

# "High Frequency Ceramic Solutions"

2.4 GHz Mini Chip Antenna for 802.11, WiFi, WLAN, IoT with Small Area and GND size, ultra low profile

P/N 2450AT14A0100

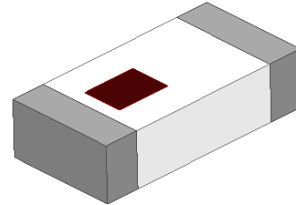
Detail Specification: 2/8/2018

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## General Specifications

Part Number	2450AT14A0100
Frequency (GHz)	2.4 - 2.48
Avg. Rad Efficiency <sup>1</sup>	48%
Peak Gain <sup>1</sup> (dBi typ.)	-0.5 dBi typ. (XZ-Total)
Average Gain (dBi typ.)	-2.0 dBi typ. (XZ-Total)
Return Loss (dB)	9.5 Typ. (6 min.)
Impedance	50 Ω
Input Power	2 Watts max. (CW)

Let us help you with the antenna design (free), optimization, and tuning (small fee may apply) [www.johansontechnology.com/ask-a-question](http://www.johansontechnology.com/ask-a-question)



<sup>1</sup>Measured on 2450AT14A0100-EB2SMA

Operating Temperature	-40 to +85°C	Recommended Storage Conditions of unused product on T&R and period	+5 to +35°C, Humidity 45~75%RH, 18 months max.
Storage Temperature	-40 to +85°C		
Reel Quantity	4000		

AEC-Q200 qualification available.

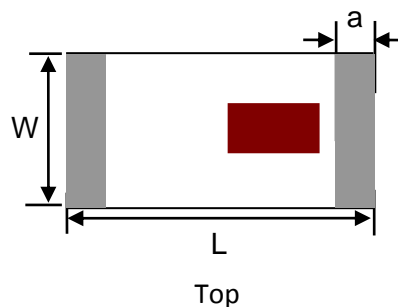
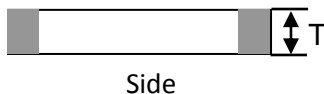
## Part Number Explanation

P/N Suffix	Packing Style	Bulk (loose)	Suffix = S	e.g. 2450AT14A0100S
		T & R	Suffix = T	e.g. 2450AT14A0100T (4,000pcs/reel)
		100% Tin	Suffix = T or S	e.g. 2450AT14A0100(T or S)
	Evaluation Board	2450AT14A0100-EB1SMA & 2450AT14A0100-EB2SMA see pages 2&6 for details		

Contact our RF Engineers at: [www.johansontechnology.com/ask-a-question](http://www.johansontechnology.com/ask-a-question) for any questions you have, including tips or help on tuning the antenna

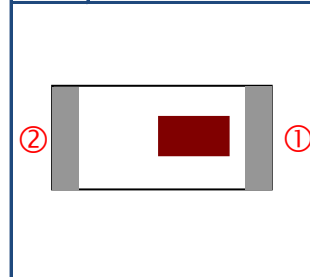
## Chip Antenna Mechanical Dimensions

	In	mm
L	0.063 ± 0.004	1.60 ± 0.10
W	0.031 ± 0.004	0.80 ± 0.10
T	0.016 max.	0.40 max.
a	0.010 ± 0.004	0.25 ± 0.10



