

"High Frequency Ceramic Solutions"

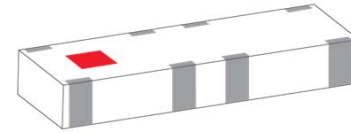
BT/WiFi and GPS/BDS/GLNSS Quad band, Dual Feed Chip Antenna: 2.4/1.561/1.575/1.602GHz, SMD P/N 2450AD47A1590

Detail Specification: 11/10/2015

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General Specifications

Part Number	2450AD47A1590					
Frequency (MHz)	2400~2500	1561	1575	1602		
Peak Gain (dBi typ.)	1.0 (YZ-Total)	0.5 (YZ-Total)	1.5 (YZ-Total)	1.5 (YZ-Total)		
Average Gain (dBi typ.)	-1.0 (YZ-Total)	-2.5 (YZ-Total)	-2.0 (YZ-Total)	-2.0 (YZ-Total)		
Return Loss (dB)	8 min.	7.5 min.	9.0 min.	8 min.	Reel Quantity	1,000
Ave Radiation Efficiency % ¹ (on JTI EVB)	83	45	51	51	Operating Temperature	-40 to +85°C
					Storage Temperature	-40 to +85°C
					Storage Period	18 months max.
Isolation	20 dB	15 dB	15 dB	15 dB	Power Capacity	2W max. (CW)



¹On Johanson test board p/n: 2450AD47A1590-EB1SMA. EVB details on pages 2/3

Part Number Explanation

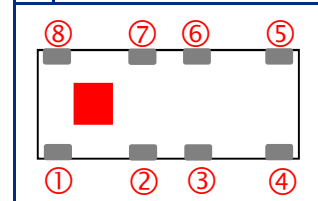
P/N Suffix	Packing Style	Bulk (loose)	Suffix = S	e.g.. 2450AD47A1590S
		T & R	Suffix = E	e.g.. 2450AD47A1590E
		100% Tin	Suffix = E or S	e.g.. 2450AD47A1590(E or S)
	Evaluation Board	2450AD47A1590-EB1SMA (Pre-tuned with SMA connectors)		

Mechanical Dimensions

	In	mm	
L	0.394 ± 0.008	10.00 ± 0.20	
W	0.126 ± 0.008	3.20 ± 0.20	
T	0.059 ± 0.008	1.50 ± 0.20	
a1	0.031 ± 0.008	0.80 ± 0.20	
a2	0.106 ± 0.008	2.70 ± 0.20	
a3	0.039 ± 0.008	1.00 ± 0.20	
b	0.012 ± 0.004/-0.008	0.30 ± 0.1/-0.2	

Terminal Configuration

No.	Function
1	2.4GHz Feed Point
2	GND
3	GND
4	1.5-1.6GHz Feed Point
5	GND
6	GND
7	GND
8	GND



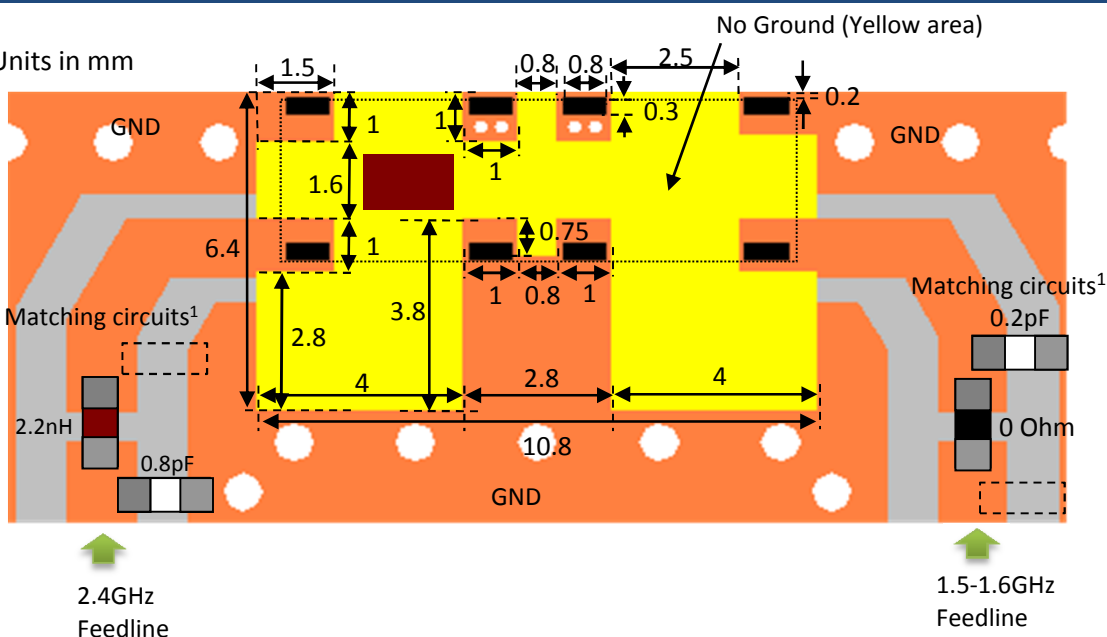
Find out more about our antenna design assistance services at:
<http://www.johansontechnology.com/ipc-antenna-services>

