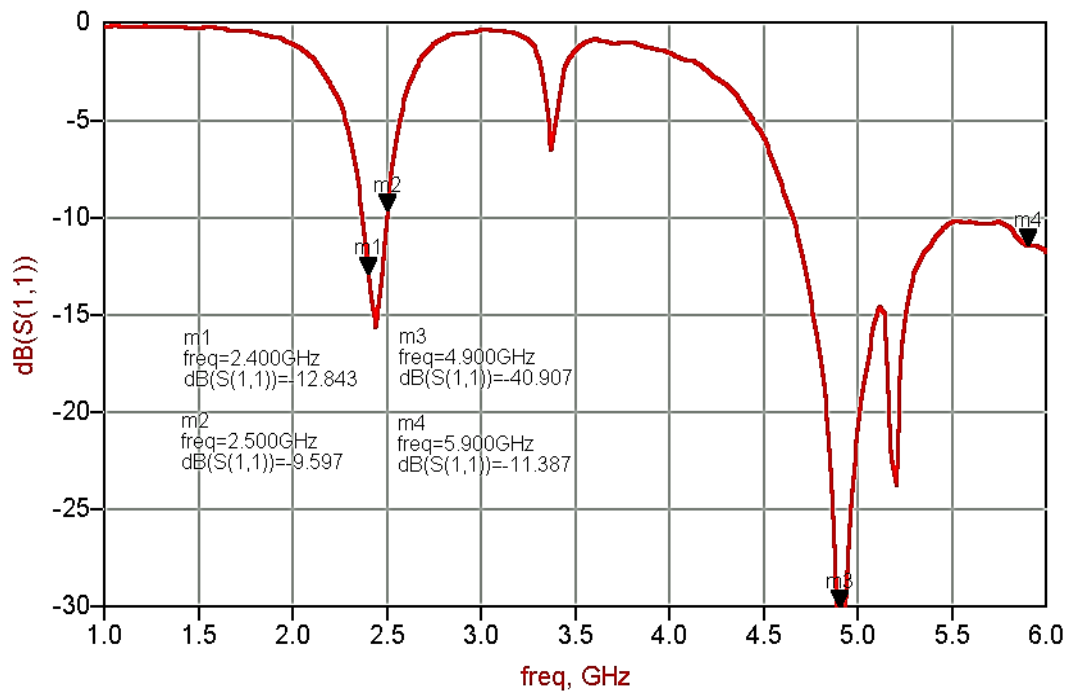
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Mounting Consideration 1: Typical Return Loss (S11) Electrical Performance (T=25°C)



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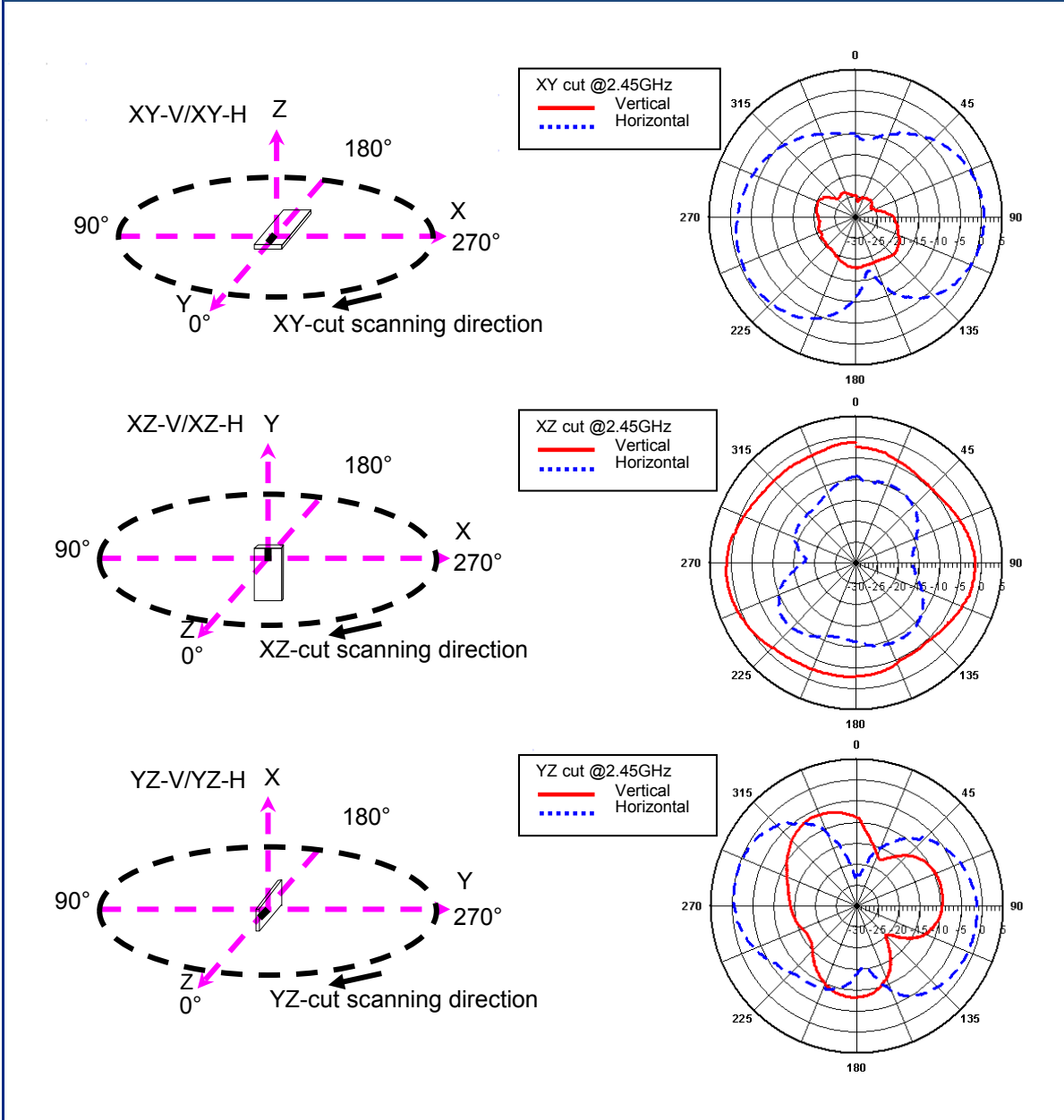
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Mounting Consideration 1: Typical EM Radiation Performance @ 2.45GHz (T=25°C)



