

# "High Frequency Ceramic Solutions"

**2.38GHz / 2.45GHz / 2.6GHz Wideband SMD Chip Antenna** P/N 2500AT44M0400

Designed for: BAN, Bluetooth, 802.11, WLAN, Zigbee, Proprietary Protocol, ISM, Smart Energy, WiMax

Detail Specification: 5/24/2013

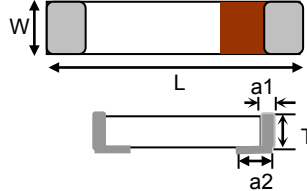
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## General Specifications

Part Number	2500AT44M0400		<b>Quantity per Reel</b> 1,000	
Operating Frequency (MHz)	2300 - 2700			
Impedance	50 Ω			
Operating Temperature	-40 to +85°C			
Return Loss (2.3-2.7GHz)	9.5 dB min.			
Peak Gain @ 2.38GHz	2.0 dBi typ. (XZ-V)			
Average Gain @ 2.38GHz	0.0 dBi typ. (XZ-V)			
Peak Gain @ 2.45GHz	2.5 dBi typ. (XZ-V)			
Average Gain @ 2.45GHz	0.5 dBi typ. (XZ-V)			
Peak Gain @ 2.60GHz	2.0 dBi typ. (XZ-V)			<b>Recommended Storage Conditions</b> +5 ~ +35 °C, Humidity 45~75%RH
Average Gain @ 2.60GHz	0.0 dBi typ. (XZ-V)			

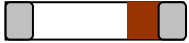
## Mechanical Specifications

	In	mm
L	0.315 ± 0.008	8.00 ± 0.20
W	0.039 ± 0.008	1.00 ± 0.20
T	0.039 ± 0.008	1.00 ± 0.20
a	0.020 ± 0.008	0.50 ± 0.20
a2	0.039 ± 0.008	1.00 ± 0.20



## Terminal Configuration

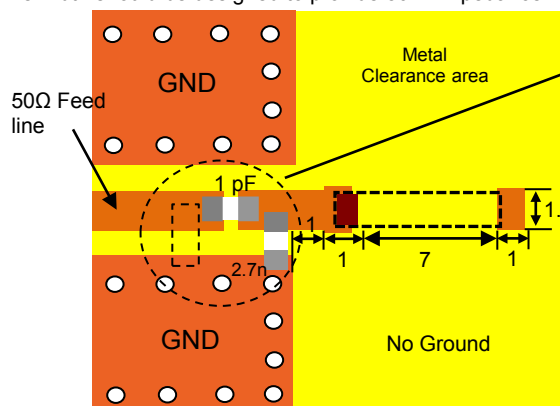
No.	Function
1	Feeding Point
2	NC



## Mounting Considerations - Layout #1

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

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



It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values are used when antenna is mounted 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: [www.johansontechnology.com/en/ask-a-technical-question.html](http://www.johansontechnology.com/en/ask-a-technical-question.html)