## Terminal Configuration

No.	Function
1	FEED
2	NC



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

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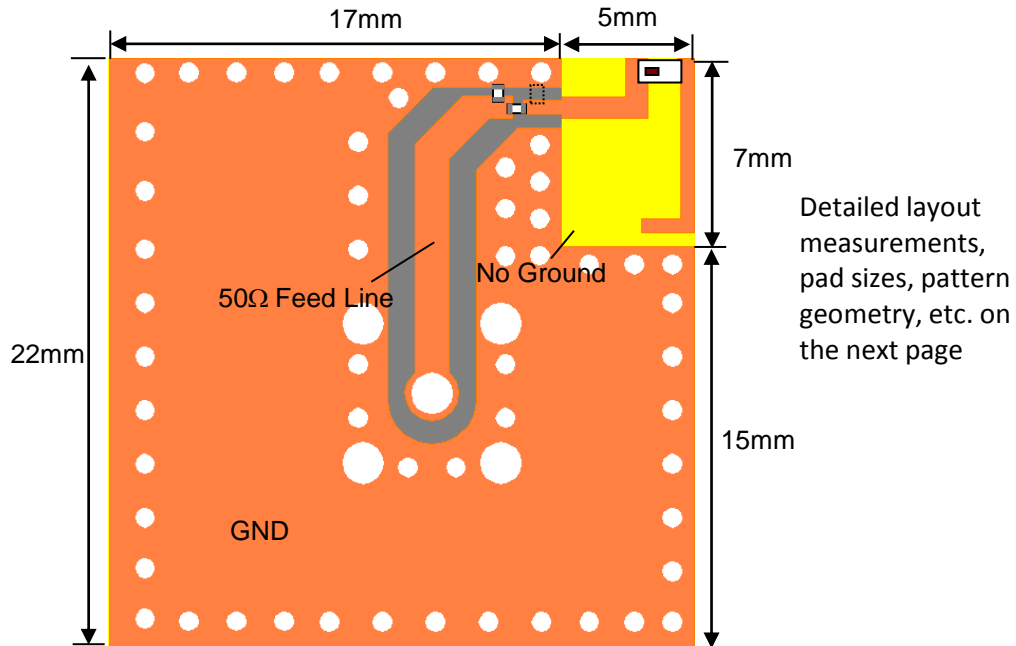
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## Mounting Considerations 1: Evaluation Board (small PCB)



Would you like the layout file of the above? Having antenna tuning issues? Contact us by clicking on the link below (we're fast to respond!) . If you have any questions regarding the implementation of this antenna in your PCB, we'll be happy to guide you to maximize the antenna's performance.

Contact our applications engineers at:

[www.johansontechnology.com/ask-a-question](http://www.johansontechnology.com/ask-a-question)

To order a pre-tuned 50Ω EVB like the above with a female SMA connector

click here: [www.johansontechnology.com/request-a-sample](http://www.johansontechnology.com/request-a-sample)

Reference p/n: 2450AT14A0100-EB1SMA

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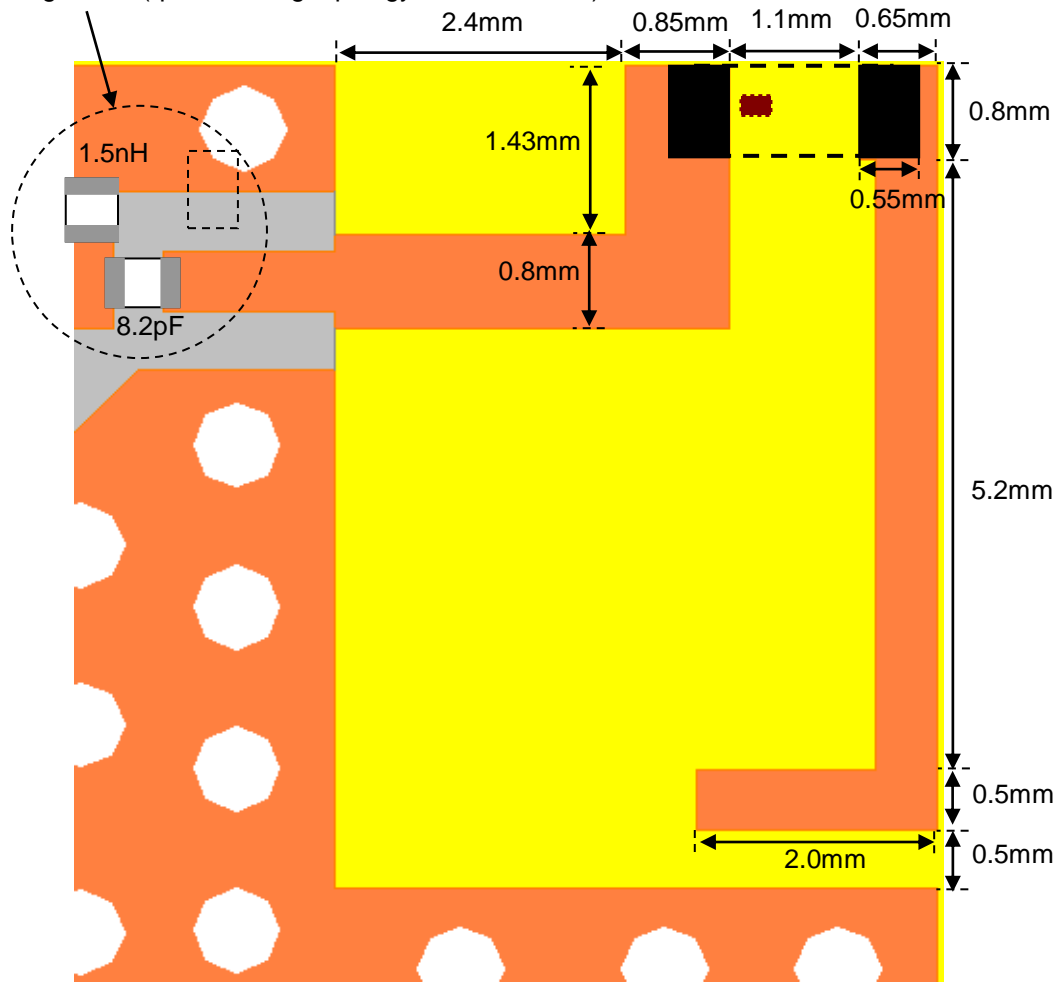
## Mounting Considerations 1: Antenna Footprint

