"High Frequency Ceramic Solutions"

Dual Band 868-928 MHz/2.4 GHz Chip Antenna **P/N 0900AD47A2450**

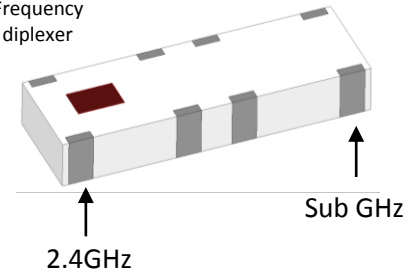
Detail Specification: 5/31/2017

AEC-Q200 qualification available.

General Specifications

Part Number	0900AD47A2450	
Frequency (MHz)	865 - 928	2400 - 2480
Avg. Rad Efficiency[1]	27%	56%
Peak Gain (dBi typ.)	-1.0 dBi typ. (XZ-Total)	2.5 dBi typ. (XZ-Total)
Average Gain (dBi typ.)	-4.5 dBi typ. (XZ-Total)	-0.5 dBi typ. (XZ-Total)
Return Loss (dB)	3 min.	6 min.
Impedance	50 Ω	
Input Power	2 Watts max. (CW)	

Separate Frequency Feeds! No diplexer needed.



Storage Period	18 months max.
Storage Temperature	-40 to +85°C
Operating Temperature	-40 to +85°C
Reel Quantity	1000

[1]Measured on a 30x40mm GND plane. Eval Board p/n 0900AD47A2450-EB1SMA (See pages 2-6 for details)

Part Number Explanation

P/N Suffix	**Packing Style**	Bulk (loose)	Suffix = S	e.g. 0900AD47A2450S
		T & R	Suffix = E	e.g. 0900AD47A2450E
		100% Tin	Suffix = E or S	e.g. 0900AD47A2450(E or S)
	Evaluation Board	0900AD47A2450-EB1SMA, 0900AD47A2450-EB2SMA, 0900AD47A2450-EB3SMA		

Need an EVB optimized for E.U. 868/2.4G or U.S./Americas/Japan 915/2.4G for improved performance on the Sub GHz band?

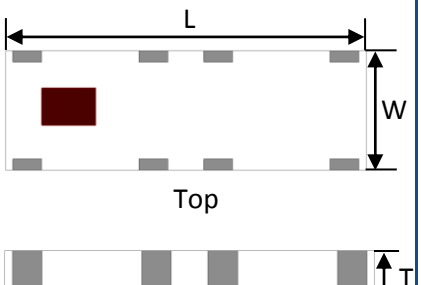
Evaluation Board Optimized for BOTH EU 868 & US/Americas/Japan and 2.4GHz: 0900AD47A2450-EB1SMA

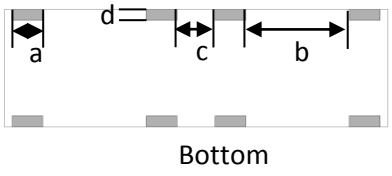
Evaluation Board Optimized for US-Americas Japan 902-930MHz (max performance) only and 2.4GHz: 0900AD47A2450-EB2SMA

Evaluation Board Optimized for EU 868MHZ (max performance) only and 2.4GHz: 0900AD47A2450-EB3SMA

Mechanical Dimensions

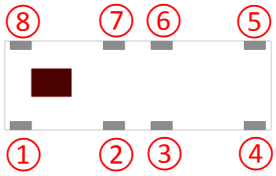
	In		mm	
L	0.39 ± 0.008		10.0 ± 0.2	
W	0.13 ± 0.008		3.2 ± 0.2	
T	0.06 ± 0.008		1.5 ± 0.2	
a	0.03 ± 0.008		0.8 ± 0.2	
b	0.11 ± 0.008		2.7 ± 0.2	
c	0.04 ± 0.008		1.0 ± 0.2	
d	0.01	+0.004/-0.008	0.3	+0.1/-0.2





Terminal Configuration

No.	Function	No.	Function
1	2.4GHz Port	5	NC
2	NC	6	NC
3	NC	7	NC
4	<1GHz Port	8	NC



