

# High Frequency Ceramic Solutions

868 and 915MHz dual (wideband) ISM band SMD chip antenna

P/N 0900AT43A0070

Detail Specification: 1/29/2021

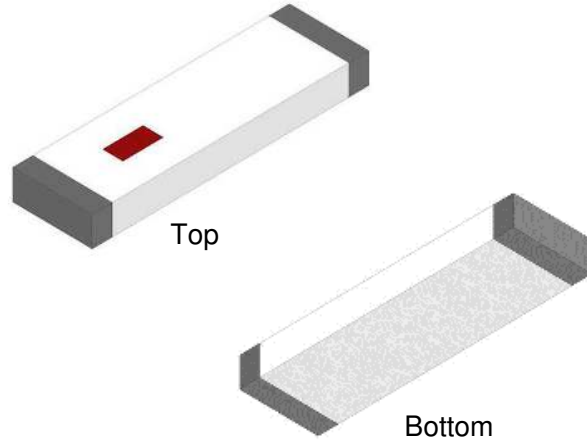
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## General Specifications

Part Number	0900AT43A0070
Frequency (MHz)	858 - 928
Peak Gain (dBi)	-0.5 typ. (XZ-Total)
Average Gain (dBi)	-2.5 typ. (XZ-Total)
Radiated Efficiency*	48% ave.
Return Loss (dB)	4 min.
Impedance ( $\Omega$ )	50
Input Power (W)	2 max. (CW)
Operating Temperature	-40 to +85°C
Recommended Storage Conditions and Period for unused T&R Product	+5 to +35°C Humidity 45 - 75% RH 18 months max.
Reel Quantity (pcs/reel)	1,000

Let us help you with the antenna design, optimization, and tuning!

<https://www.johansontechnology.com/ask-a-question>



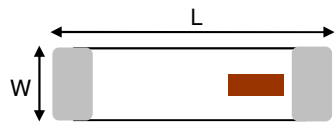
\*Efficiency based on evaluation board 0900AT43A0070-EB2SMA, Layout# 2, page 6

## Part Number Explanation

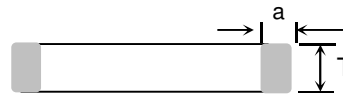
P/N Suffix	Packing Style	Bulk (loose pcs)	Suffix = S	e.g. 0900AT43A0070S
		T & R	Suffix = E	e.g. 0900AT43A0070E
		100% Tin	Suffix = None	e.g. 0900AT43A0070(E or S)
Evaluation Board	Layout Recommendation #1 - 0900AT43A0070-EB1SMA, see page 2			
	Layout Recommendation #2 - 0900AT43A0070-EB2SMA, see page 6			

## Mechanical Dimensions

	In	mm
L	0.276 ± 0.008	7.00 ± 0.20
W	0.079 ± 0.008	2.00 ± 0.20
T	0.031 +.004 / -.008	0.80 +0.10 / -0.20
a	0.020 ± 0.012	0.50 ± 0.30