Mount these devices with red mark facing up.

### Antenna Reference Layout

 Solder Resist  
 Land

Matching circuit ("pi" matching topology recommended)



(Matching circuit and component values will be different, depending on PCB layout)

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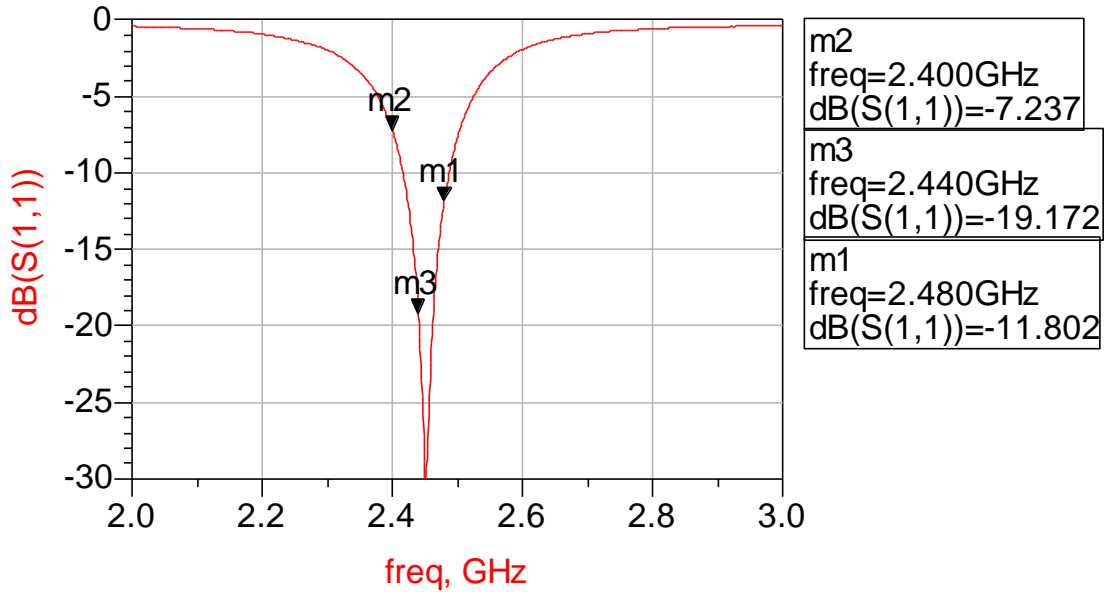
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## Mounting Considerations 1: Typical Electrical Performance (T=25°C)