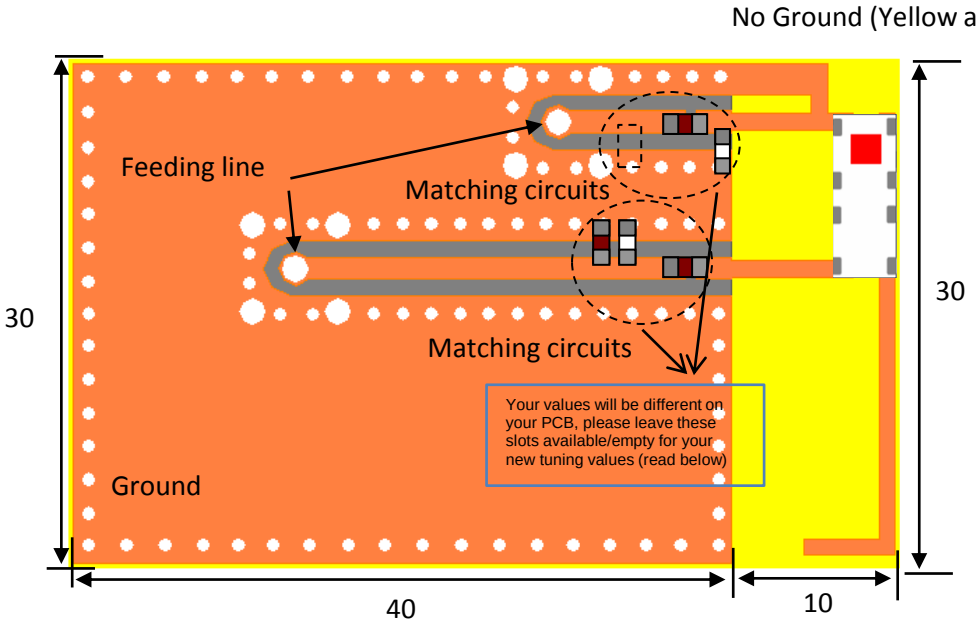
Even though oin 2, 3, 5, 6, 7, and 8 are NC ("No Connect"), they must be soldered down to the landing pad for proper operation

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

www.johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

2017 Johanson Technology, Inc. All Rights Reserved

Mounting Considerations 1: Evaluation Board p/n: 0900AD47A2450-EB1SMA



Evaluation Board p/n: 0900AD47A2450-EB1SMA/EB2SMA/EB3SMA

Units in mm

Frequency (GHz)	Total Radiated Efficiency (%)
0.896	27
2.4	56

To order a pre-tuned 50Ω EVB above with two female SMA connectors, click here: www.johansontechnology.com/request-a-sample

Reference p/n: 0900AD47A2450-EB1SMA (optimized for US/EU+2.4G), 0900AD47A2450-EB2SMA (optimized for US+2.4G), or 0900AD47A2450-EB3SMA (optimized for EU+2.4G)

Would you like the layout file of the above? Would you like us to tune the antenna for your on your PCB?
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.
Contact our RF Engineers at:
www.johansontechnology.com/ask-a-question