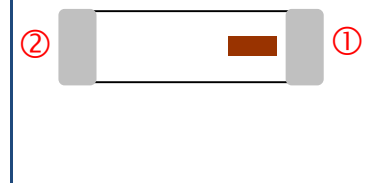
Top View



Side View

## Terminal Configuration

No.	Function
1	RF Feeding Point
2	To trace element



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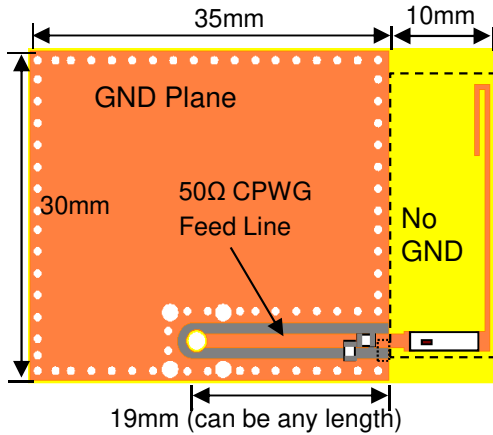
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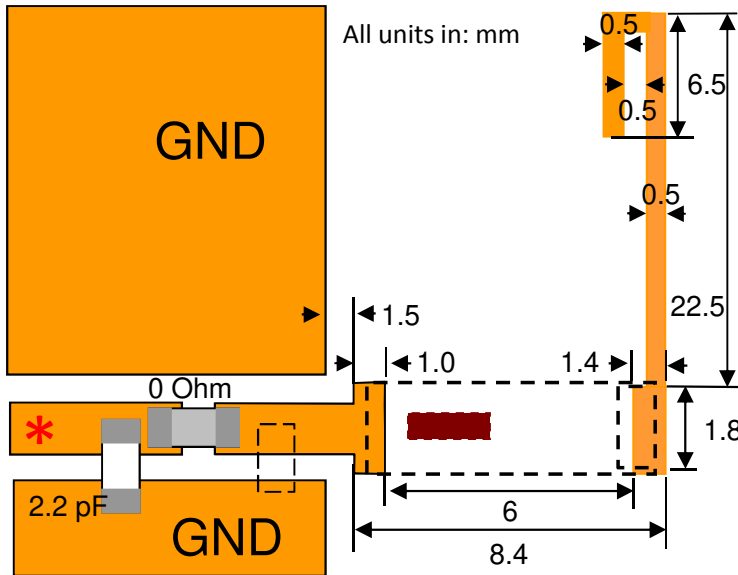
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## Layout Recommendation #1: Evaluation Board p/n: 0900AT43A0070-EB1SMA



- Orderable EVB for evaluation, it comes with a female SMA connector. Go to: <https://www.johansontechnology.com/request-a-sample> and ask for p/n 0900AT43A0070-EB1SMA

- The total antenna area usage for this EVB is approx. 25x10mm (due to trace element), but the trace can be re-shaped to reduce effective area and conform to the designer's PCB.



- 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 your antenna design (free!), require the Gerber files for this EVB, or would like us to validate the new tuning values of your PCB (fee may apply) go to: <https://www.johansontechnology.com/ask-a-question>

\* Line width should be designed to match 50ohm characteristic impedance, depending on your PCB material and thickness (distance to GND)

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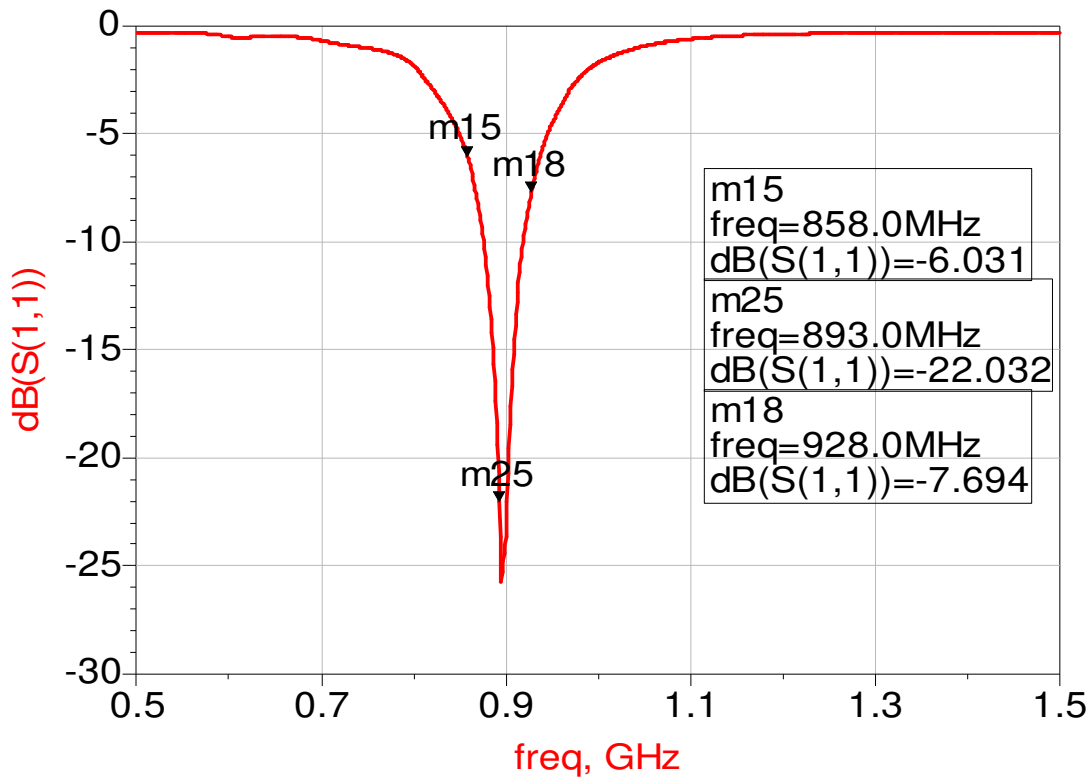
P/N 0900AT43A0070

