

# "High Frequency Ceramic Solutions"

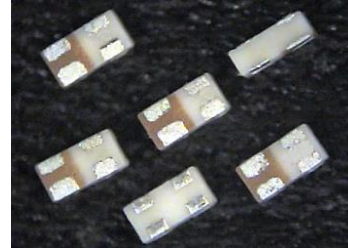
5.1 to 5.9 GHz, micro antenna optimized for PCB edge mount. Great for WiFi P/N 5500AT07A0900 and V2V (Vehicle to Vehicle communications)

Detail Specification: 10/30/2014

Page 1 of 4

## General Specifications

|                         |                                |                                |
|-------------------------|--------------------------------|--------------------------------|
| Part Number             | 5500AT07A0900*                 |                                |
| Frequency (MHz)         | 5150 ~ 5850                    | 5350 ~ 5900                    |
| Peak Gain (dBi typ.)    | 0.0 (YZ-Total)                 | 1.0 (YZ-Total)                 |
| Average Gain (dBi typ.) | -3.0 (YZ-Total)                | -1.5 (YZ-Total)                |
| Return Loss             | 6.0 dB max.                    | 3.0 dB max.                    |
| Power Capacity          | 2W max. (CW)                   |                                |
| Operating Temperature   | -40 ~ +85 °C                   |                                |
| Storage Temperature     | -40 ~ +85 °C                   |                                |
| Q'ty/Reel (pcs)         | 10,000 pcs                     |                                |
|                         | Unused product (on T&R)        | +5 ~ +35 °C, Humidity 45~75%RH |
|                         | recommended storage conditions |                                |
|                         | Storage Period                 | 18 months max.                 |



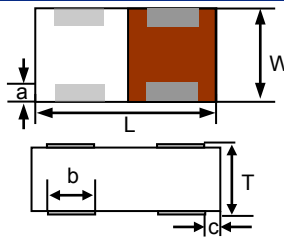
\*AEC-Q200 qualifiable component.

## Part Number Explanation

|            |                  |                                                                   |               |                           |
|------------|------------------|-------------------------------------------------------------------|---------------|---------------------------|
| P/N Suffix | Packaging Style  | Bulk (loose)                                                      | Suffix = S    | Eg. 5500AT07A0900S        |
|            |                  | T & R (10000pcs)                                                  | Suffix = T    | Eg. 5500AT07A0900T        |
|            | Termination      | 100% Tin                                                          | Suffix = None | Eg. 5500AT07A0900(T or S) |
|            | Evaluation Board | 5500AT07A0900-EB1SMA (pre-tuned 50ohms with female SMA connector) |               |                           |

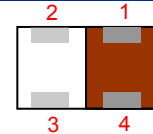
## Mechanical Dimensions

|   | In                | mm              |
|---|-------------------|-----------------|
| L | 0.039 ± 0.004     | 1.00 ± 0.10     |
| W | 0.020 ± 0.004     | 0.50 ± 0.10     |
| T | 0.014 Max.        | 0.37 Max.       |
| a | 0.006 +.004/-.006 | 0.15 +0.1/-0.05 |
| b | 0.010 +.004/-.006 | 0.25 +0.1/-0.05 |
| c | 0.003 +.004/-.006 | 0.08 +0.1/-0.05 |

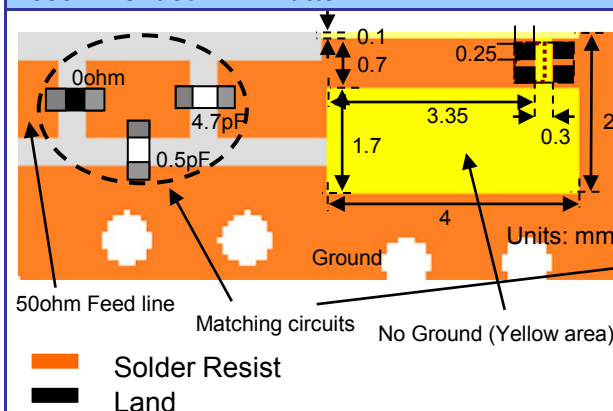


## Terminal Configuration

| No. | Function | No. | Function |
|-----|----------|-----|----------|
| 1   | Feed     | 3   | GND      |
| 2   | GND      | 4   | Feed     |



## Recommended PCB Pattern



•Attention: Matching circuits and component values will be different on the client's design, depending on PCB layout, geometry, etc. It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values you see here are used when antenna is mounted on Johanson's evaluation board.

• Need help laying out the antenna, want us to review the design (free!), require the Gerber files for this EVB, or would like us to obtain the new tuning values of your PCB (fee may apply)? Go to: [www.johansontechnology.com/component/techquestion](http://www.johansontechnology.com/component/techquestion)

• More antenna support info at: [www.johansontechnology.com/ipcantennaservices](http://www.johansontechnology.com/ipcantennaservices)

Johanson Technology, Inc. reserves the right to make design changes without notice.