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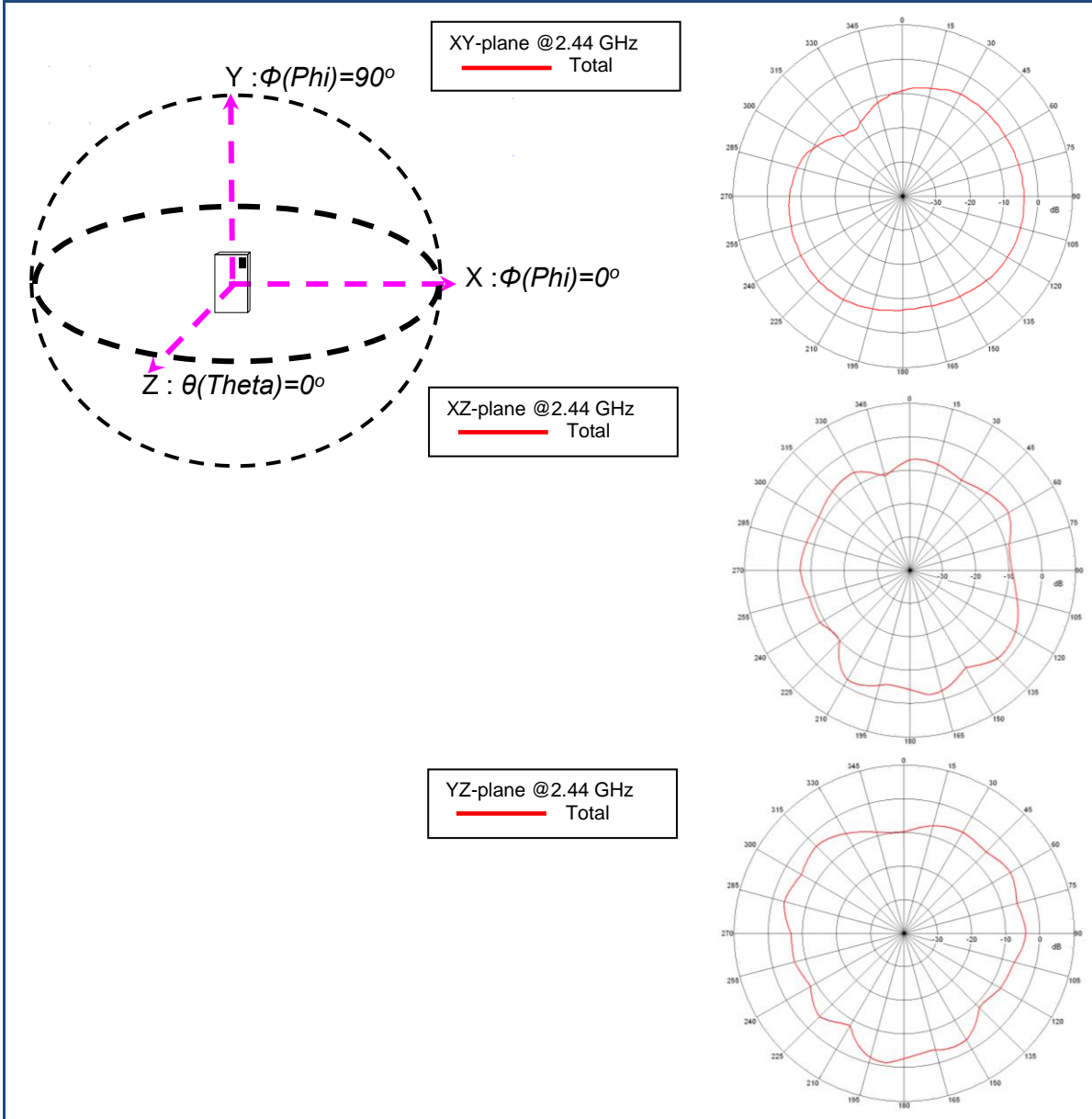
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## Mounting Considerations 1: Typical EM Radiation Performance @ 2.44GHz (T=25°C)



