"High Frequency Ceramic Solutions"

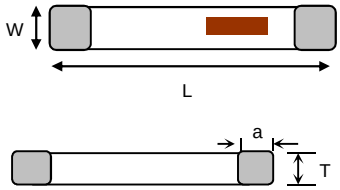
2.45 GHz High Gain SMD Chip Antenna **P/N 2450AT45A100**

Detail Specification: 9/4/2013

General Specifications			
Part Number	2450AT45A100	**Input Power**	3W max. (CW)
Frequency Range	2400 - 2500 Mhz	**Impedance**	50 Ω
Operating Temp	-40°C to +125°C	**Reel Quanity**	1,000

Mechanical Specifications

	In	mm
L	0.374 ± 0.008	9.50 ± 0.20
W	0.079 ± 0.008	2.00 ± 0.20
T	0.047 +.004/-.008	1.20 +0.1/-0.2
a	0.020 ± 0.012	0.50 ± 0.30



Terminal Configuration

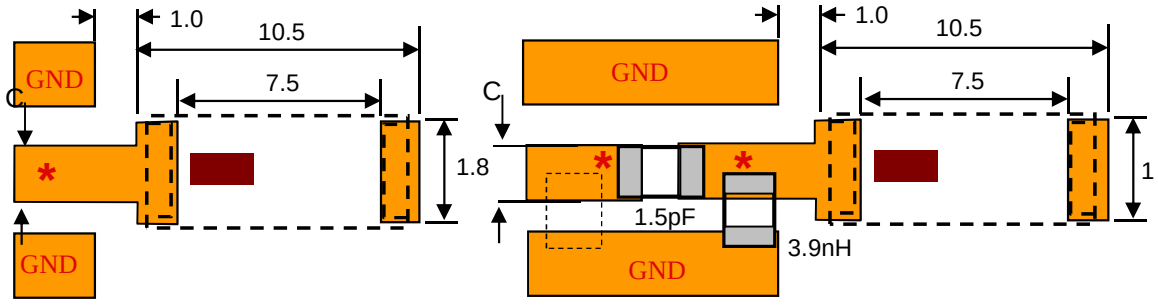
No.	Function
1	Feeding Point
2	NC

Typical Electrical Specs for "Vertical Orientation" (T=25°C)			
Frequency Range	2400 - 2500 Mhz	**Peak Gain**	3.0 dBi typ. (XZ-V)
Return Loss	9.5 dB min.	**Average Gain**	1.0 dBi typ. (XZ-V)

Mounting Considerations 1: "Vertical Orientation"

Mount these devices with red mark facing up. Units: mm

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



a) Without Matching Circuit (moderate bandwidth)

b) With Matching Circuit* (wide bandwidth)
These matching circuit values only apply to Johanson's evluation board, they will be different on the client's PCB, see pages 2 and 10 for details.

"C" Dimmension will depend on the width of the trace required for it to have a 50ohm characteristic impedance (i.e. coplanar waveguide theory)

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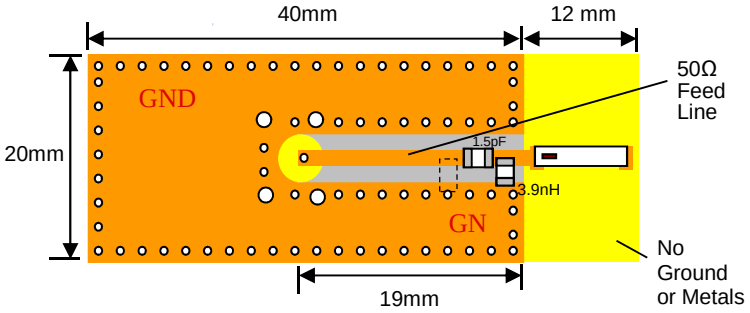
Typical Electrical Characteristics for "Vertical Orientation" (T=25°C)