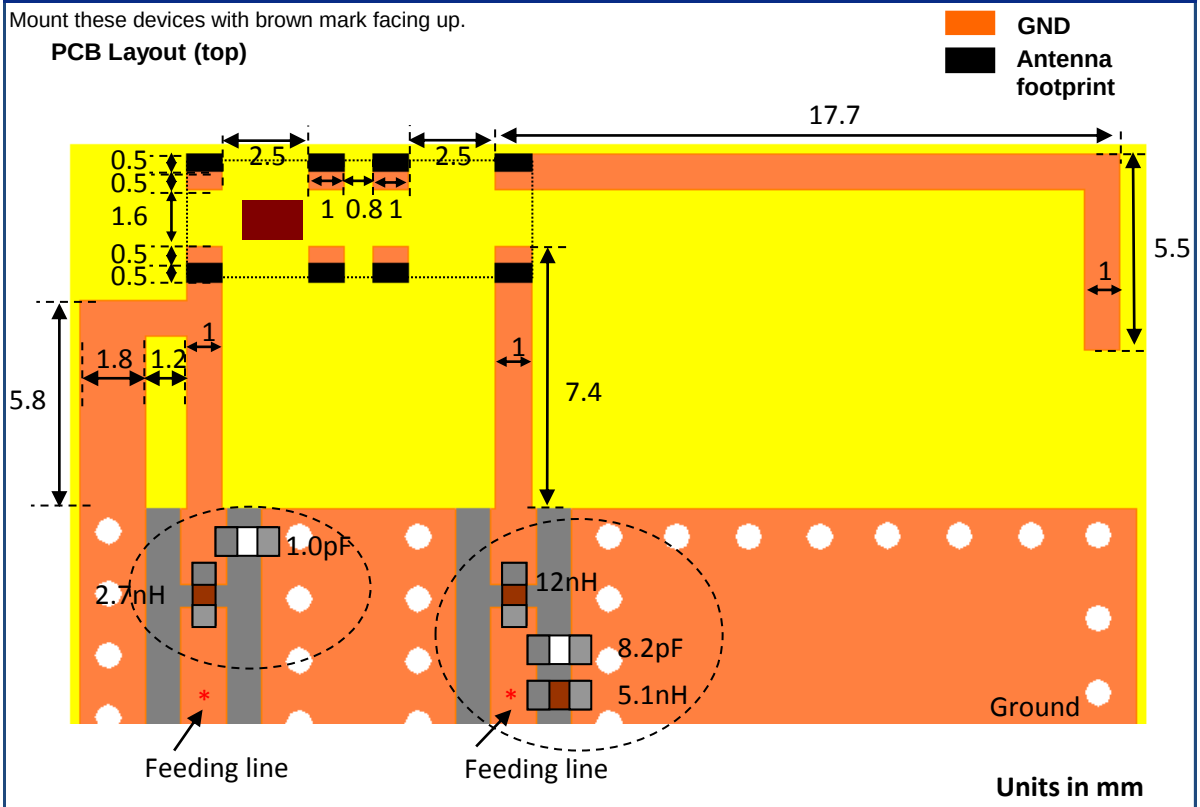
Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

Mounting Considerations 1: Evaluation Board p/n: 0900AD47A2450-EB1SMA/EB2.EB3 Antenna Footprint Detai

Mount these devices with brown mark facing up.

PCB Layout (top)



Matching circuits

The L/C values above ONLY apply to our EVB, yours will be different. If you need help finding out which values to use on your PCB, please read below:

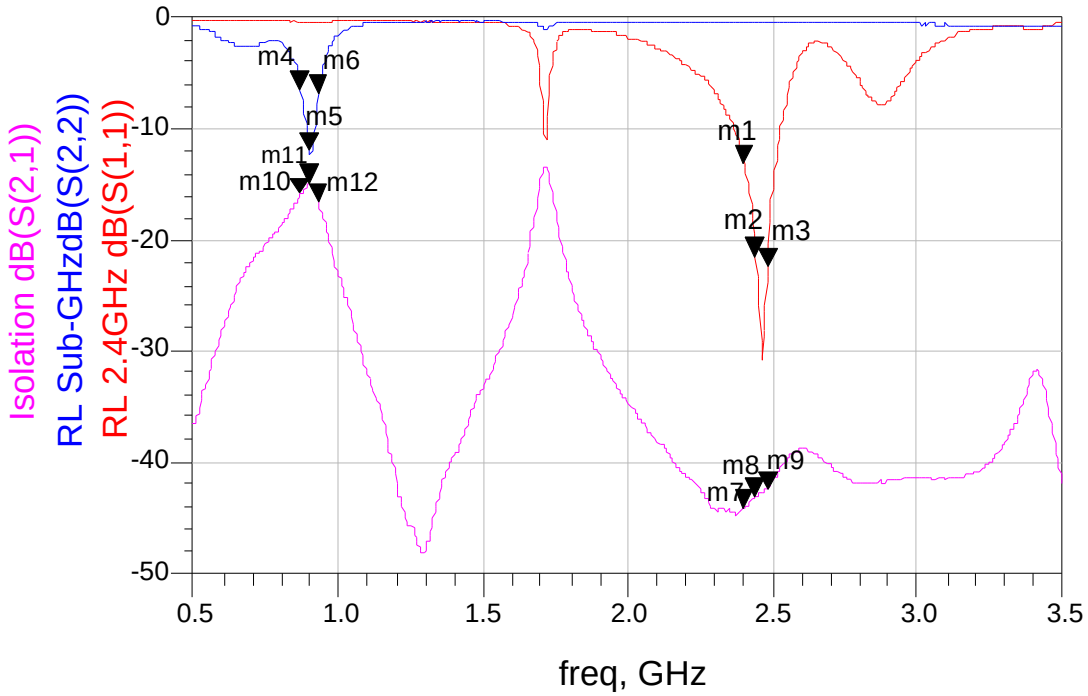
Would you like the layout file of the above? Have antenna tuning issues?
Please contact us if you have any questions regarding the implementation of this antenna in your PCB's layout. We'll be happy to guide you to maximize the antenna's performance.
Contact our RF Engineers at:
www.johansontechnology.com/ask-a-question