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Layout Recommendations



■ Land

¹Attention: 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.

Orderable EVB for evaluation, it comes with a female SMA connector. Go to: www.johansontechnology.com/component/samplerequest and ask for p/n 2450AD47A1590-EB1SMA

* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material, thickness, and preferably CPWG (co-planar wave guide) type.

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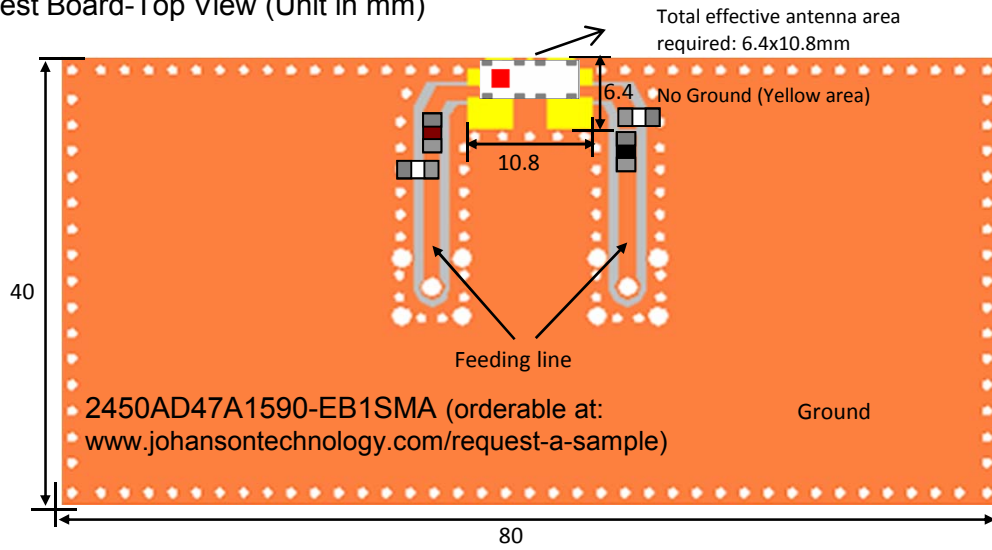
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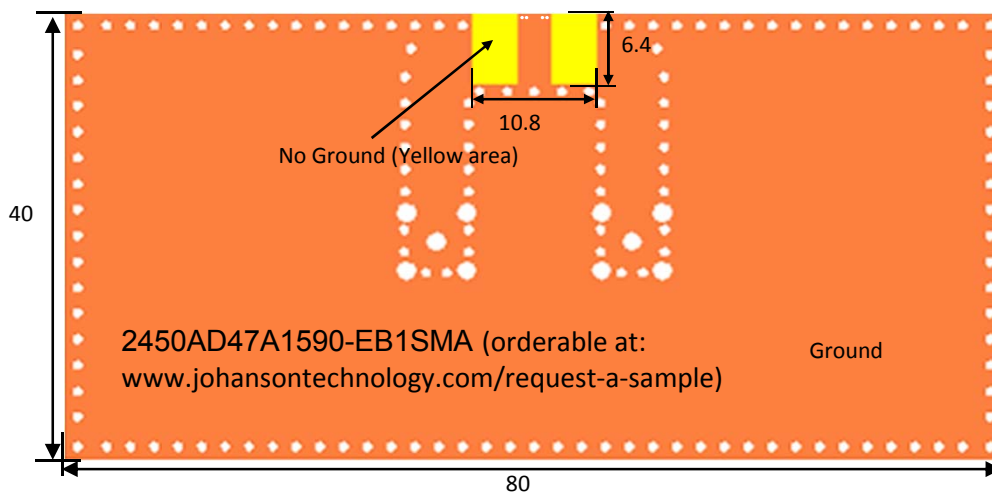
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Typical Electrical Characteristics (T=25°C)