Test Board

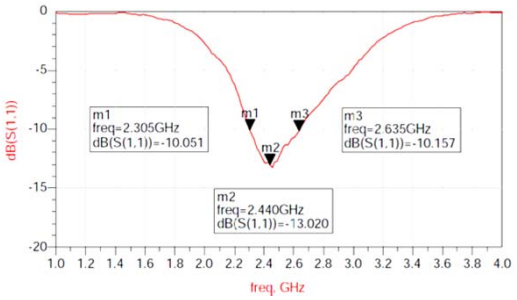
Orderable Evaluation board: p/n: 2450AT45A100-EB1SMA "Vertical Orientation"

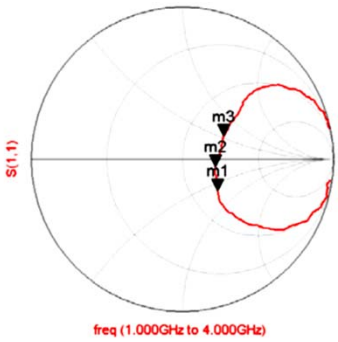


Note: It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when antenna is monted on Johanson's evaluation board. The matching values on clinet's PCB will be different, go to: http://johansontechnology.com/tuning and see how to obtain the new values. If you need further help, contact our RF Applications Eng Team at: http://www.johansontechnology.com/en/ask-a-technical-question.html

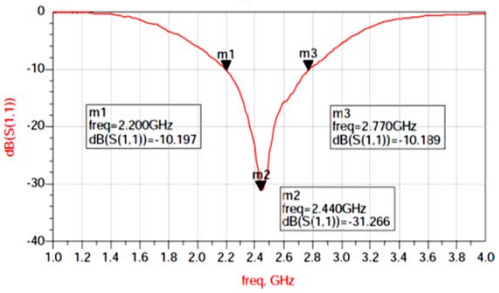
Return Loss

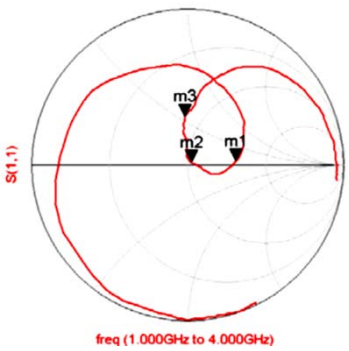
a) Without a Matching Circuit



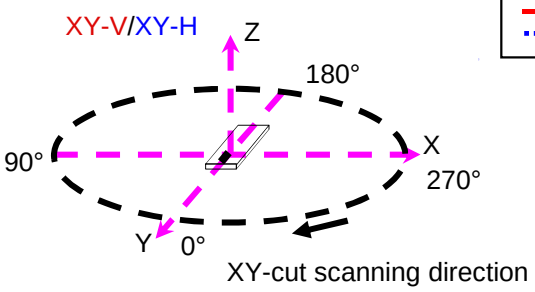


a) With a Matching Circuit

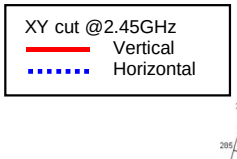


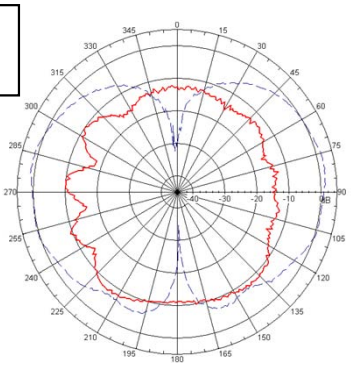


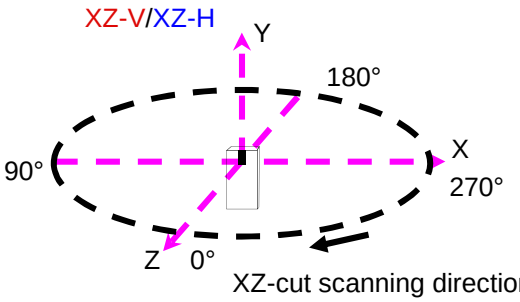
Typical Radiation Patterns for "Vertical Orientation" (@25C)