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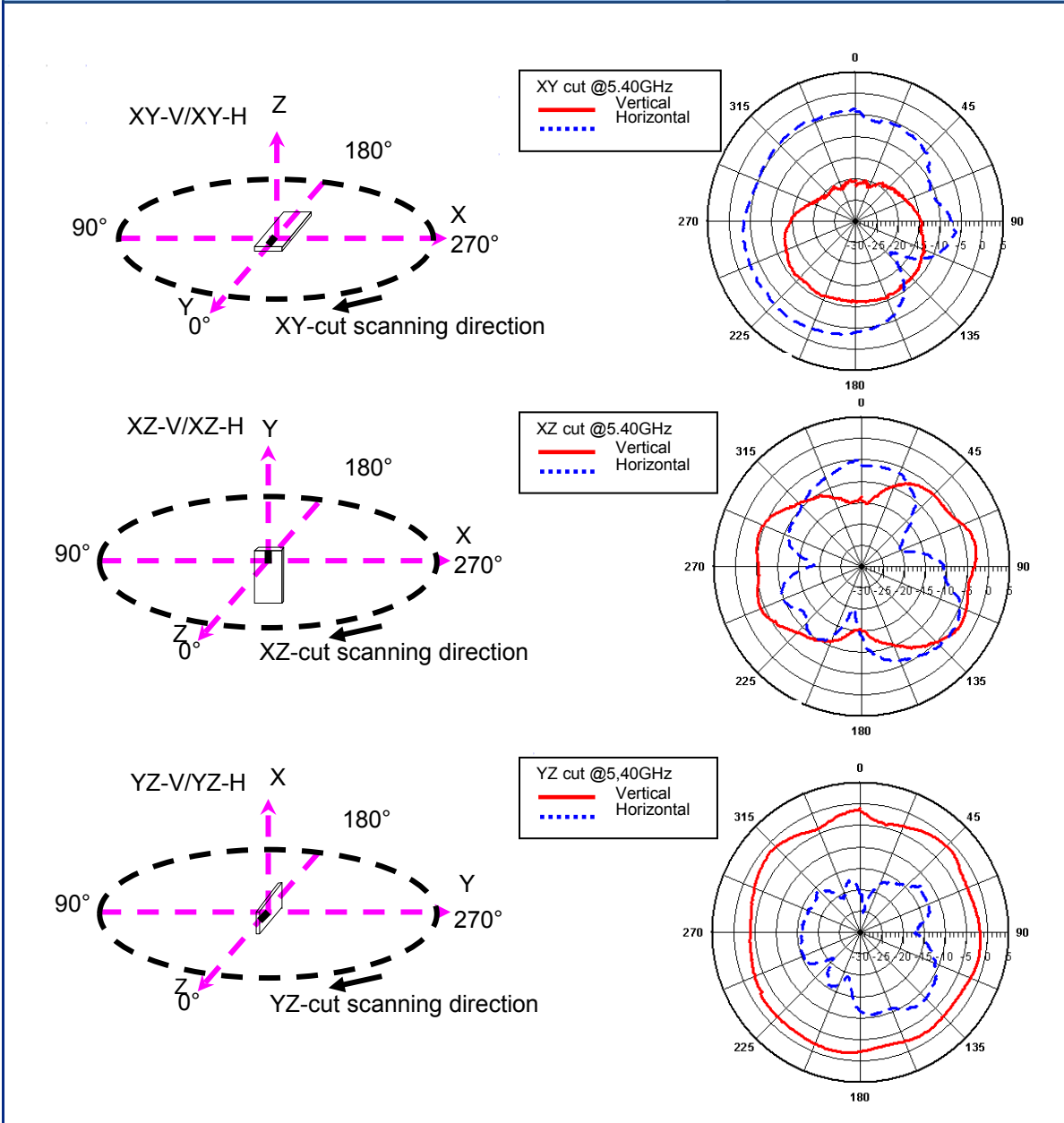
802.11 a/c Dual Band 2.45/5.40 GHz Mini Chip Antenna

