

"High Frequency Ceramic Solutions"

Dual Band 868-928 MHz/2.4 GHz Chip Antenna

P/N 0900AD47A2450

Detail Specification: 5/31/2017

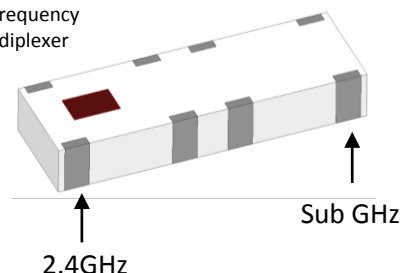
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AEC-Q200 qualification available.

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 |

¹Measured 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?

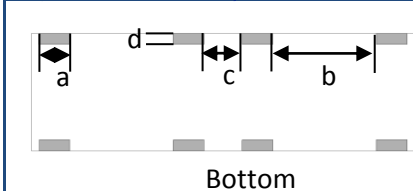
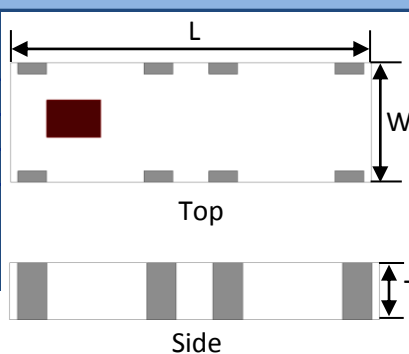
Evaluation Board Optimized for BOTH EU 868 & US/Americas/Japan and 2.4GHz: 0900AD47A2450-EB1SMA

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

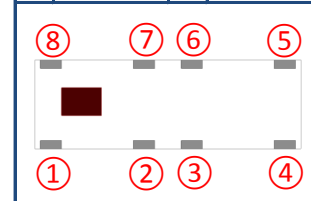
Mechanical Dimensions

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

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www.johansontechnology.com

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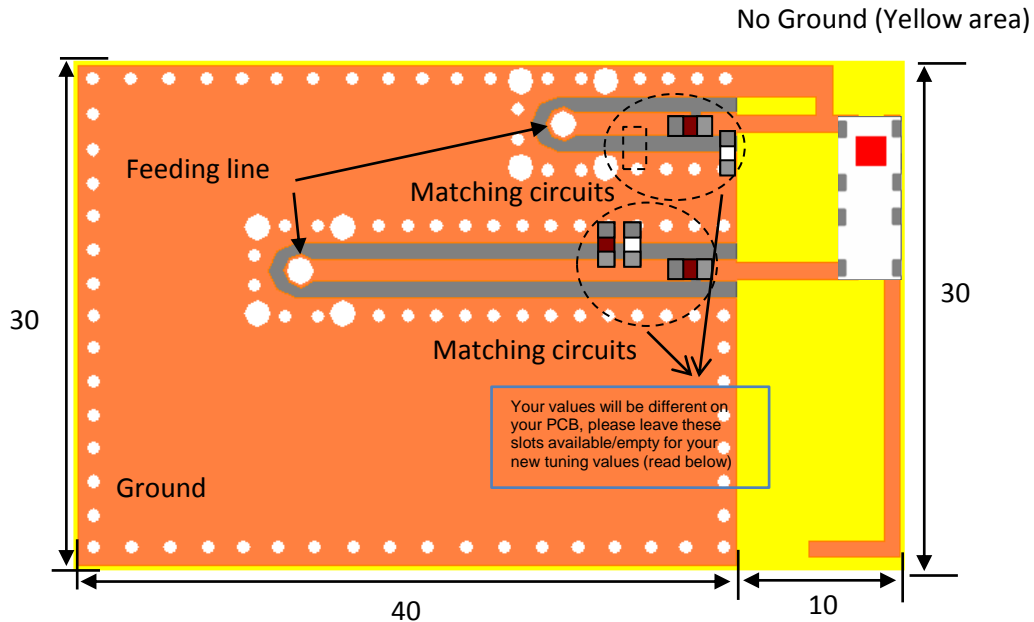
Dual Band 868-928 MHz/2.4 GHz Chip Antenna

P/N 0900AD47A2450

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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