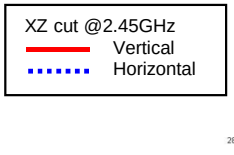
XY-cut scanning direction

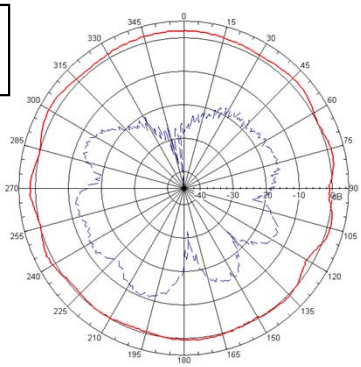


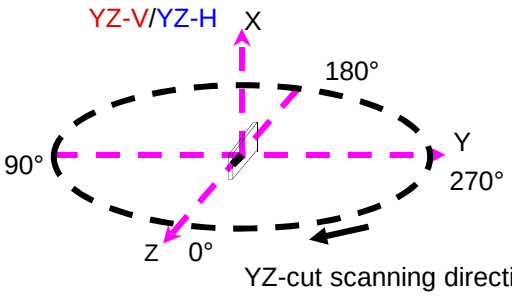




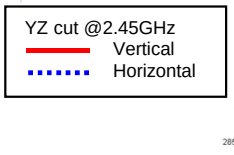
XZ-cut scanning direction

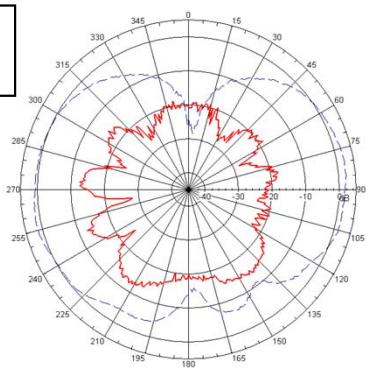






YZ-cut scanning direction





2.45 GHz High Gain SMD Chip Antenna **P/N 2450AT45A100**

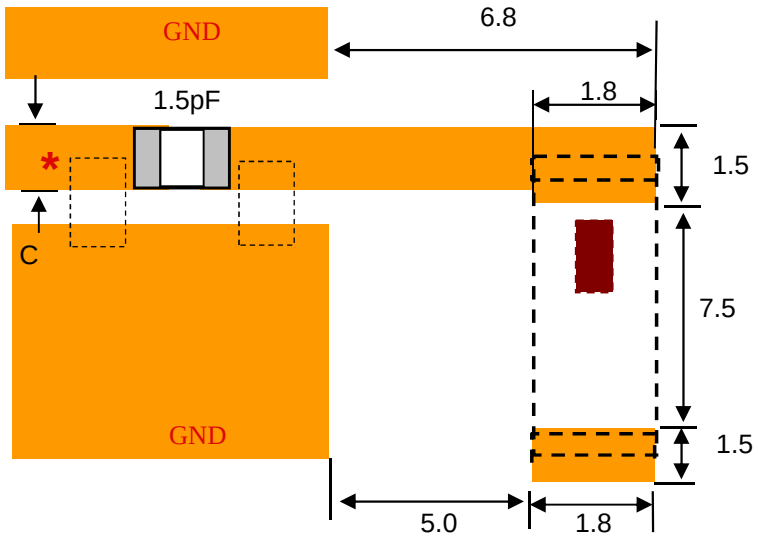
Detail Specification: 9/4/2013

Typical Electrical Specs for "Horizontal Orientation_1" (T=25°C)			
Frequency Range	2400 - 2500 Mhz	**Peak Gain**	1.5 dBi typ. (XZ-V)
Return Loss	9.5 dB min.	**Average Gain**	0.0 dBi typ. (XZ-V)

Mounting Considerations 2 - Horizontal Orientation_1

Mount these devices with brown mark facing up. Units: mm

*Line width should be designed to provide 50Ω impedance matching characteristics. Units in mm



EVB p/n:
2450AT45A100-EB2SMA
Horizontal Orientation_1

"C" Dimmension will depend on the width of the trace required for it to have a 50ohm characteristic impedance (i.e. coplanar waveguide theory)

*These matching circuit values only apply to Johanson's evluation board, they will be different on the client's PCB, see pages 5 and 10 for