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

Mounting Considerations 1: Typical Antenna response Performance (T=25°C)

Return Loss and Isolation

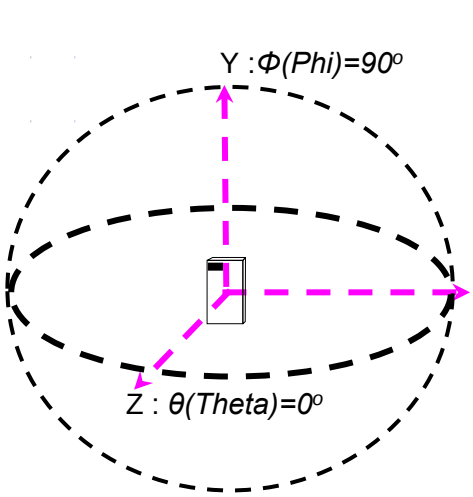


m1 freq=2.400GHz dB(S(1,1))=-13.210	m5 freq=896.0MHz dB(S(2,2))=-12.022	m9 freq=2.480GHz dB(S(2,1))=-42.394
m2 freq=2.440GHz dB(S(1,1))=-21.451	m6 freq=928.0MHz dB(S(2,2))=-6.789	m10 freq=868.0MHz dB(S(2,1))=-15.927
m3 freq=2.480GHz dB(S(1,1))=-22.425	m7 freq=2.400GHz dB(S(2,1))=-44.254	m11 freq=896.0MHz dB(S(2,1))=-14.992
m4 freq=868.0MHz dB(S(2,2))=-6.534	m8 freq=2.440GHz dB(S(2,1))=-43.149	m12 freq=928.0MHz dB(S(2,1))=-16.553

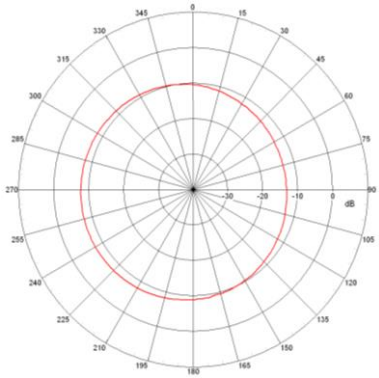
Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

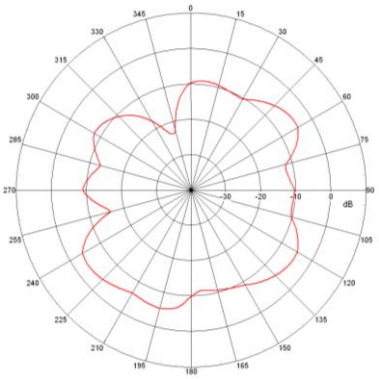
Mounting Considerations 1: Typical EM Radiation Performance @900Mhz Band (T=25°C)