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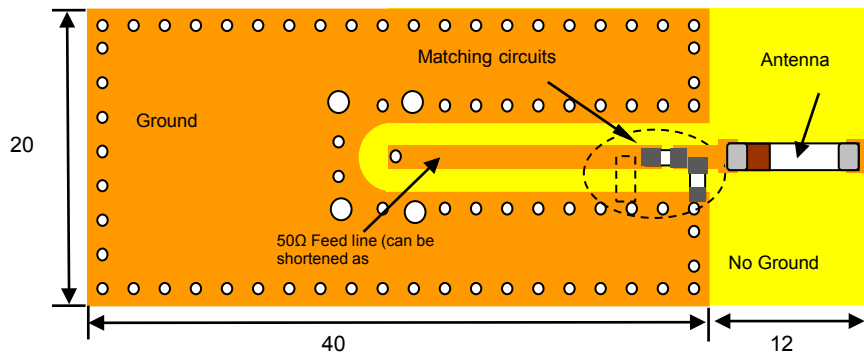
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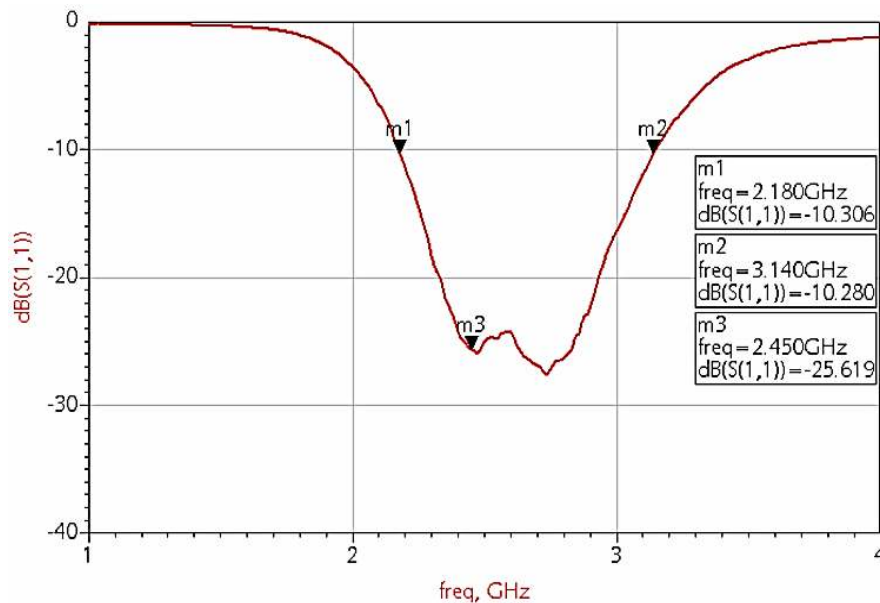
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## Layout #1 example (units in mm)



Orderable EVB p/n: 2500AT44M0400-EB1SMA

## Return Loss - with Matching Circuits



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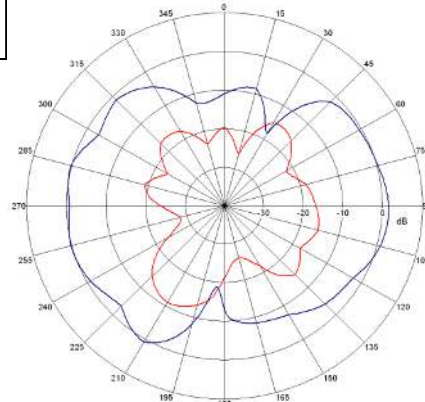
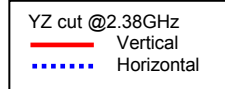
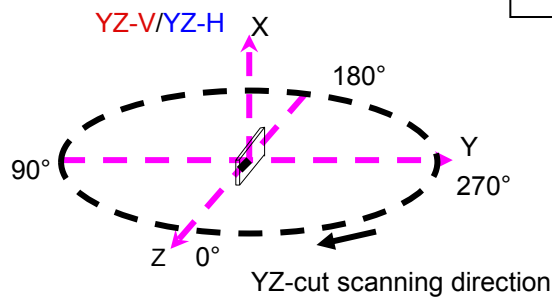
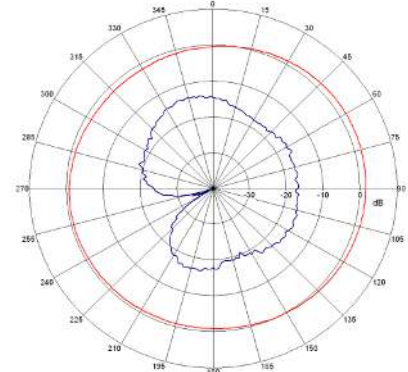
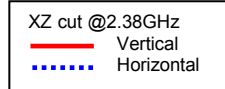
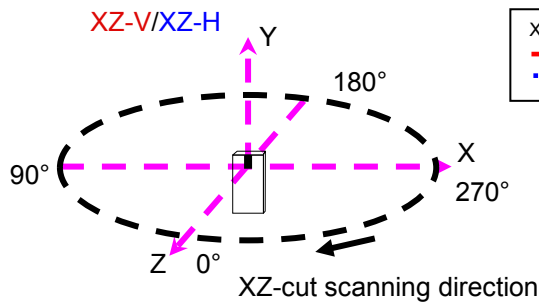
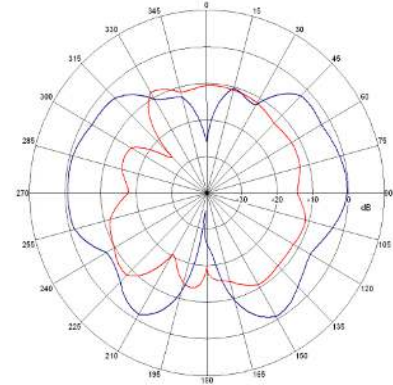
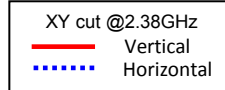
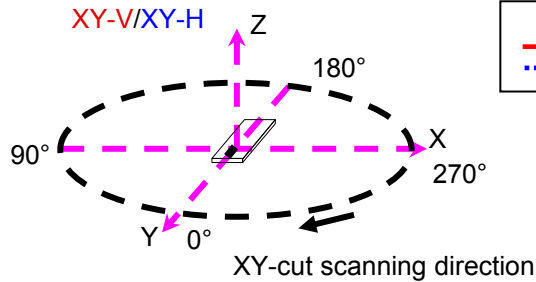
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Detail Specification: 5/24/2013