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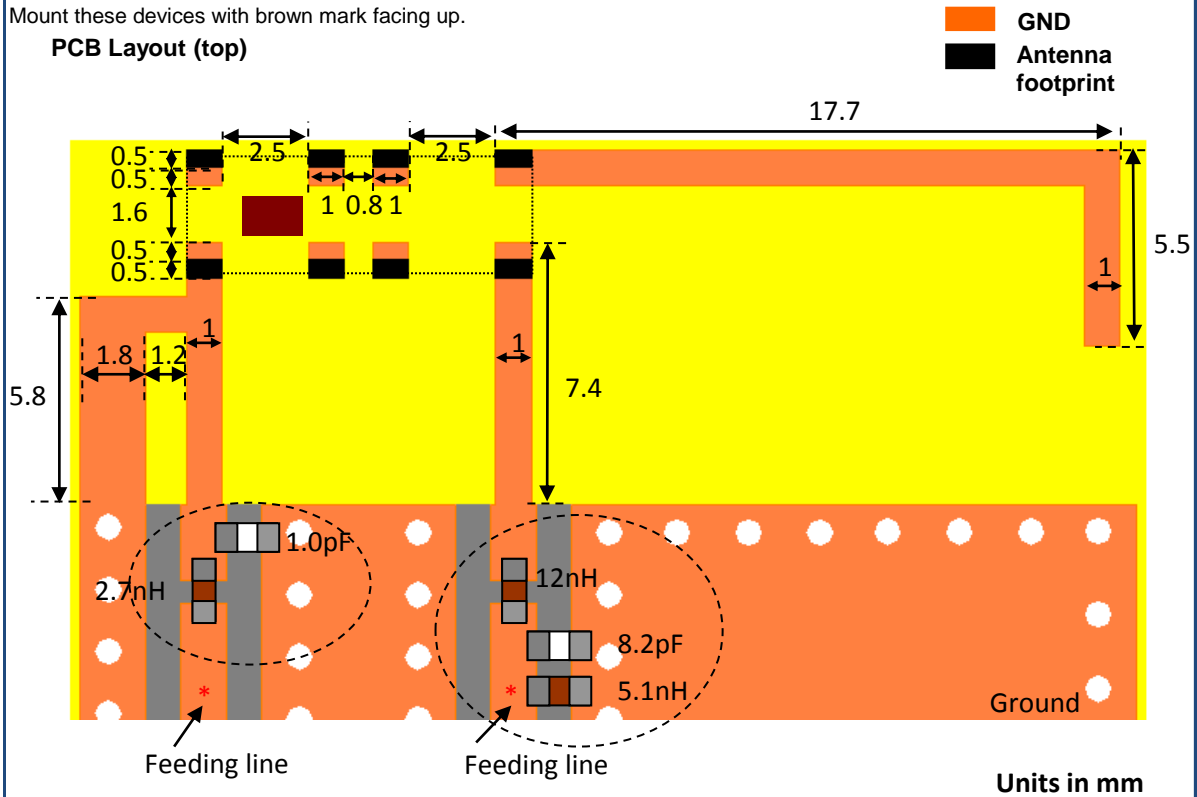
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Mounting Considerations 1: Evaluation Board p/n: 0900AD47A2450-EB1SMA/EB2.EB3 Antenna Footprint Detail

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.

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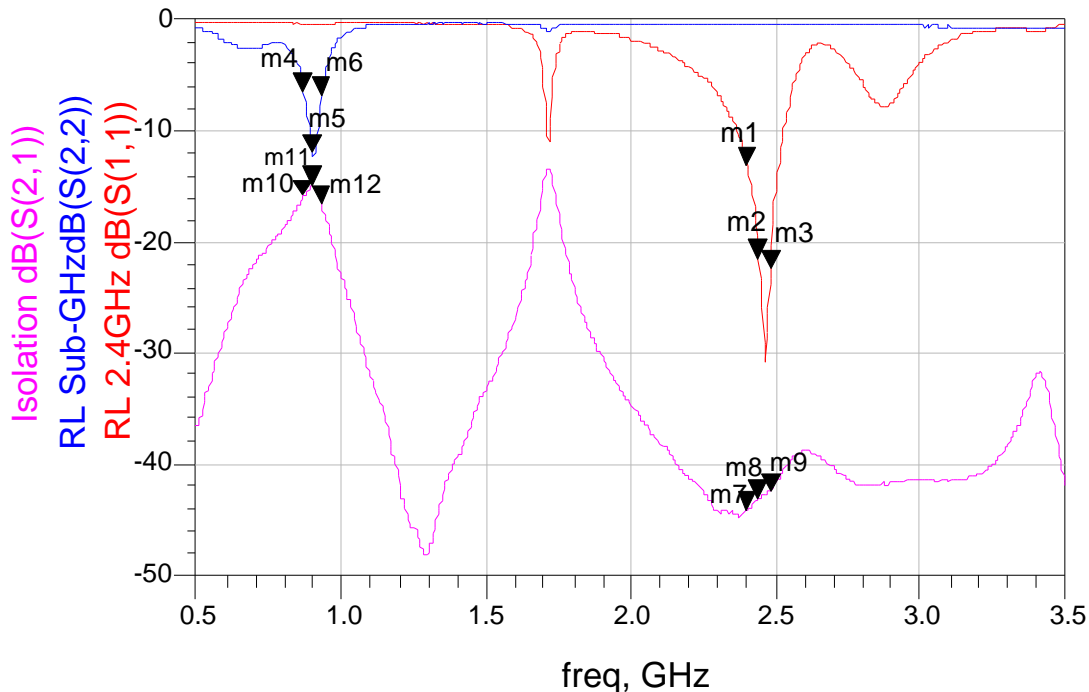
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Mounting Considerations 1: Typical Antenna response Performance (T=25°C)