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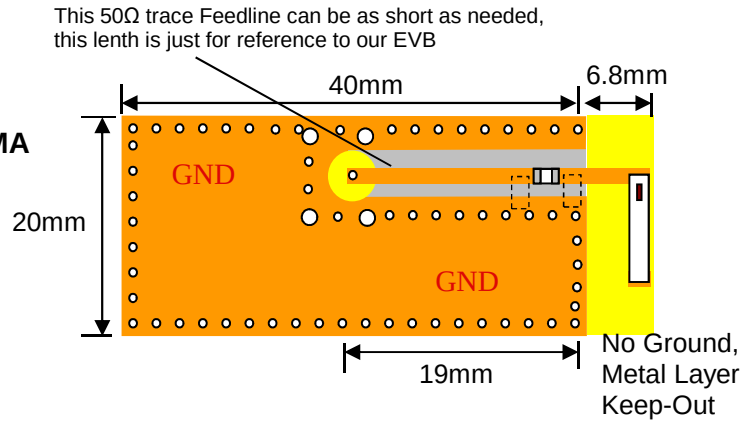
Typical Electrical Characteristics "Horizontal Orientation_1" (T=25°C)

Test Board

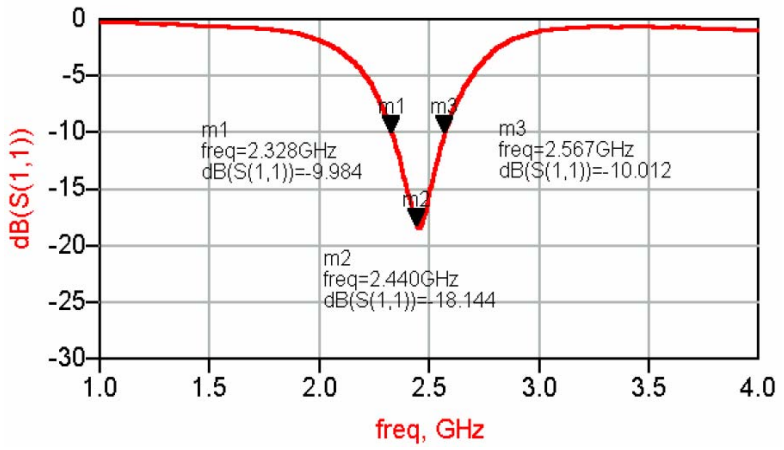
Orderable Evalu
p/n: 2450AT45A100-EB2SMA
"Horizontal Orientation_1"

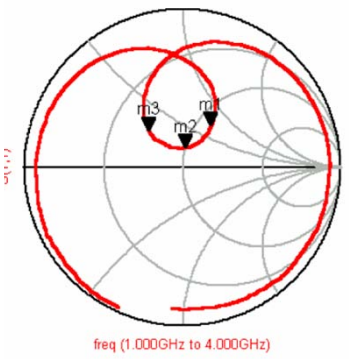


Note: It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when antenna is monted on Johanson's evaluation board. The matching values on clinet's PCB will be different, go to: http://johansontechnology.com/tuning and see how to obtain the new values. If you need further help, contact our RF Applications Eng Team at: http://www.johansontechnology.com/en/ask-a-technical-question.html

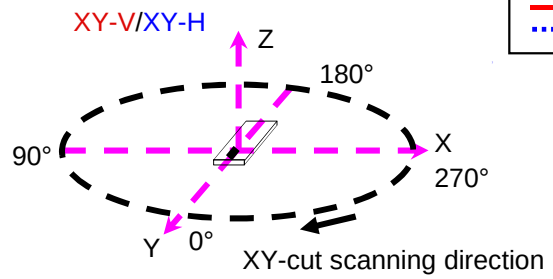
Return Loss

a) With Matching Circuit

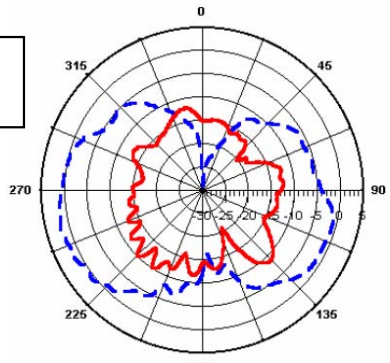


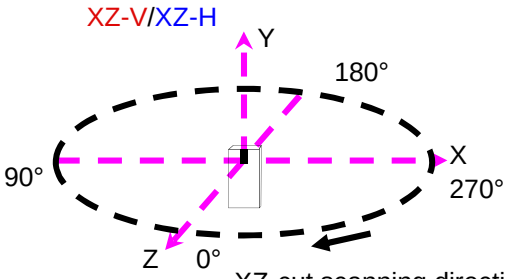


Typical Radiation Patterns for "Horizontal Orientation_1" (@25C)