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## Typical Radiation Patterns @ 2.38GHz - Layout #1

### Typical Radiation Patterns - Layout #1



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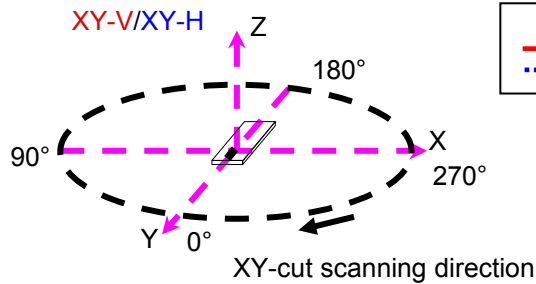
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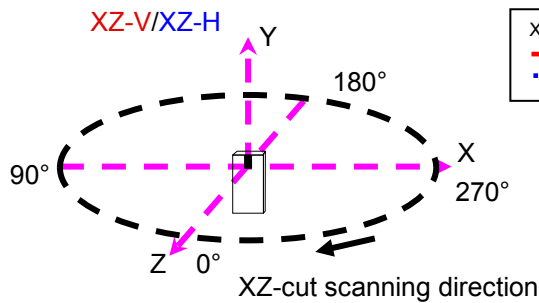
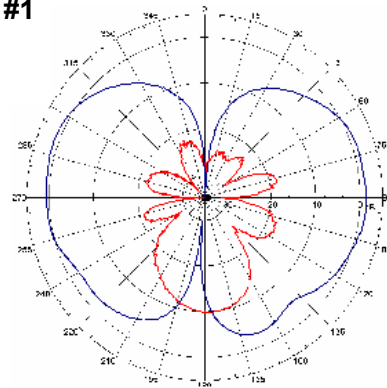
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## Typical Radiation Patterns @ 2.45GHz - Layout #1