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Mounting Consideration 1: Typical EM Radiation Performance @ 5.40 GHz (T=25°C)



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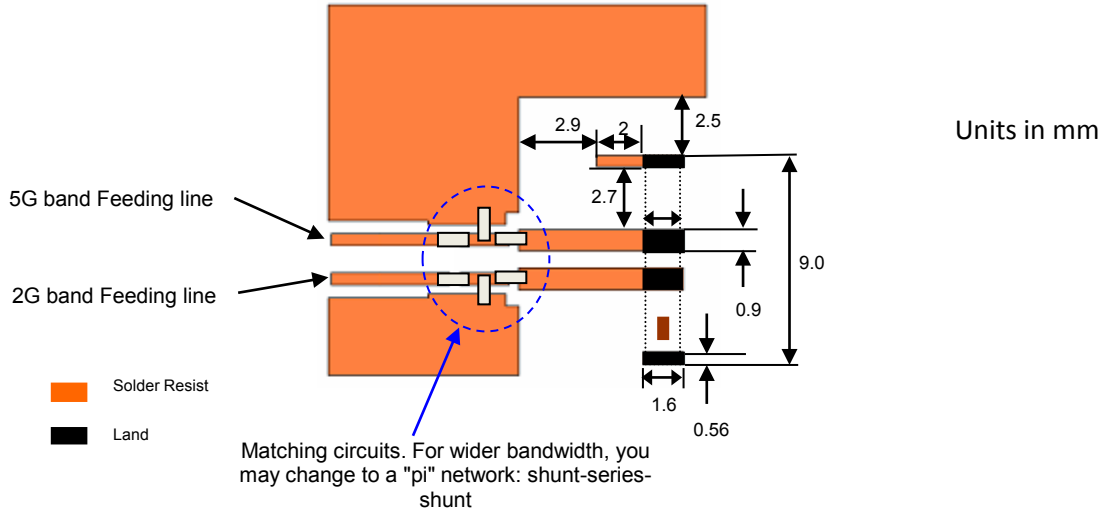
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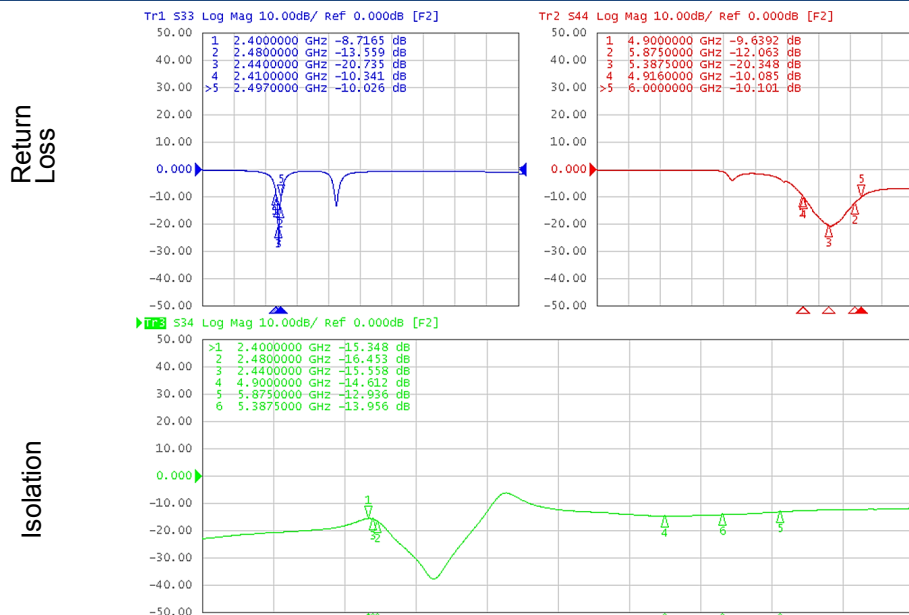
Mounting Considerations 2: Two Separate Feeds