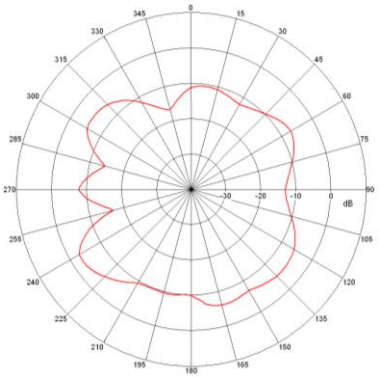
XY-plane @896MHz
Total



XZ-plane @896MHz
Total



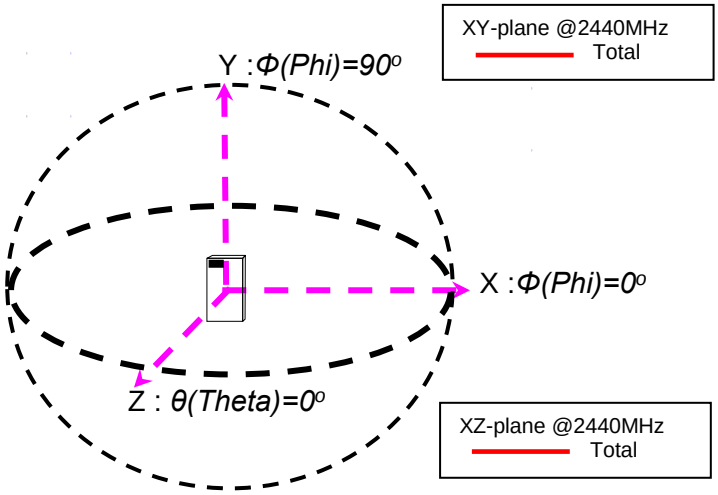
YZ-plane @896MHz
Total



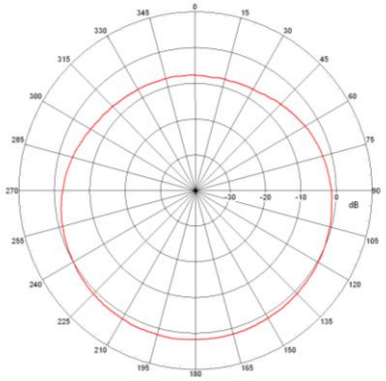
Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

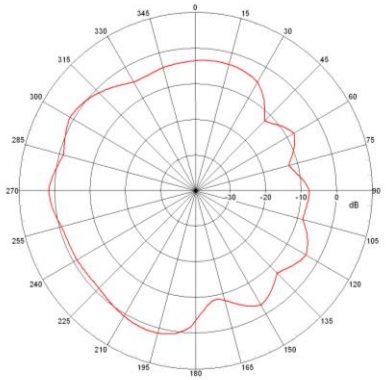
Mounting Considerations 1: Typical EM Radiation Performance @ 2.4GHz band (T=25°C)