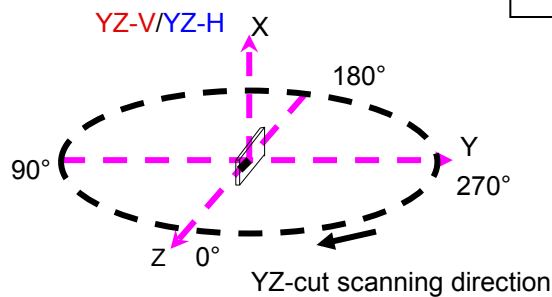
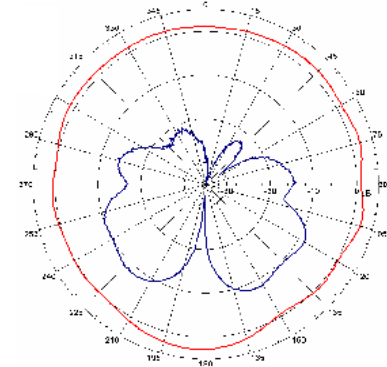
### Typical Radiation Patterns - Layout #1



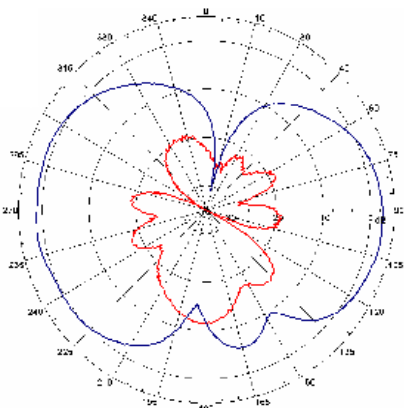
XY cut @2.45GHz  
 — Vertical  
 ..... Horizontal



XZ cut @2.45GHz  
 — Vertical  
 ..... Horizontal



YZ cut @2.45GHz  
 — Vertical  
 ..... Horizontal



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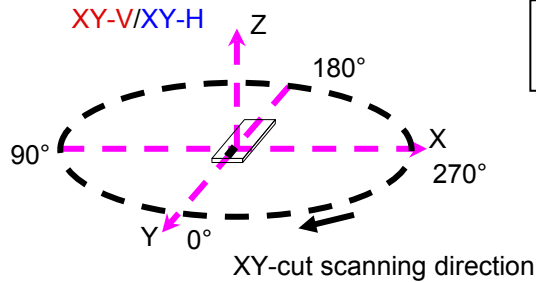
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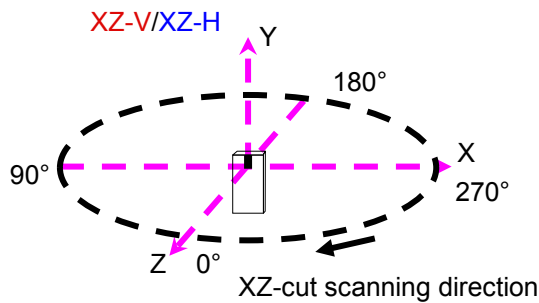
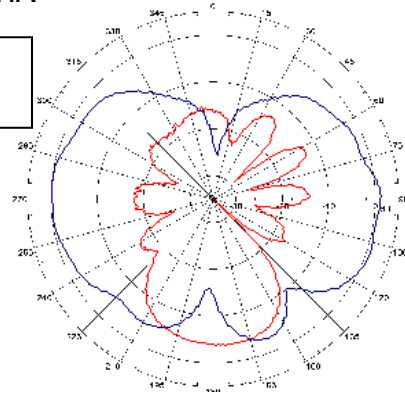
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## Typical Radiation Patterns @ 2.6GHz - Layout #1

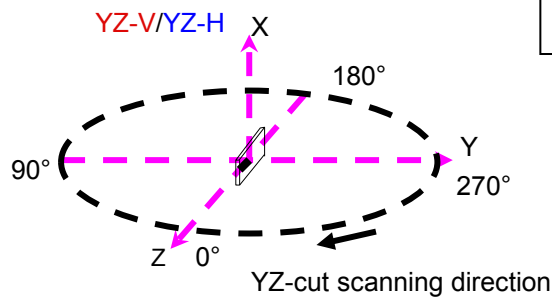
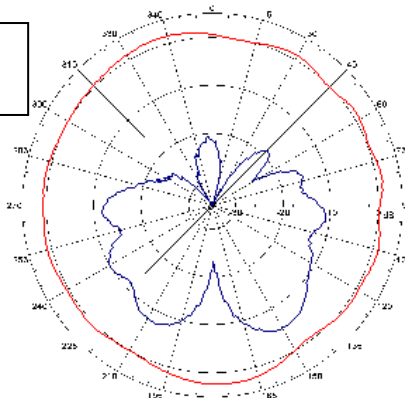
### Typical Radiation Patterns - Layout #1