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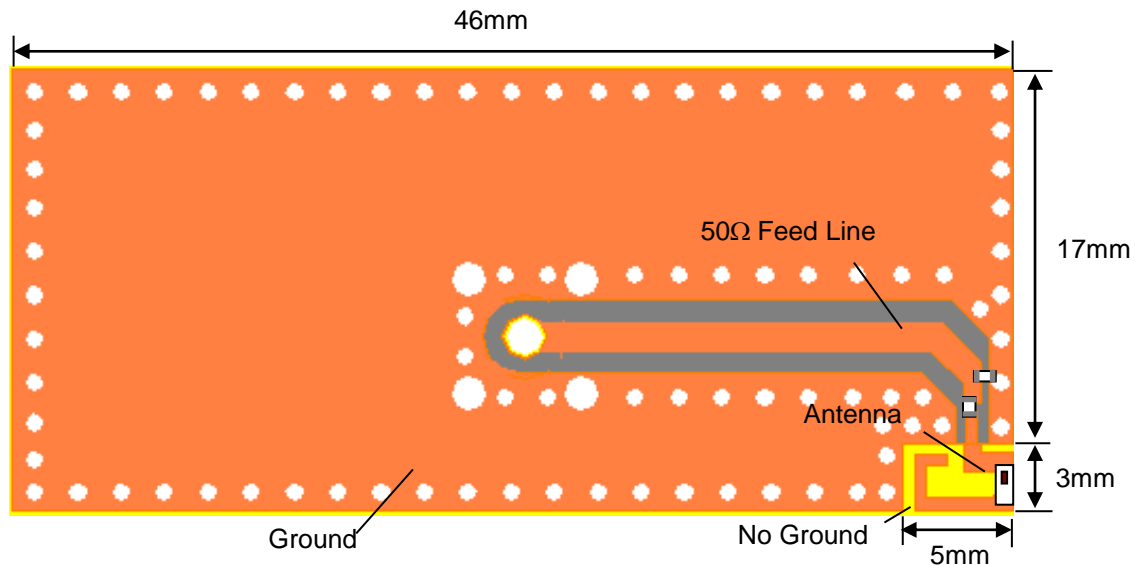
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## Mounting Considerations 2: Evaluation Board (larger PCB)



Frequency (GHz)	Radiated Efficiency (%)
2.44	48

To order a pre-tuned 50Ω EVB with a female SMA connector click here:

[www.johansontechnology.com/request-a-sample](http://www.johansontechnology.com/request-a-sample)

Reference p/n: 2450AT14A0100-EB2SMA

Would you like the layout file of the above? Have antenna tuning issues?

Please contact us if you have any questions regarding the implementation of this antenna in your PCB's layout. We'll be happy to guide you to maximize the antenna's performance.

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## Mounting Considerations 2: Antenna Footprint

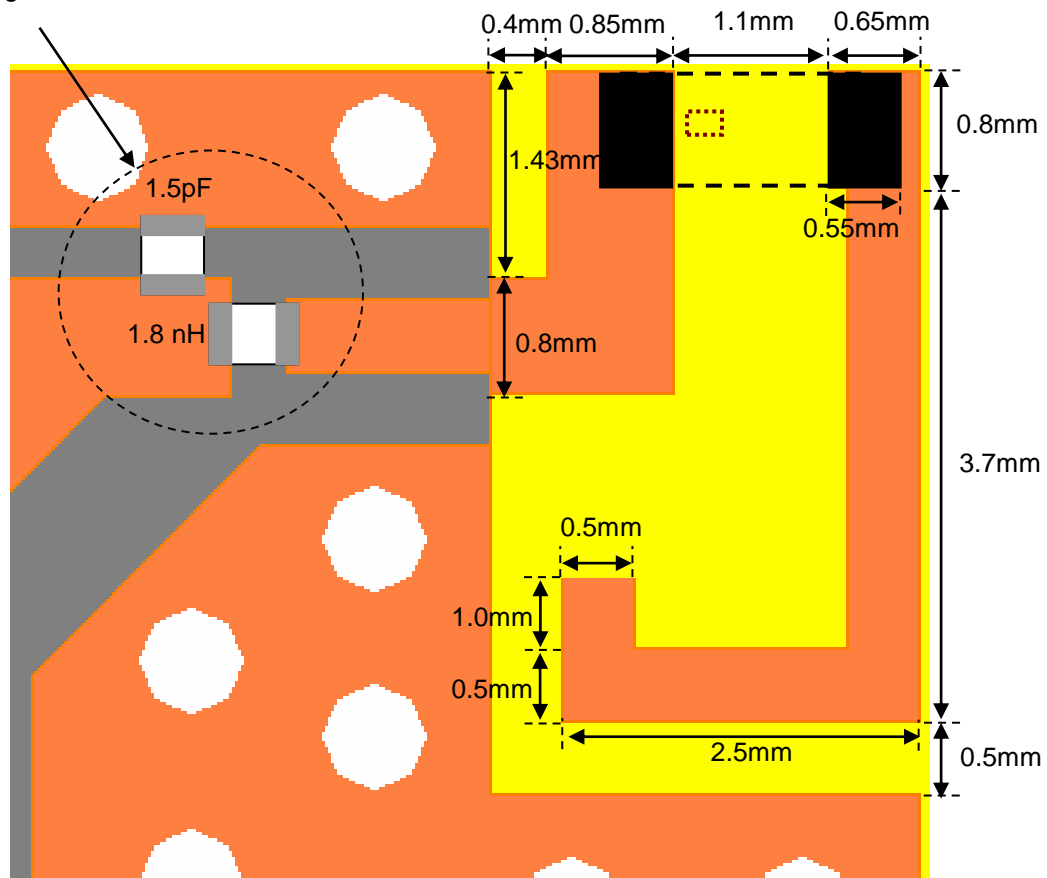
Mount these devices with brown mark facing up.