❖ Test Board-Top View (Unit in mm)



❖ Test Board-Bottom View (Unit in mm)



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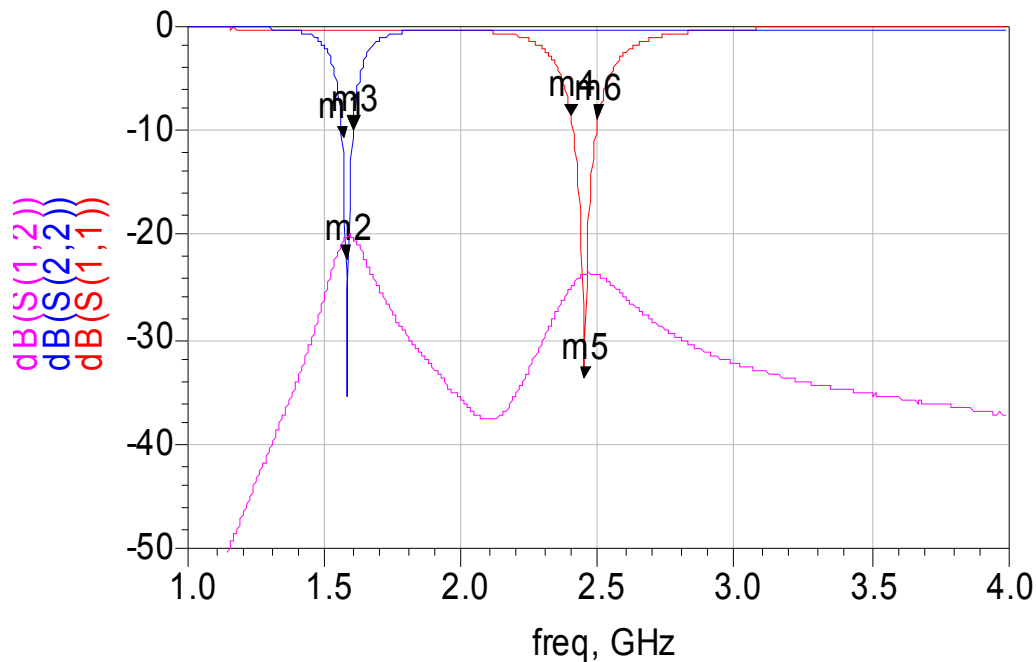
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Typical Electrical Characteristics (T=25°C)

Return Loss and Isolation With Matching Circuits On Johanson EVB



m1	m4
Freq=1.561GHz	Freq=2.400GHz
dB(S(2,2))=-10.697	dB(S(1,1))=-8.678
m2	m5
Freq=1.575GHz	Freq=2.450GHz
dB(S(2,2))=-22.294	dB(S(1,1))=-33.793
m3	m6
Freq=1.602GHz	Freq=2.500GHz
dB(S(2,2))=-9.842	dB(S(1,1))=-8.901

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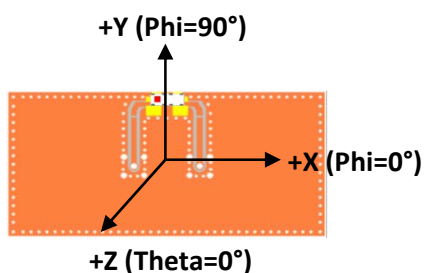
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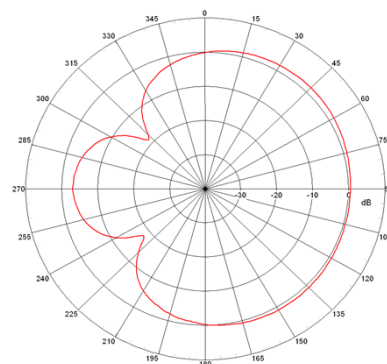
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Typical Radiation Patterns