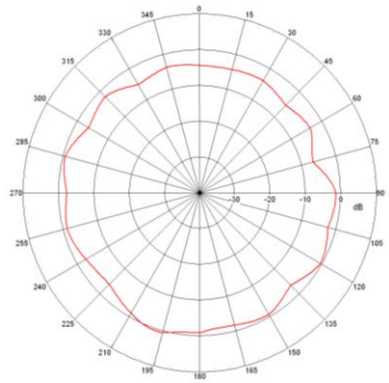
XY-plane @2440MHz
Total



XZ-plane @2440MHz
Total



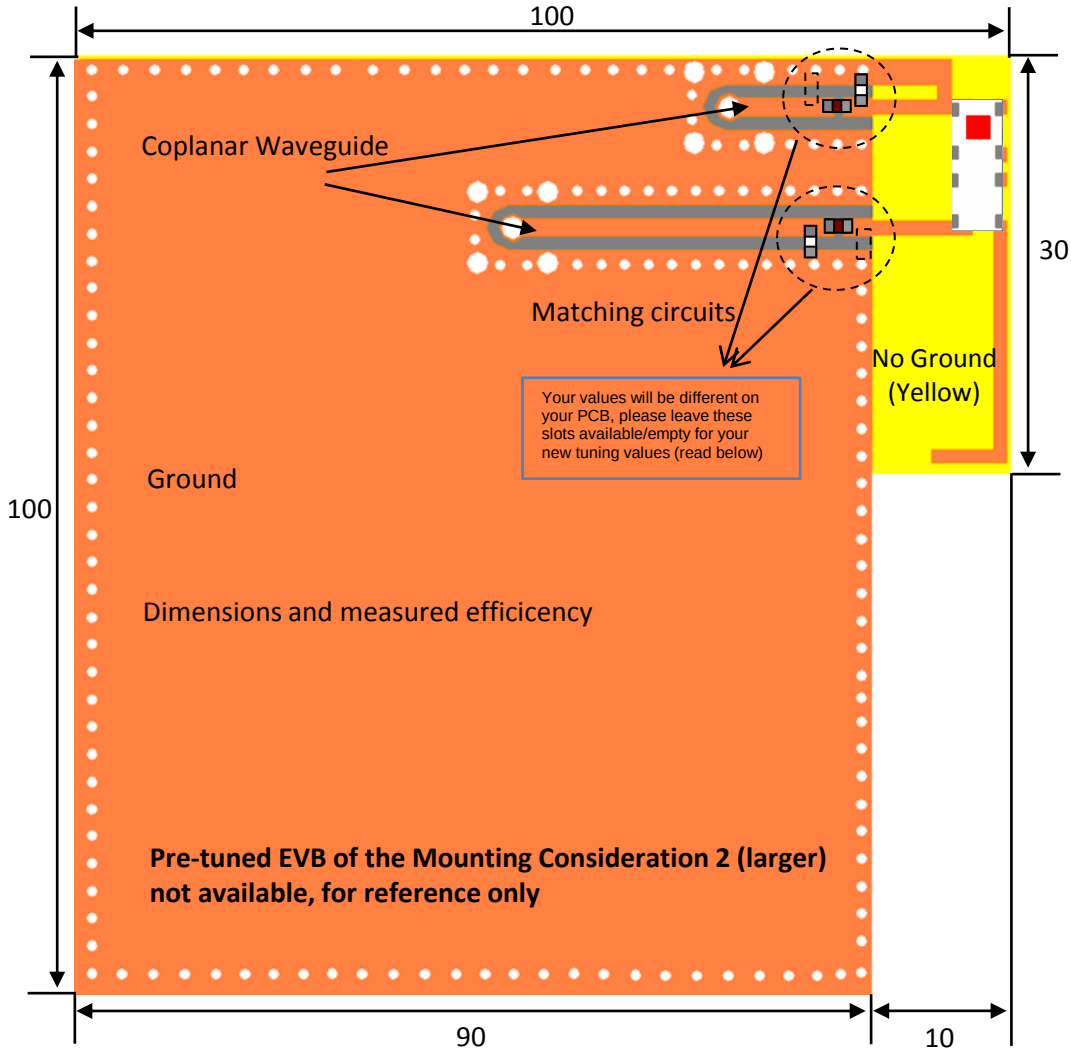
YZ-plane @2440MHz
Total



Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

Mounting Considerations 2: Larger Evaluation Board (Reference)



Units in mm

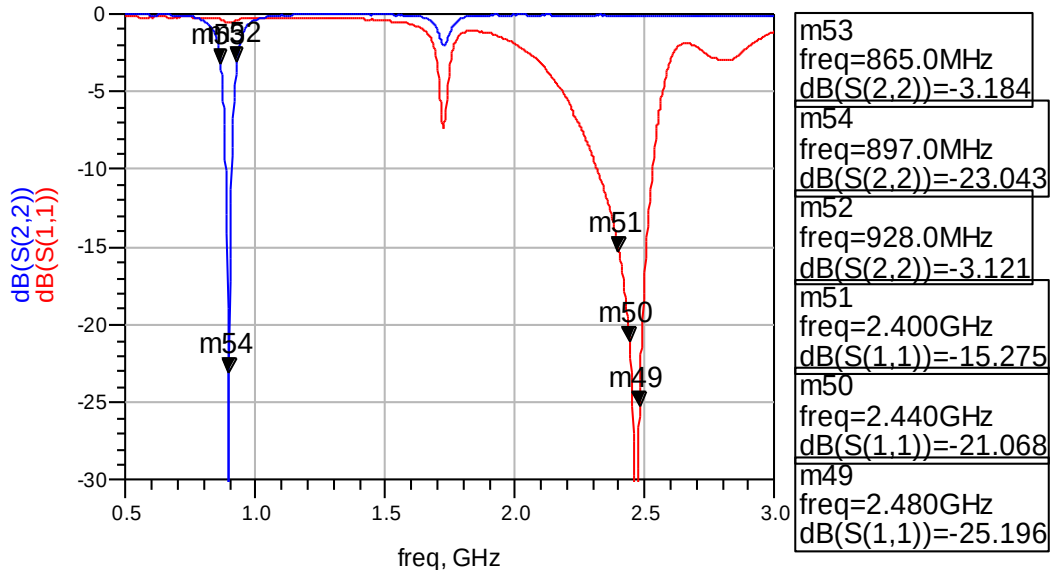
Frequency (GHz)	Total Radiated Efficiency (%)
0.896	52
2.4	82