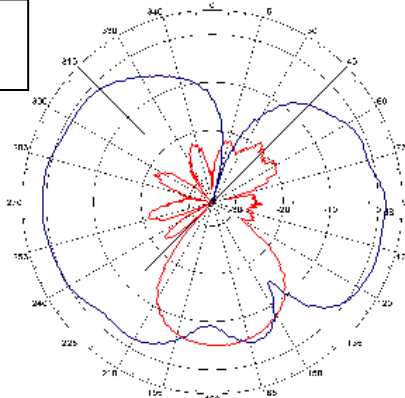
XY cut @2.6GHz  
 — Vertical  
 ..... Horizontal



XZ cut @2.6GHz  
 — Vertical  
 ..... Horizontal



YZ cut @2.6GHz  
 — Vertical  
 ..... Horizontal



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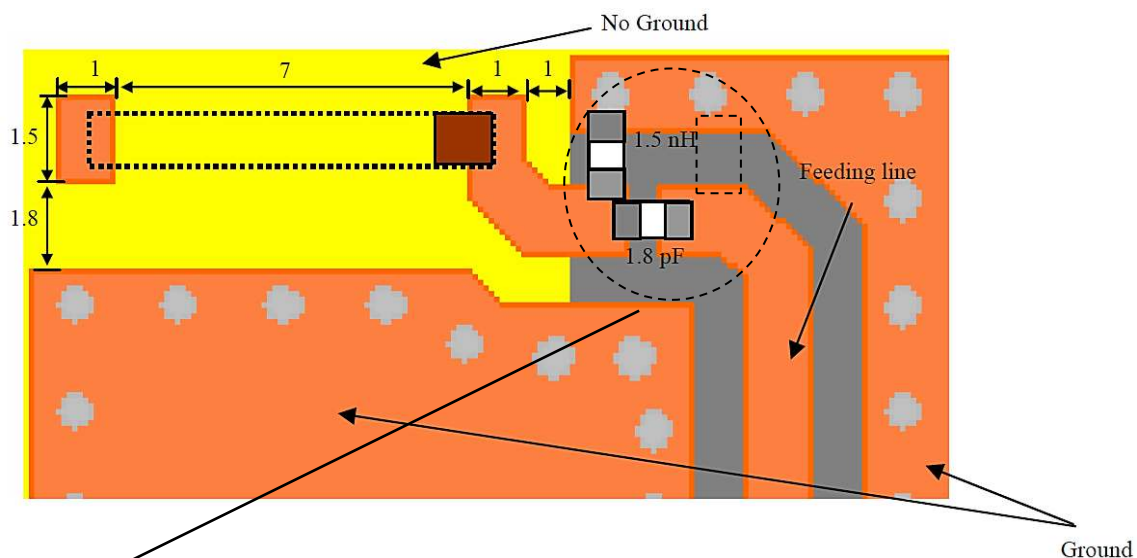
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## Alternate layout - Layout #2

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

\*Line width should be designed to provide 50  $\Omega$  impedance matching characteristics.