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## Typical Electrical Performance (T=25°C) on Layout Recommendation #1

Return Loss (with matching)



This antenna has about 20MHz of guard-band on each side.

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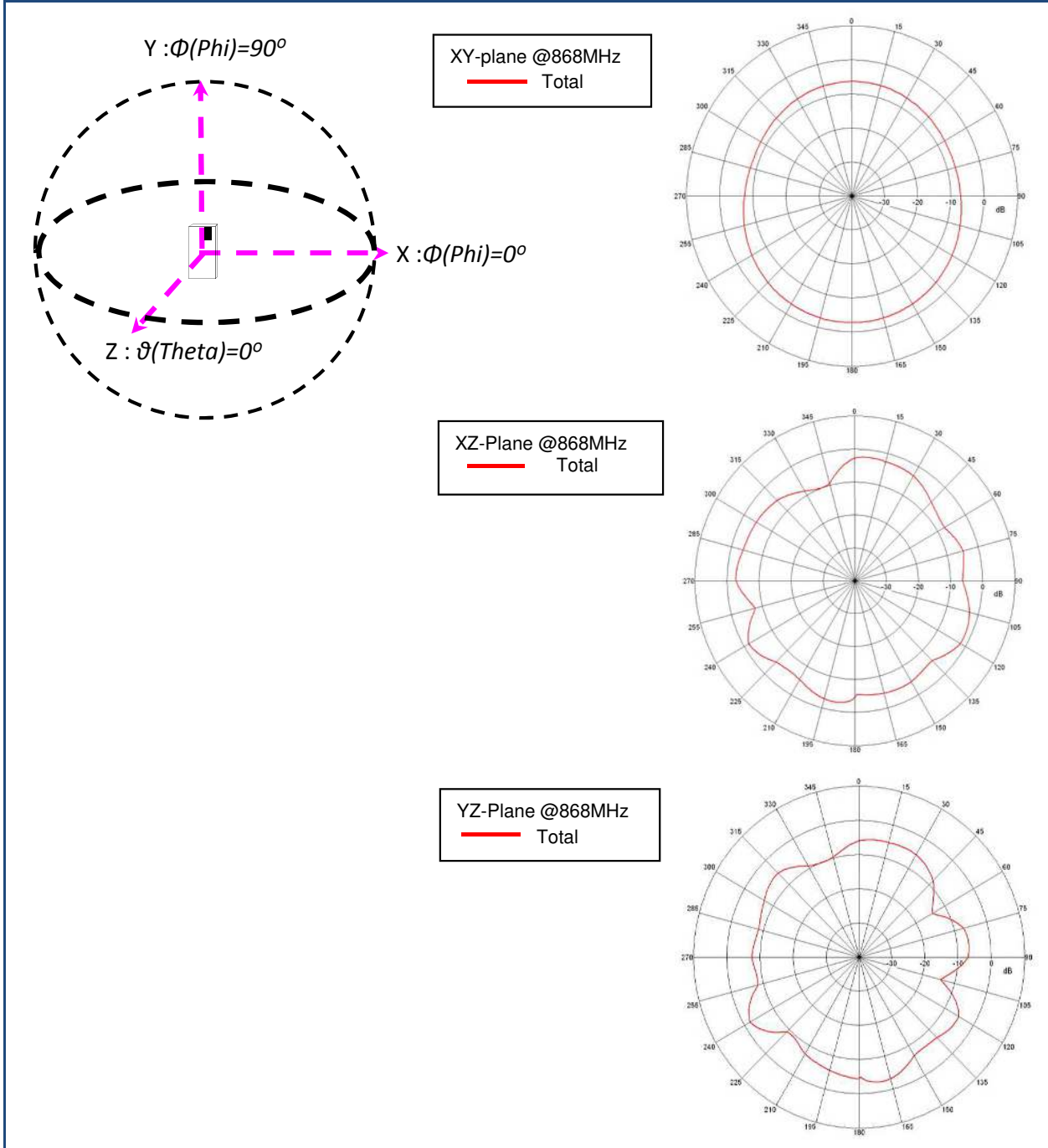
868 and 915MHz dual (wideband) ISM band SMD chip antenna