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

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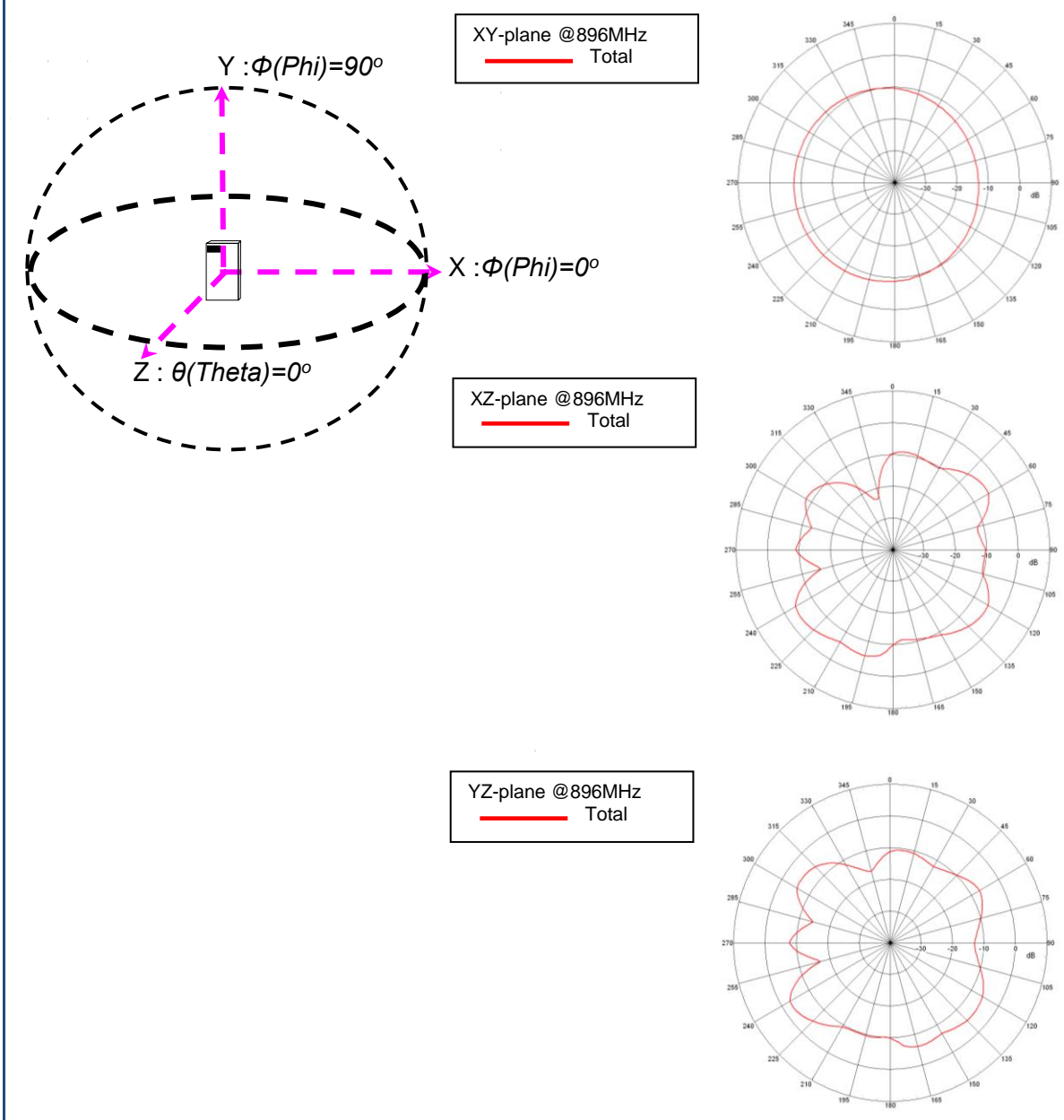
Dual Band 868-928 MHz/2.4 GHz Chip Antenna