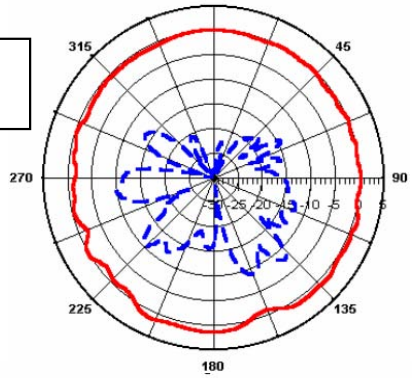


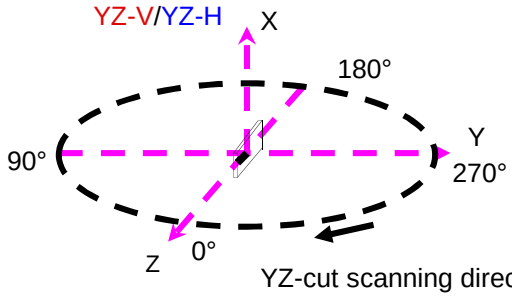
XY-cut scanning direction



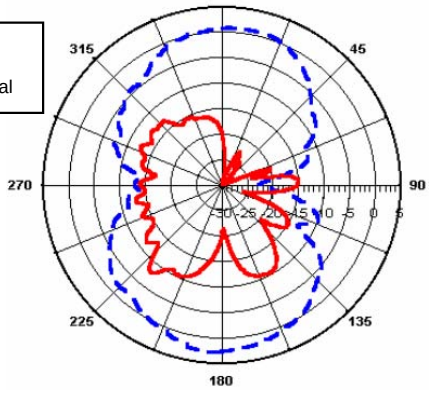


XZ-cut scanning direction





YZ-cut scanning direction



2.45 GHz High Gain SMD Chip Antenna **P/N 2450AT45A100**

Detail Specification: 9/4/2013

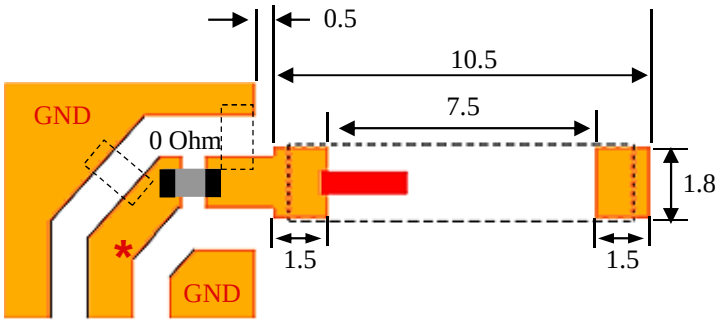
Typical Electrical Specs for "Horizontal Orientation_2" (T=25°C)			
Frequency Range	2400 - 2500 Mhz	**Average Gain**	0.6 dBi typ. (XZ-V)
Return Loss	9.5 dB min.	**Peak Gain**	1.3 dBi typ. (XZ-V)

Mounting Considerations 3 - Horizontal Orientation_2

Mount these devices with brown mark facing up. Units: mm

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

Units in mm



EVB p/n:
2450AT45A100-EB2SMA
Horizontal Orientation_2

Note: It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when antenna is monted on Johanson's evaluation board. The matching values on clinet's PCB will be different, go to: http://johansontechnology.com/tuning and see how to obtain the new values. If you need further help, contact our RF Applications Eng Team at: http://www.johansontechnology.com/en/ask-a-technical-question.html