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## Typical Radiation Patterns (T=25°C) of Layout Recommendation #1



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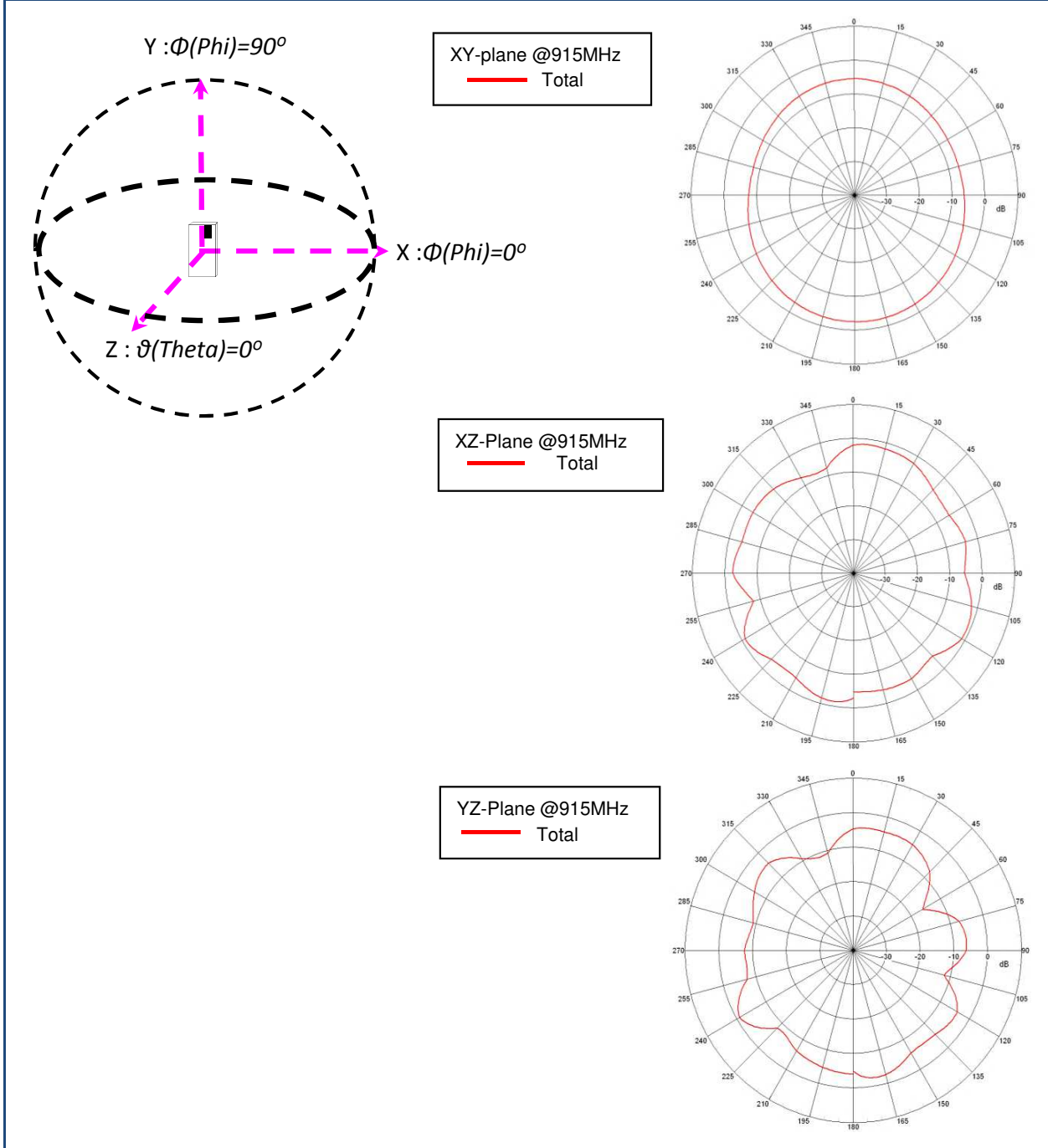
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## Typical Radiation Patterns (T=25°C) of Layout Recommendation #1