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



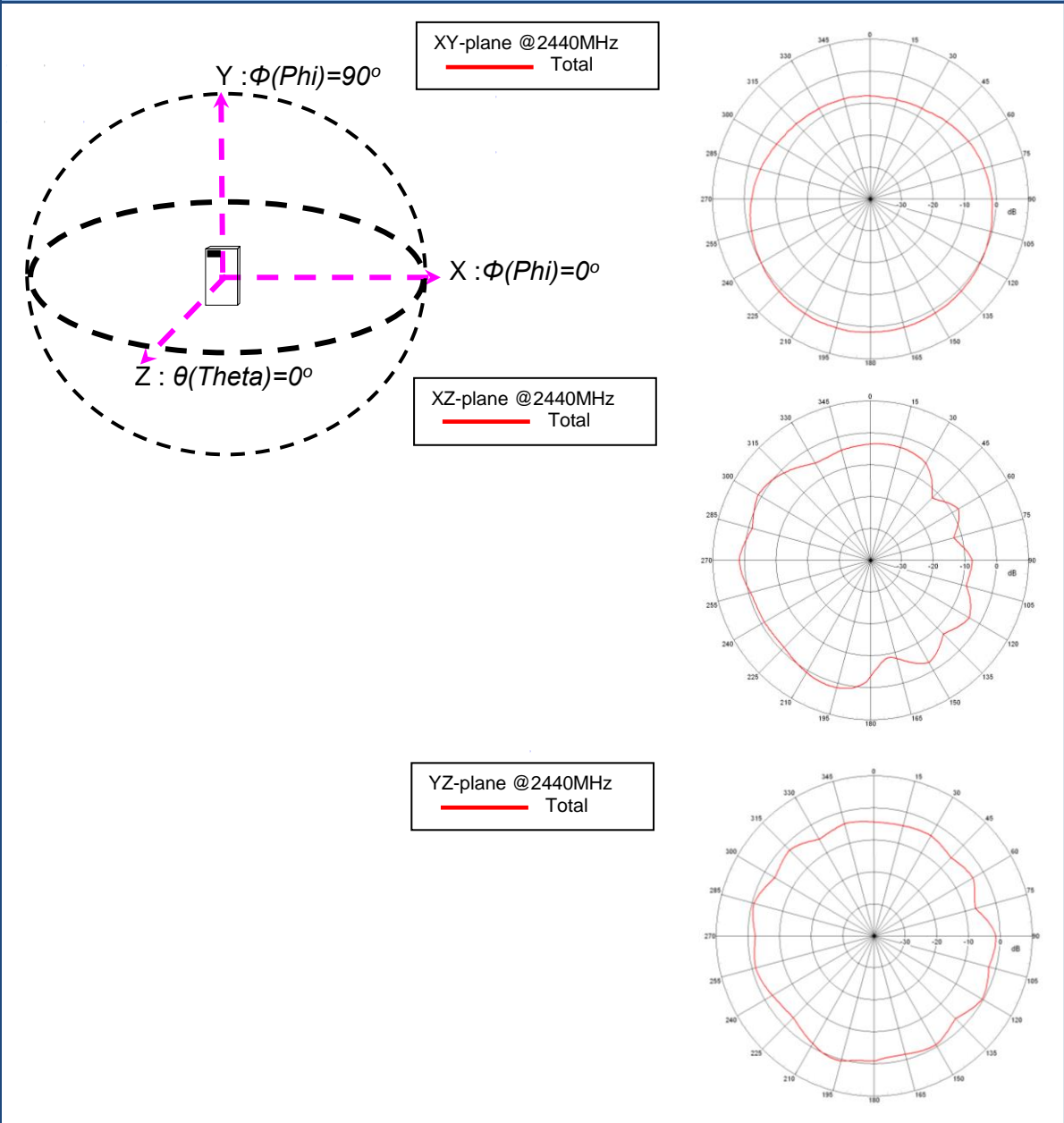
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Mounting Considerations 1: Typical EM Radiation Performance @ 2.4GHz band (T=25°C)