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

Mounting Considerations 2: Typical Antenna response Performance (T=25°C)

Return Loss

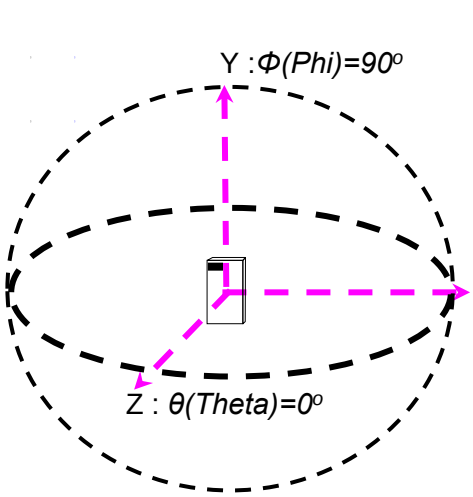


Would you like us to tune the antenna for your on your PCB?
Please contact us if you have any questions regarding the implementation of this antenna in your PCB's layout. We'll be happy to guide you to maximize the antenna's performance.
Contact our RF Engineers at:
www.johansontechnology.com/ask-a-question

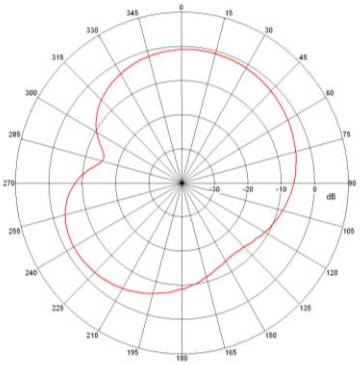
Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

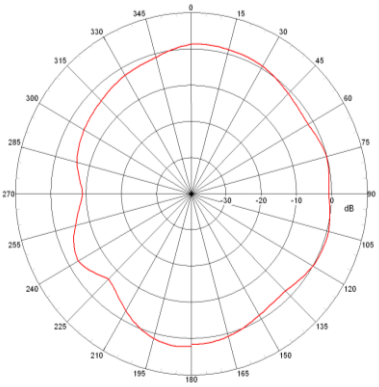
Mounting Considerations 2: Typical EM Radiation Performance @900Mhz Band (T=25°C)



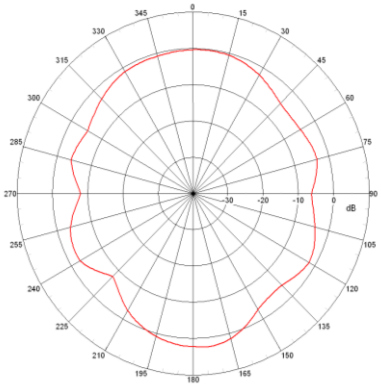
XY-plane @896MHz
Total



XZ-plane @896MHz
Total



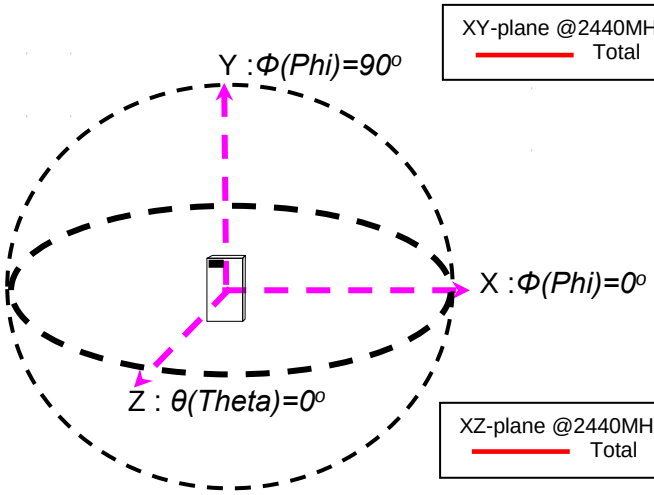
YZ-plane @896MHz
Total



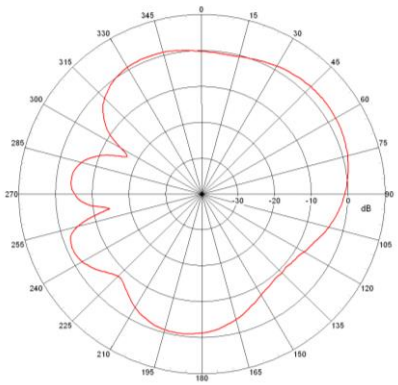
Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