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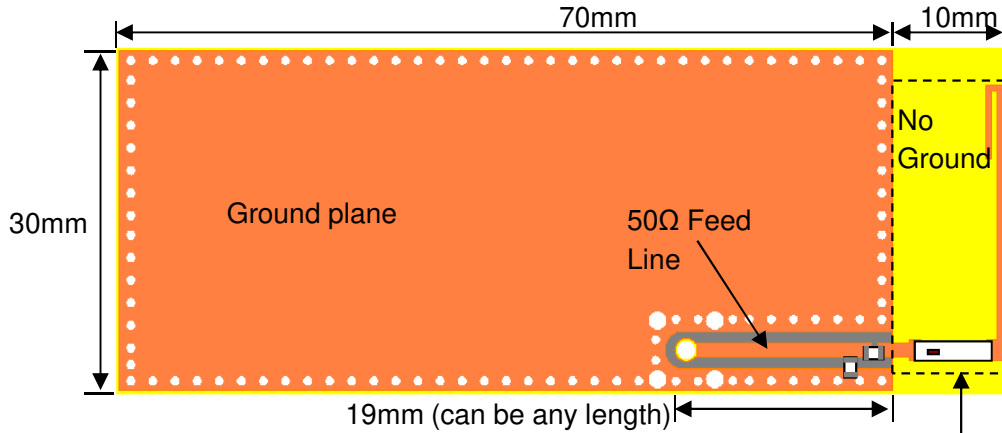
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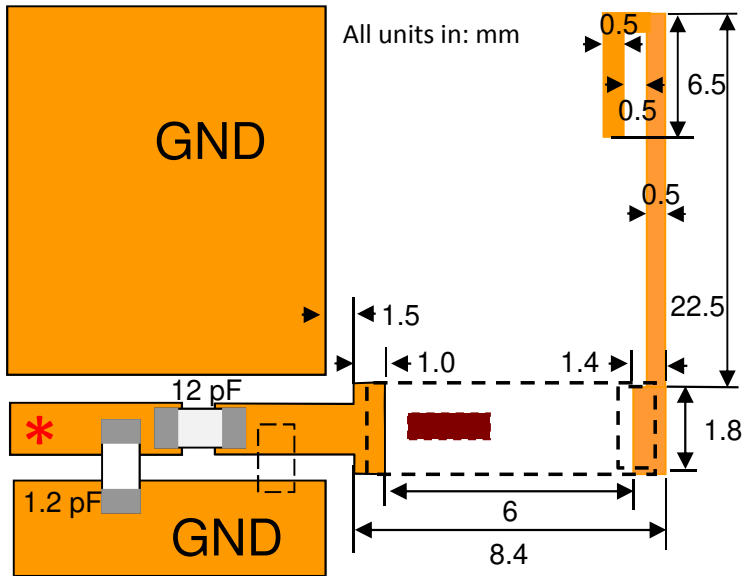
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## Layout Recommendation #2: Evaluation Board p/n: 0900AT43A0070-EB2SMA