Mount these devices with brown mark facing up.

Line width should be designed to provide 50Ω impedance matching characteristics.



Mounting Consideration 2: Typical Return Loss and Isolation between the 2G & 5G feeds. Electrical Performance (T=25°C)



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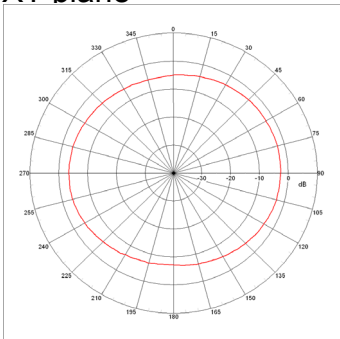
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Mounting Consideration 2: Typical EM Radiation Performance (T=25°C)

| Unit in dBi @2400 ~ 5950 MHz | XY-plane | | XZ-plane | | YZ-plane | | Total Meas. Rad. Efficiency |
|---------------------------------|----------|---------|----------|---------|----------|---------|-----------------------------------|
| | Peak | Average | Peak | Average | Peak | Average | |
| 2440 MHz | 0.9 | -4.1 | 0.2 | -2.6 | -2.7 | -4.5 | 52.00% |
| 5387.5 MHz | 2.3 | -1.1 | 2 | -3.1 | 0.1 | -1.6 | 70.00% |

2440 MHz

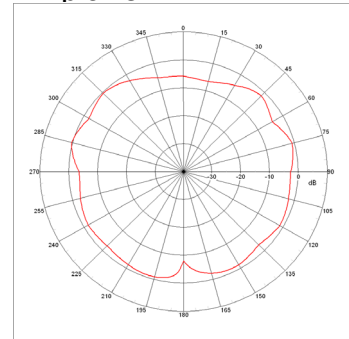
XY-plane



XZ-plane

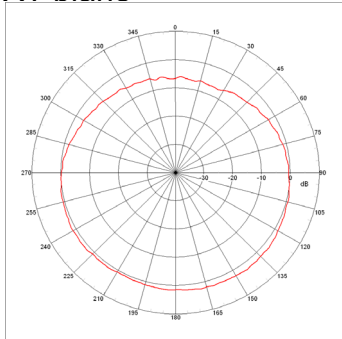


YZ-plane

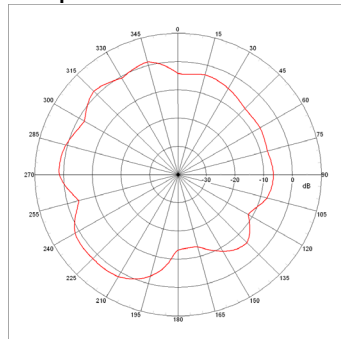


5387.5 MHz

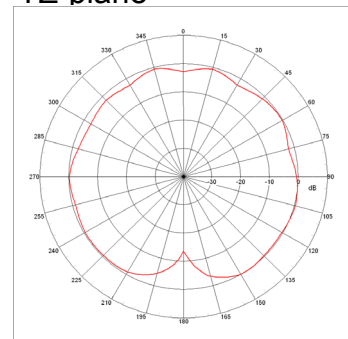
XY-plane



XZ-plane



YZ-plane



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2.45 GHz SMD Antenna, EIA 1210, Detuning resilient, Edge Mount Design

P/N 2450AD46A5400

802.11 a/c Dual Banc 2/4/2016

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Antenna tuning, optimization, and validation services:

www.johansontechnology.com/ipc-antenna-services

For more antennas and to download measured S-parameters, go to:

www.johansontechnology.com/antennas

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

MSL Info

<http://www.johansontechnology.com/msl-rating>

Packaging information

www.johansontechnology.com/tape-reel-packaging

For layout review contact our Applications Team at:

www.johansontechnology.com/ask-a-question

RoHS Compliance

www.johansontechnology.com/rohs-compliance

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