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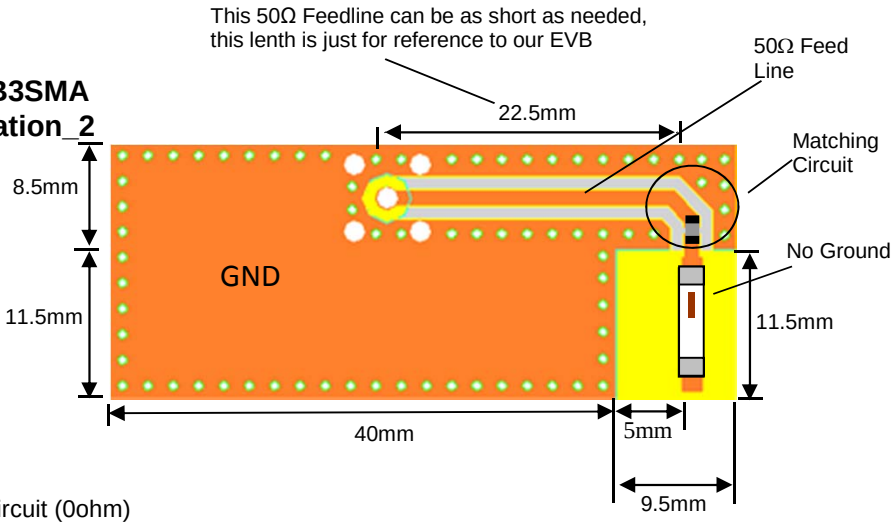
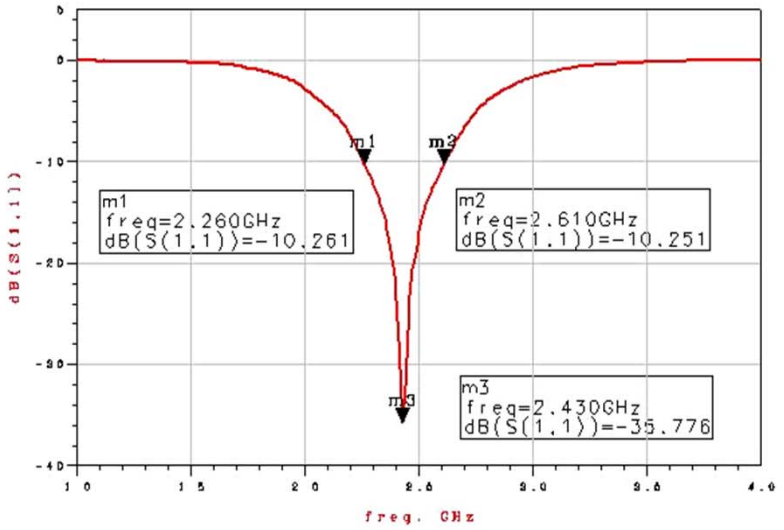
Typical Electrical Characteristics Horizontal Orientation_2 (T=25°C)

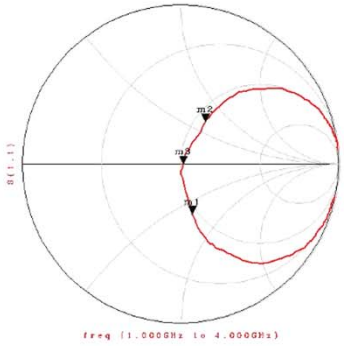
Test Board
EVB p/n:
2450AT45A100-EB3SMA
Horizontal Orientation_2