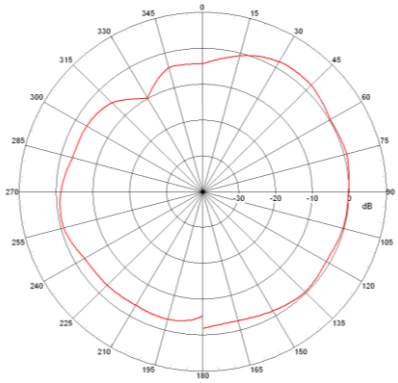
Mounting Considerations 2: Typical EM Radiation Performance @ 2.4GHz band (T=25°C)



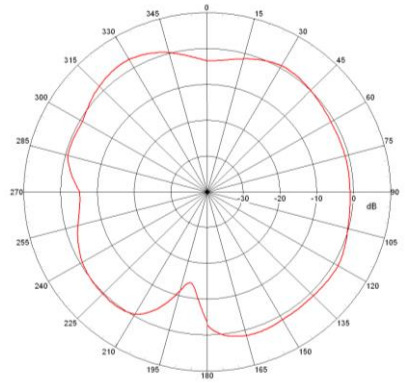
XY-plane @2440MHz
Total



XZ-plane @2440MHz
Total



YZ-plane @2440MHz
Total



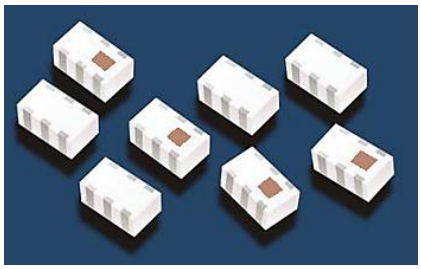
Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

Single Feed Configuration with Diplexer Option

If the're a single 900/2.4G combined feed coming from the chipset, Johanson Technology offers a diplexer option to separate and filter the 900M and 2.4G signals. The recommended p/n is: 0900DP15A2450

Pairing a 900MHz low pass filter with a 2.4GHz high pass filter not only separates the two signals but provides harmonic attenuation to fulfill regulation qualification for industry standards.

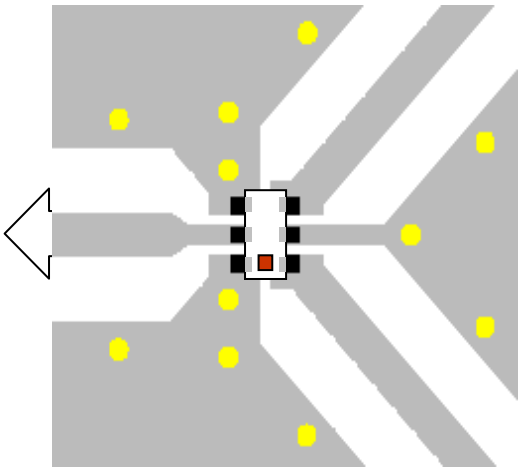


0900DP15A2450

For more information about our diplexers go to: www.johansontechnology.com/diplexers

For assistance with PCB layout or general component inquiries, please go to: www.johansontechnology.com/ask-a-question

"Dual Band 900/2.4G, single channel chipset"



Mini chip diplexer footprint for reference only, please get the datasheet at:

www.johansontechnology.com/diplexers

Would you like the diplexer layout file? Please go to: www.johansontechnology.com/ask-a-question

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

2017 Johanson Technology, Inc. All Rights Reserved

Antenna tuning, optimization, and validation services:
www.johansontechnology.com/ipc-antenna-services
For more antennas and to download measured S-parameters, go to:
www.johansontechnology.com/antennas
For more information about our diplexers:
www.johansontechnology.com/diplexers
Soldering Information
www.johansontechnology.com/ipcsoldering-profile
MSL Info
www.johansontechnology.com/msl-rating
Packaging information
www.johansontechnology.com/tape-reel-packaging
For layout review contact our Applications Team at:
www.johansontechnology.com/ask-a-question
RoHS Compliance
www.johansontechnology.com/rohs-compliance

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

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

www.johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

2017 Johanson Technology, Inc. All Rights Reserved