### Antenna Reference Layout

Solder Resist

Land

Matching circuit



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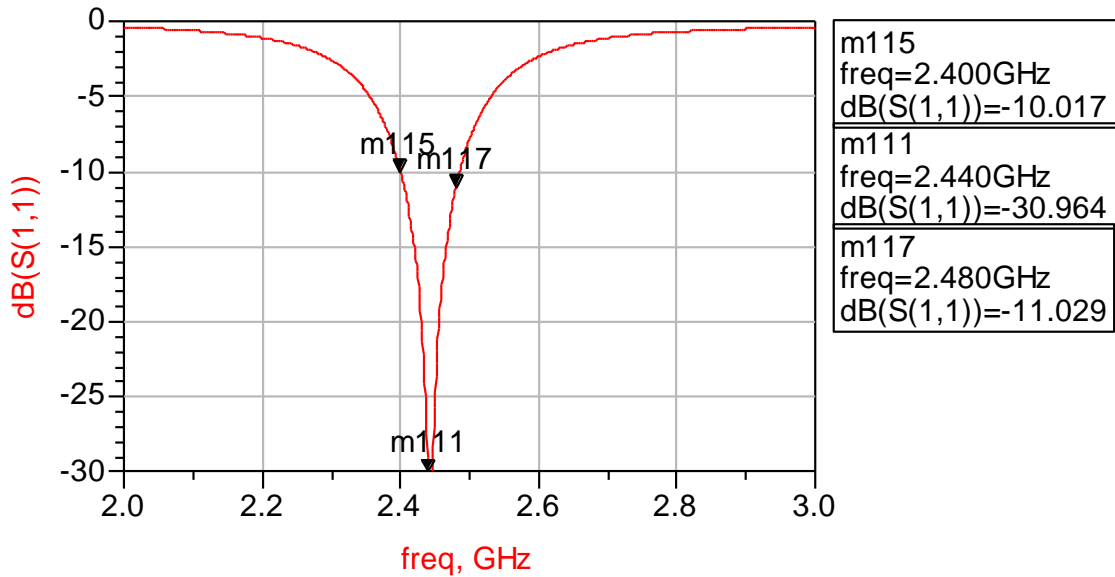
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## Mounting Considerations 2: Typical Electrical Performance (T=25°C)



ITEM	ANT SPEC					
Model Name	2.4G ANT					
Center Frequency	Horizontal			Vertical		
	2400MHz	2400MHz	2500MHz	2400MHz	2400MHz	2500MHz
	-1.26	-0.76	-0.5	-5.25	-2.46	-1.86
MAX. Gain	-0.58dB					