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[www.johansontechnology.com](http://www.johansontechnology.com)

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Ver 1.0

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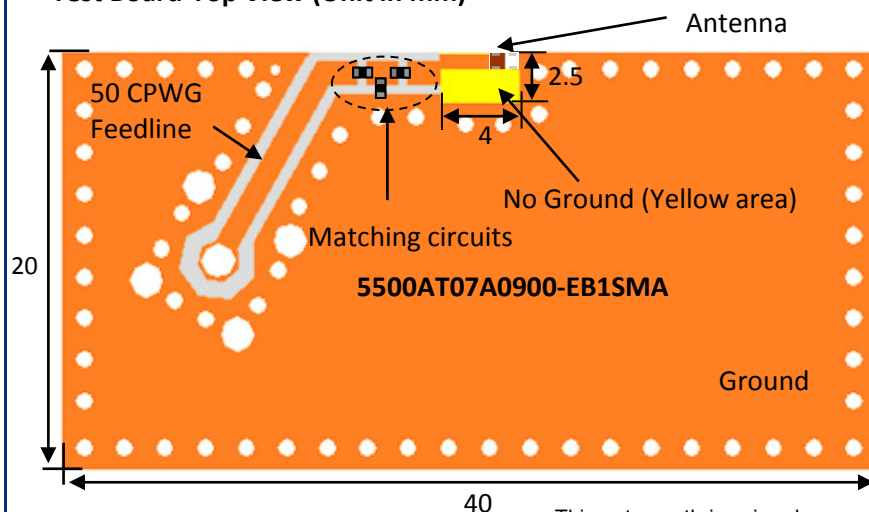
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Detail Specification: 10/30/2014

Page 2 of 4

## Johanson Evaluation Board Dimension and Characteristics of the antenna design

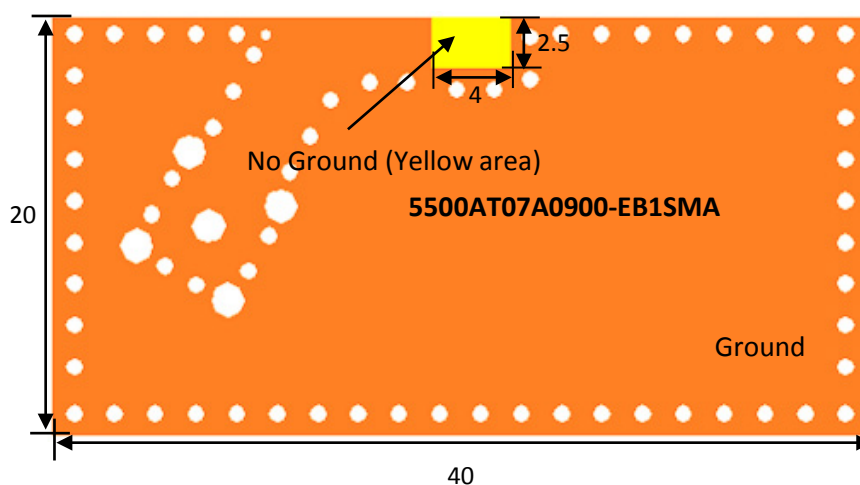
Test Board-Top View (Unit in mm)



EVB Orderable p/n:  
5500AT07A0900-EB1SMA

•This antenna thrives in edge mount, middle of the PCB placements. It may also be placed at corners, the operation won't be at its full potential though. We have corner-specific 5GHz antennas here: [www.johansontechnology.com/antennas](http://www.johansontechnology.com/antennas)

Test Board-Bottom View (Units in mm)



EVB Orderable p/n:  
5500AT07A0900-EB1SMA

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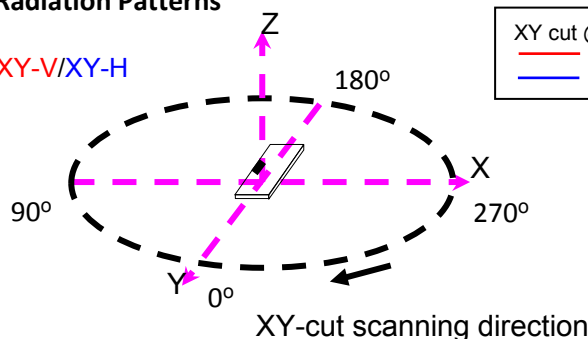
Detail Specification: 10/30/2014

Page 3 of 4

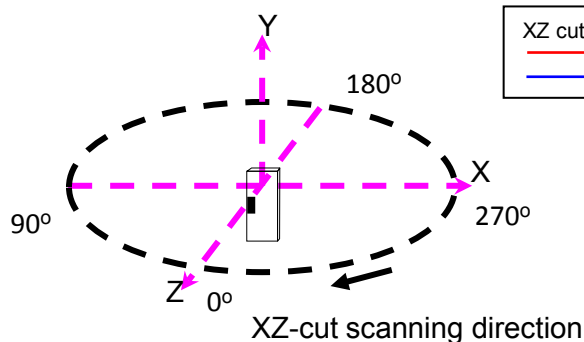
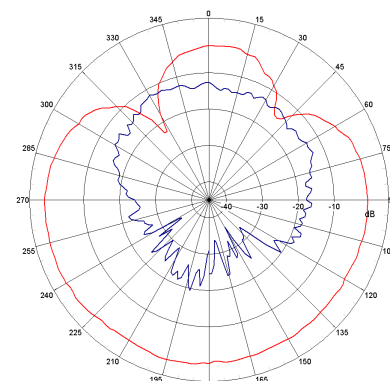
## Typical Radiation Patterns @25°C