### Layout #2 example (units in mm)\*\*



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\*\*Bandwidth is about 190MHz in this configuration

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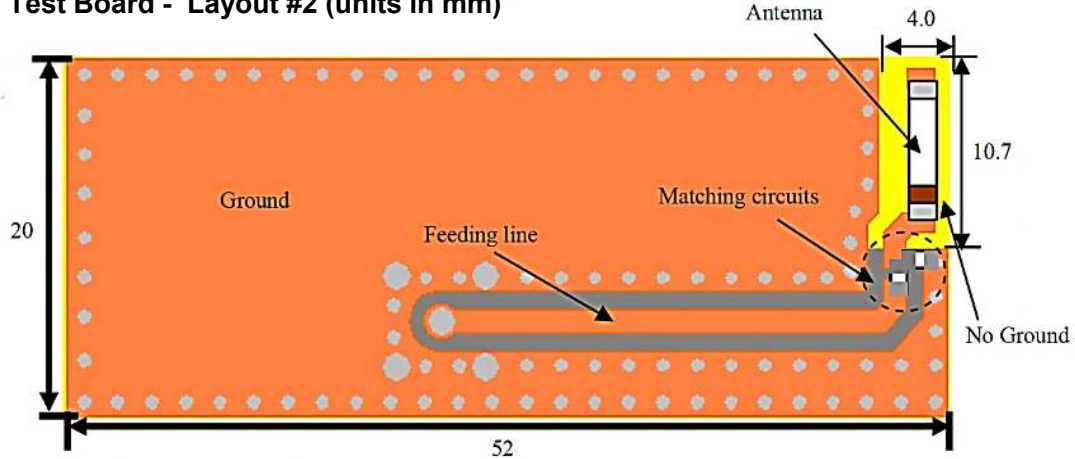
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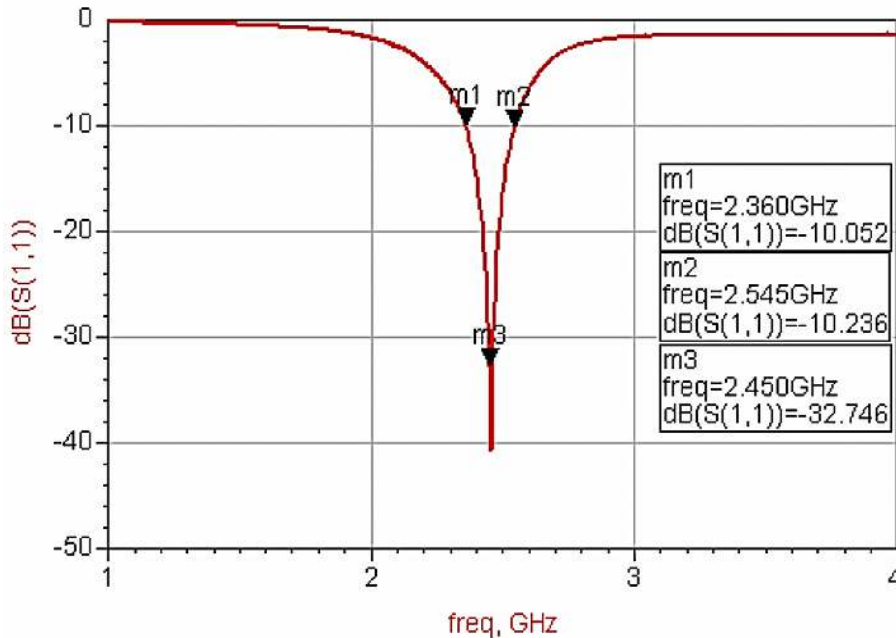
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## Typical Electrical Characteristics (T=25 °C)

Test Board - Layout #2 (units in mm)