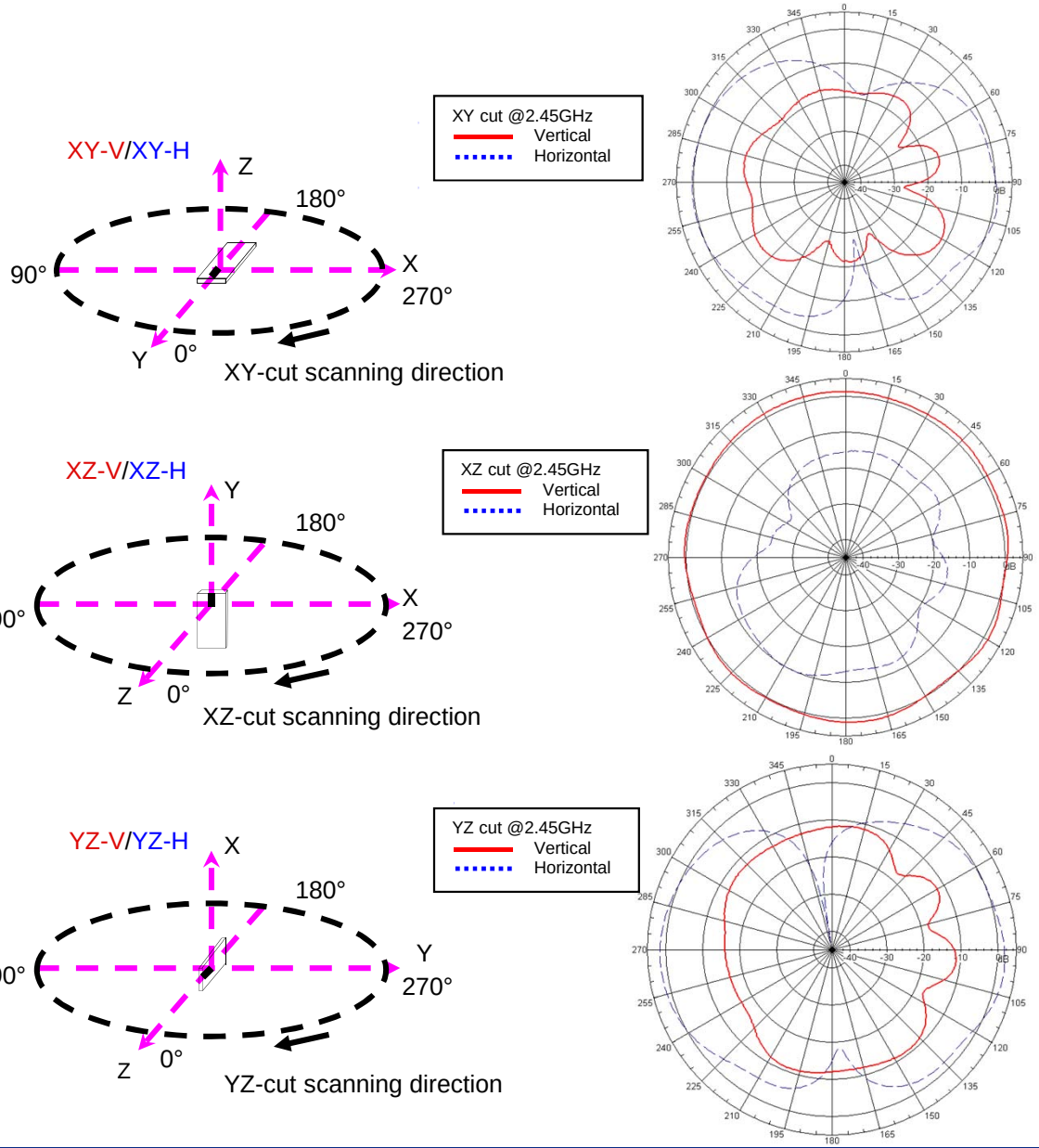
Return Loss

a) With Matching Circuit (0ohm)





Typical Radiation Patterns for "Horizontal Orientation_2" (@25C)



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Part Number Explanation				
P/N Suffix	Packaging Style*	Bulk (loose pieces)	Suffix = S	Eg. 2450AT45A100S
		T & R	Suffix = E	Eg. 2450AT45A100E
		T & R (Reverse)	Suffix = R	Eg. 2450AT45A100R (MOQ Applies
		100% Tin	Suffix = None	Eg. 2450AT45A100(S, E, R)
	Termination style	Tin / Lead	Please consult Factory	
	Evaluation Boards (1-port SMA antenna test boards)	2450AT45A100-EB1SMA (Page 2)		
		2450AT45A100-EB2SMA (Page 5)		
		2450AT45A100-EB3SMA (Page 8)		

Storage Conditions and Shelf Life (On T&R or Bulk)	
Temperature: +5C to +35°C	Shelf Life: 18 months max.
Relative Humidity: 45 to 75%	

Packaging information
www.johansontechnology.com/ipcpackaging.html

Soldering Information
www.johansontechnology.com/ipcsoldering-profile

Antenna layout and tuning techniques
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