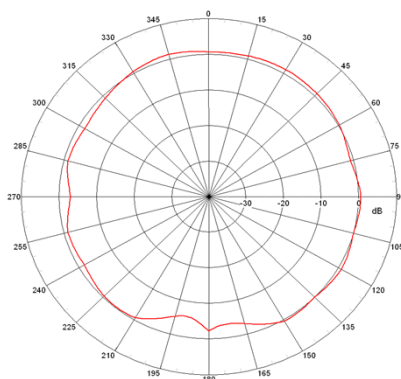
❖ Radiation Patterns @ 2.44GHz



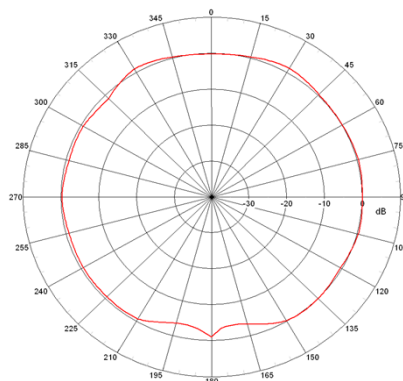
XY-Plane



YZ-Plane



XZ-Plane



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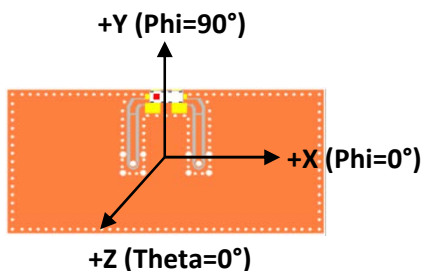
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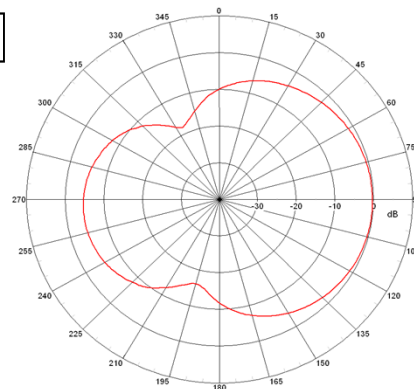
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Typical Radiation Patterns

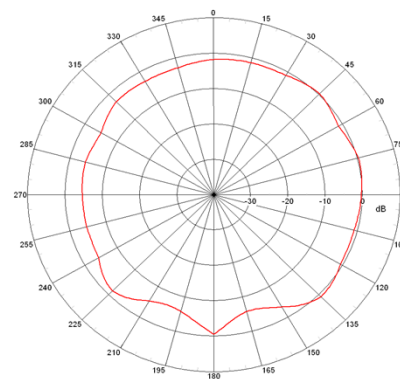
❖ Radiation Patterns @ 1.561GHz



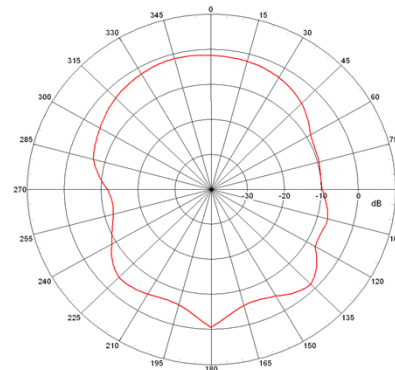
XY-Plane



YZ-Plane



XZ-Plane



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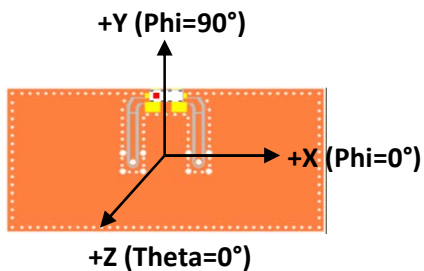
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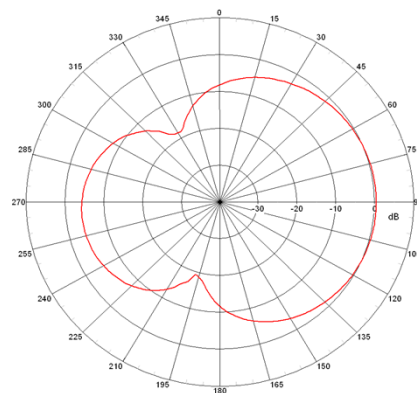
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Typical Radiation Patterns