Return Loss - with Matching Circuits



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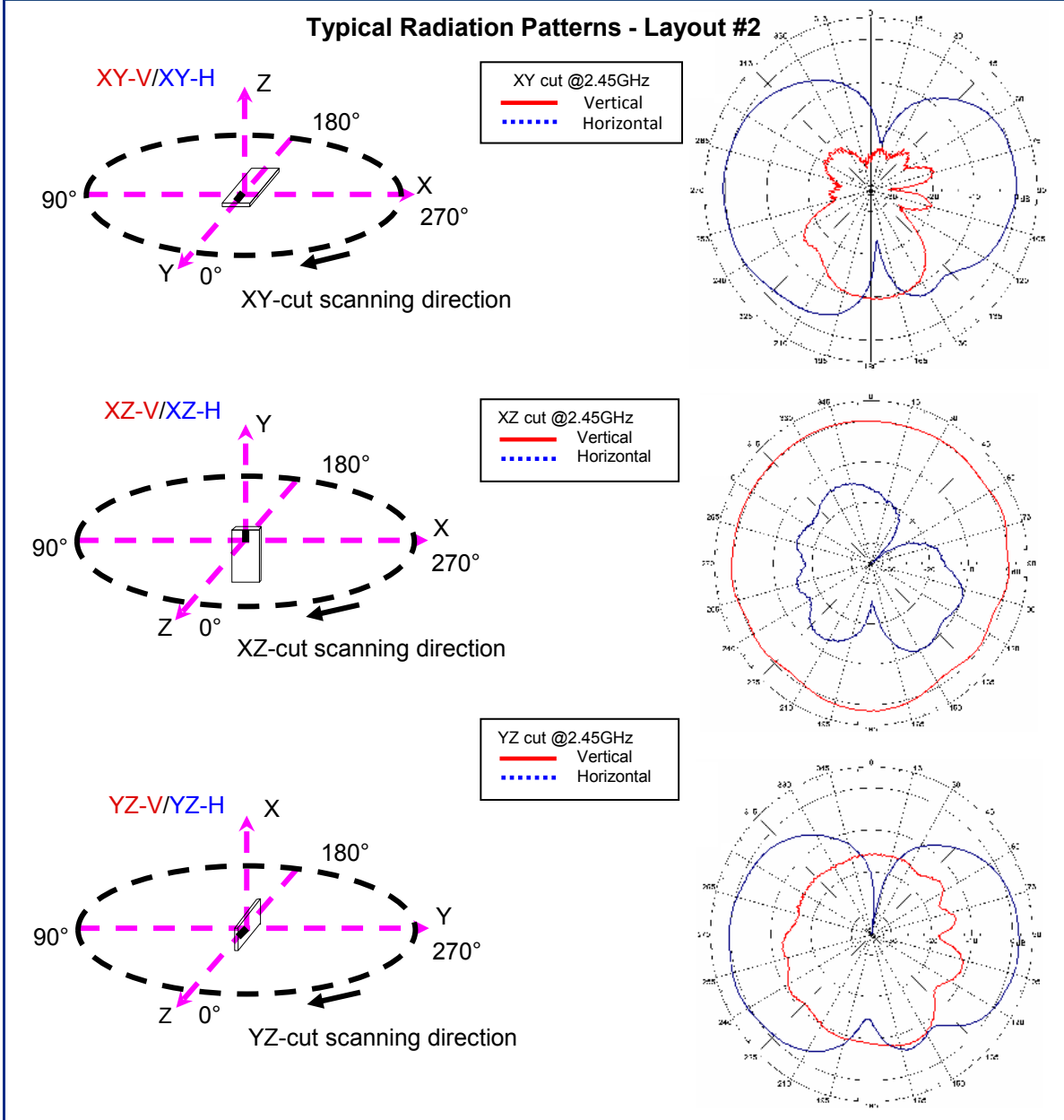
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## Typical Radiation Patterns @ 2.45GHz - Layout #2



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Detail Specification:      5/24/2013

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## Additional Info

### Part Number Explanation

P/N Suffix	Packing Style			
	Bulk	Suffix = S	eg. 2500AT44M0400S	
	T & R	Suffix = T	eg. 2500AT44M0400E	
	Evaluation Board	SMA	Suffix = -EB1SMA	eg. 2500AT44M0400-EB1SMA

### Tape & Reel Specifications

<http://www.johansontechnology.com/ipcpackaging.html>

### Soldering Profile

<http://johansontechnology.com/ipcsoldering-profile>

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