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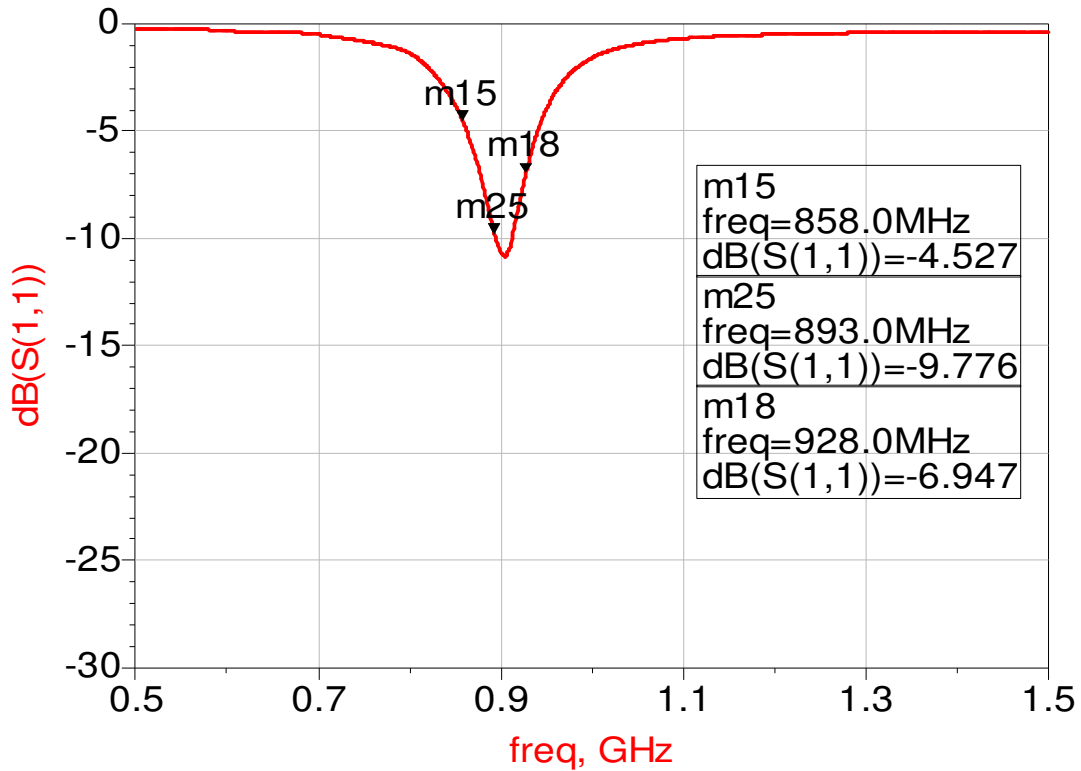
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## Typical Electrical Performance (T=25°C) on Layout Recommendation #2

Return Loss (with matching)