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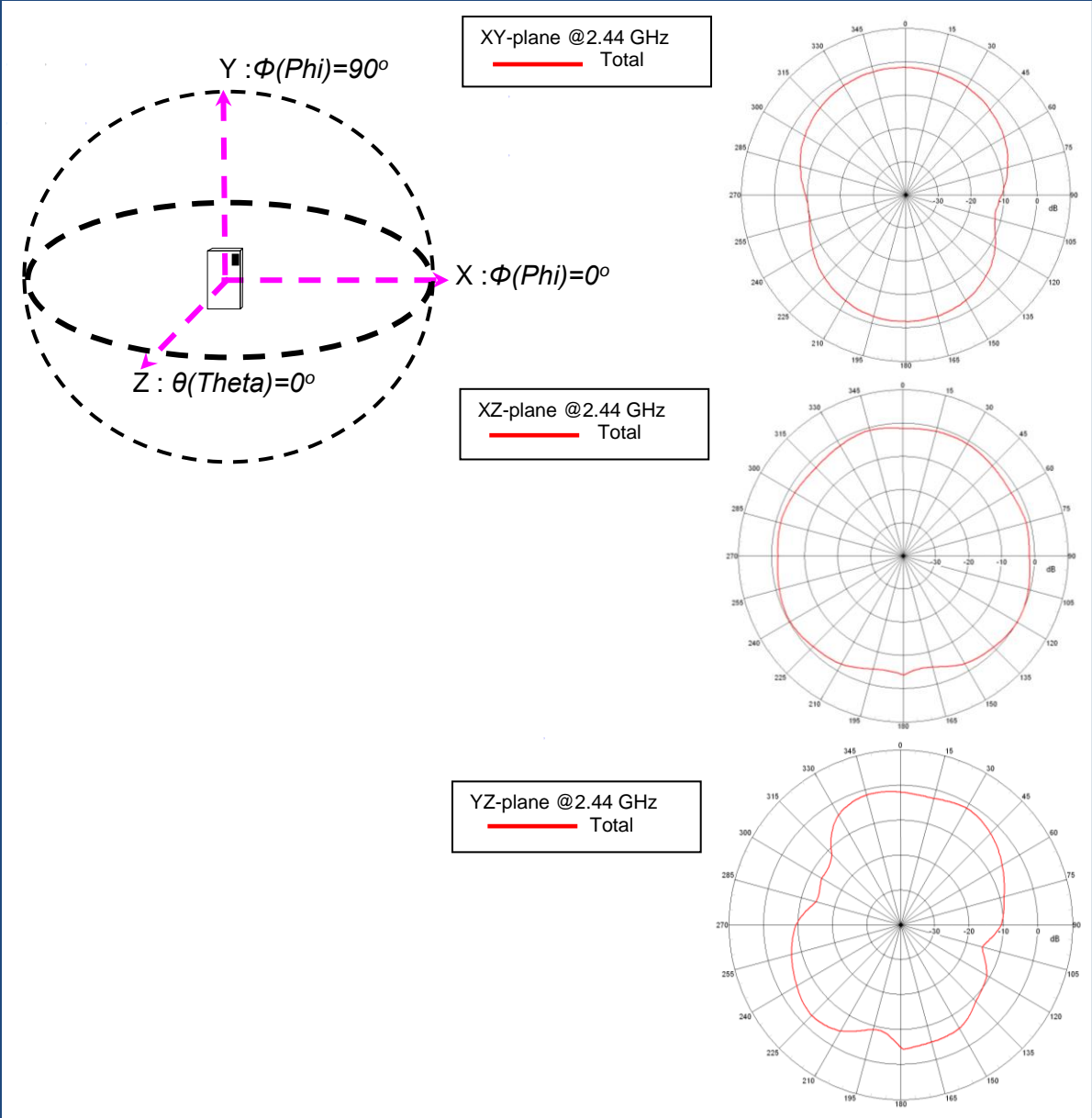
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## Mounting Considerations 2: Typical EM Radiation Performance @ 2.44 GHz (T=25°C)



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## Antenna tuning, optimization, and validation services:

[www.johansontechnology.com/ipc-antenna-services](http://www.johansontechnology.com/ipc-antenna-services)

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

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

## Soldering Information

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

## MSL Info

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

## Packaging information

[www.johansontechnology.com/tape-reel-packaging](http://www.johansontechnology.com/tape-reel-packaging)

## For layout review contact our Applications Team at:

[www.johansontechnology.com/ask-a-question](http://www.johansontechnology.com/ask-a-question)

## RoHS Compliance

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

Need help designing the antenna in? Use our antenna design services!

[www.johansontechnology.com/ipc-antenna-services](http://www.johansontechnology.com/ipc-antenna-services)

2 free layout reviews and if you need us to tune and characterize the antenna on your product (inside anechoic chamber) we can do that too. Small lab fee may apply for the latter.

We can do Electromagnetic simulations using your existing mechanical files too!

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