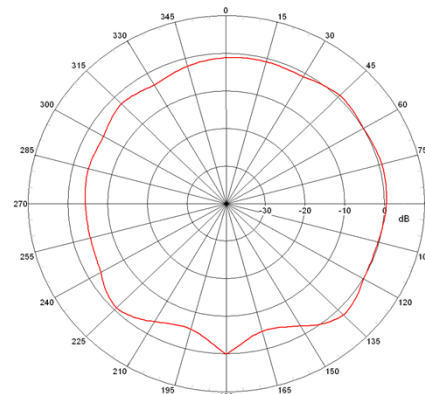
❖ Radiation Patterns @ 1.575GHz



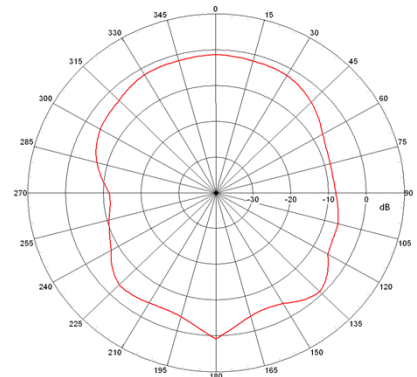
XY-Plane



YZ-Plane



XZ-Plane



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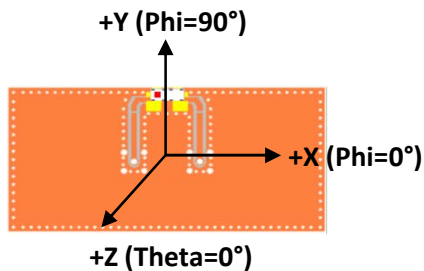
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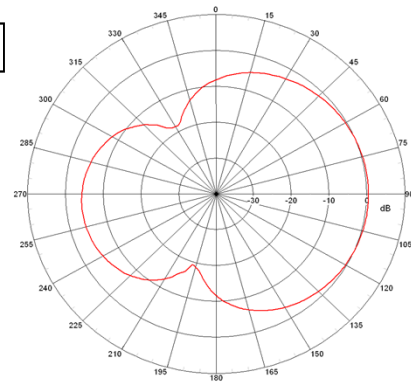
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Typical Radiation Patterns

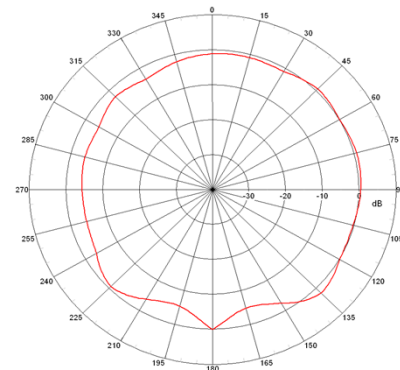
❖ Radiation Patterns @ 1.602GHz



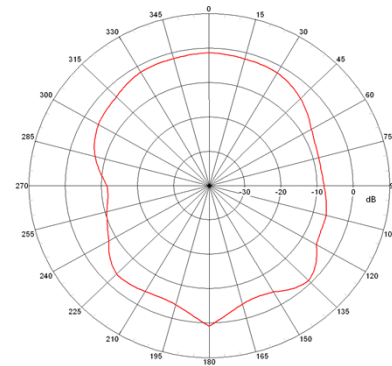
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YZ-Plane



XZ-Plane



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Antenna tuning, optimization, and validation services:

www.johansontechnology.com/ipcantennaservices

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

www.johansontechnology.com/antennas

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

MSL Info

www.johansontechnology.com/technical-notes/msl-rating.html

Packaging information

www.johansontechnology.com/ipcpackaging.html

For layout review contact our Applications Team at:

www.johansontechnology.com/component/techquestion

RoHS Compliance

www.johansontechnology.com/technical-notes/rohs-compliance.html

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