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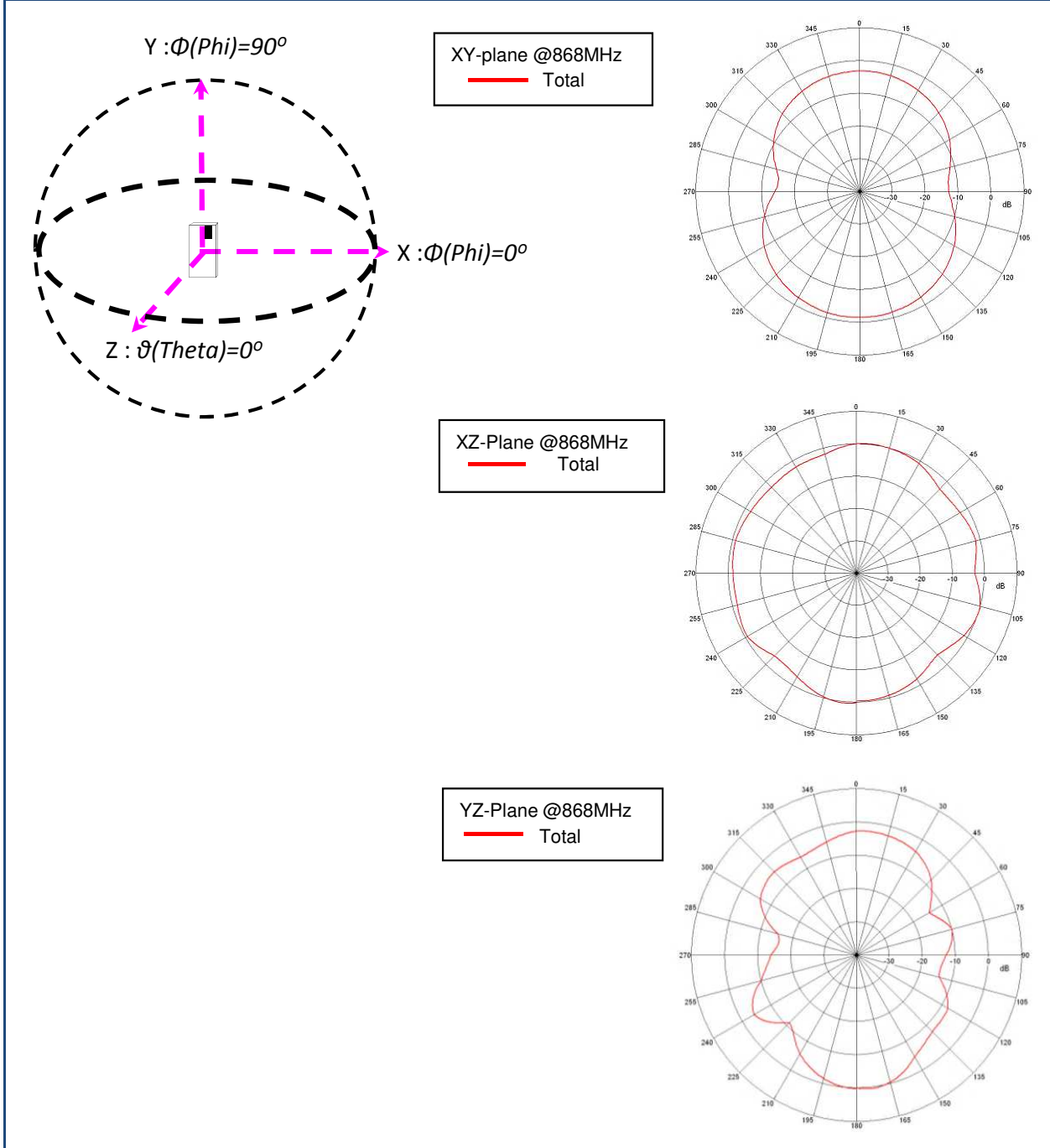
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## Typical Radiation Patterns (T=25°C) of Layout Recommendation #2