### Radiation Patterns

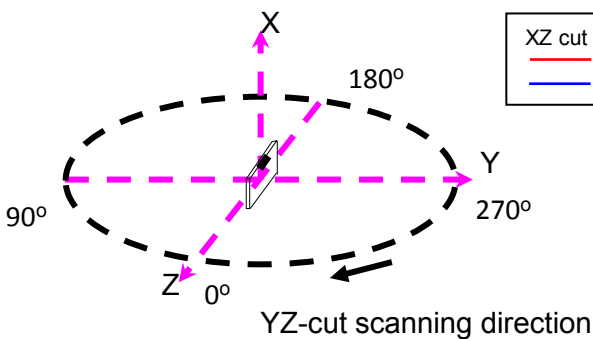
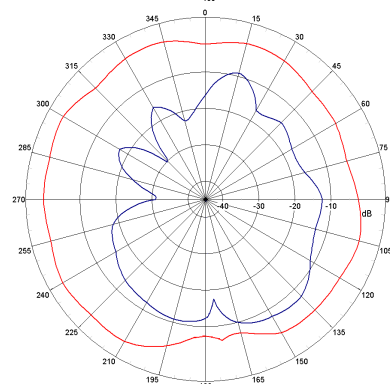
XY-V/XY-H



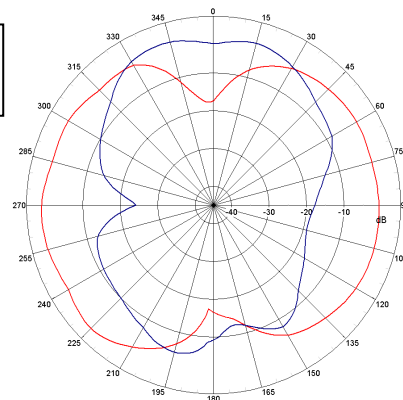
XY cut @5.5GHz  
— Vertical  
— Horizontal



XZ cut @5.5GHz  
— Vertical  
— Horizontal



YZ cut @5.5GHz  
— Vertical  
— Horizontal



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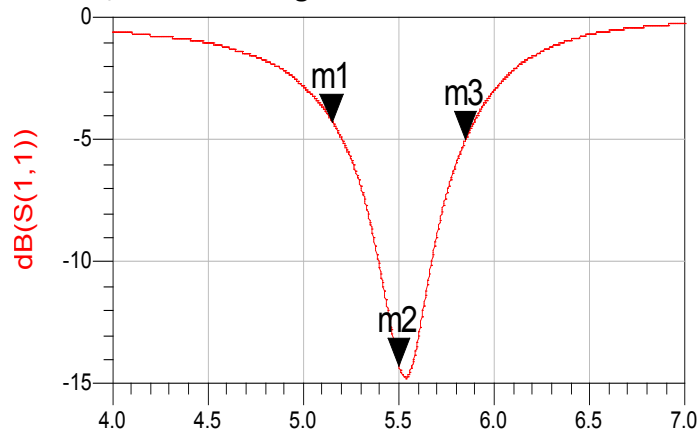
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Page 4 of 4

## Typical Electrical Performance (T=25°C)

Return Loss / With Matching Circuits



m1  
freq=5.150GHz  
dB(S(1,1))=-4.236

m2  
freq=5.500GHz  
dB(S(1,1))=-14.267

m3  
freq=5.850GHz  
dB(S(1,1))=-4.945

## Packaging information

[www.johansontechnology.com/ipcpackaging.html](http://www.johansontechnology.com/ipcpackaging.html)

## Soldering Information

[www.johansontechnology.com/ipcsoldering-profile](http://www.johansontechnology.com/ipcsoldering-profile)

## Antenna layout and tuning techniques (How to obtain the new antenna matching values)

[www.johansontechnology.com/tuning](http://www.johansontechnology.com/tuning)

## Antenna layout review, tuning, and characterization services

[www.johansontechnology.com/ipcantennaservices](http://www.johansontechnology.com/ipcantennaservices)

## For layout review contact our Applications Team at:

[www.johansontechnology.com/component/techquestion](http://www.johansontechnology.com/component/techquestion)

## RoHS Compliance

[www.johansontechnology.com/technical-notes/rohs-compliance.html](http://www.johansontechnology.com/technical-notes/rohs-compliance.html)

## MSL Info

[www.johansontechnology.com/technical-notes/msl-rating.html](http://www.johansontechnology.com/technical-notes/msl-rating.html)

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