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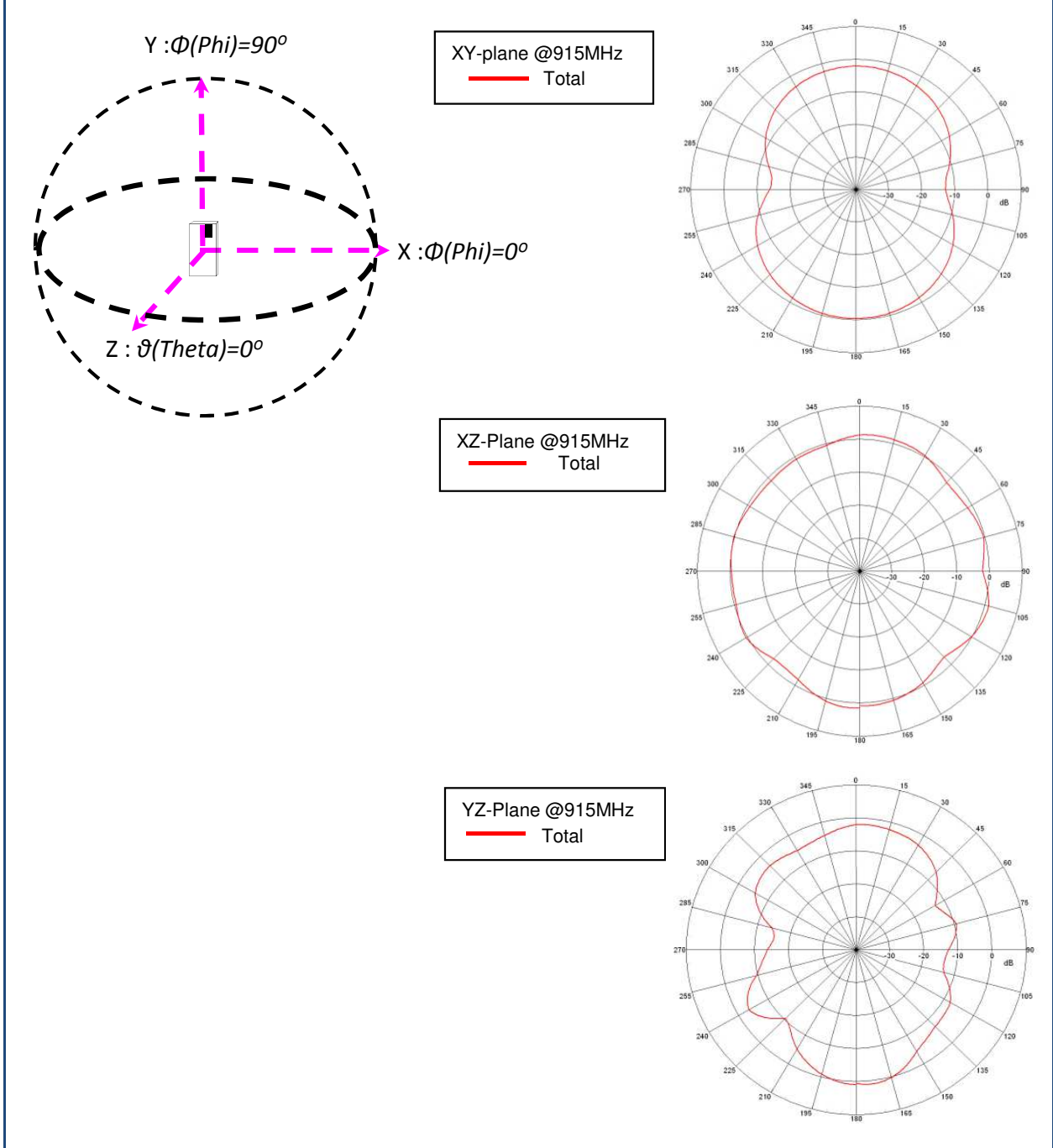
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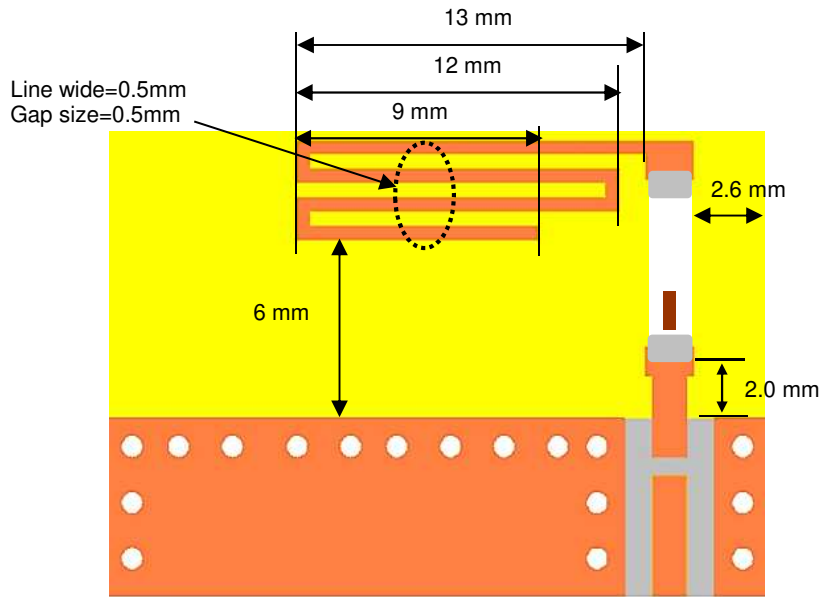
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## Alternative layout with reduced effective area



No EVB available for this layout

Total radiated efficiency will be reduced by about 10%.

Do you have more questions about this layout? Contact our apps team at:

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## Antenna tuning, optimization, and validation services:

<https://www.johansontechnology.com/ipc-antenna-services>

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

<https://www.johansontechnology.com/antennas>

## Soldering Information

<https://www.johansontechnology.com/ipcsoldering-profile>

## MSL Info

<https://www.johansontechnology.com/msl-rating>

## Packaging Information

<https://www.johansontechnology.com/tape-reel-packaging>

## For layout review contact our applications team at:

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## RoHS Compliance

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