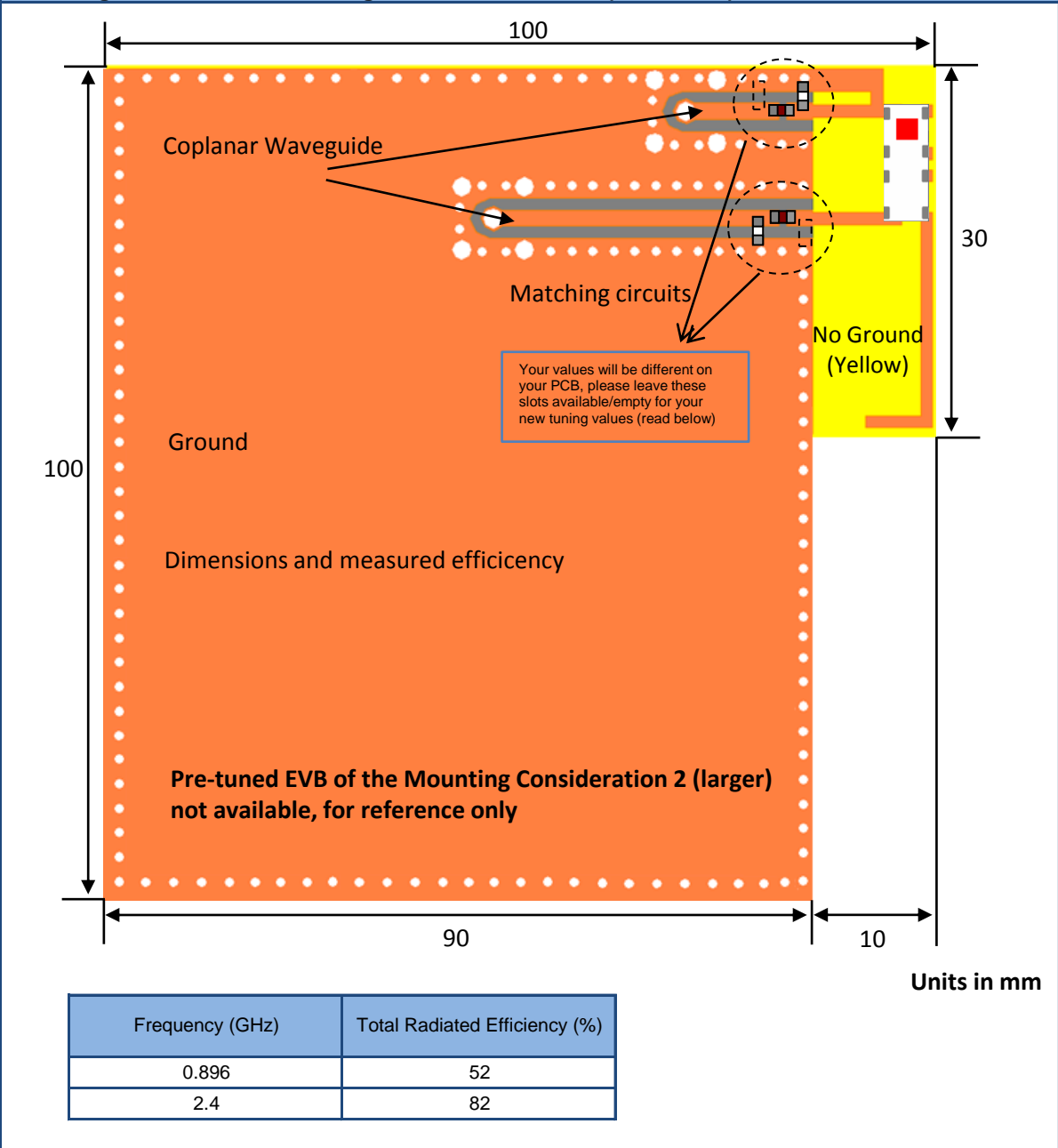


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Mounting Considerations 2: Larger Evaluation Board (Reference)



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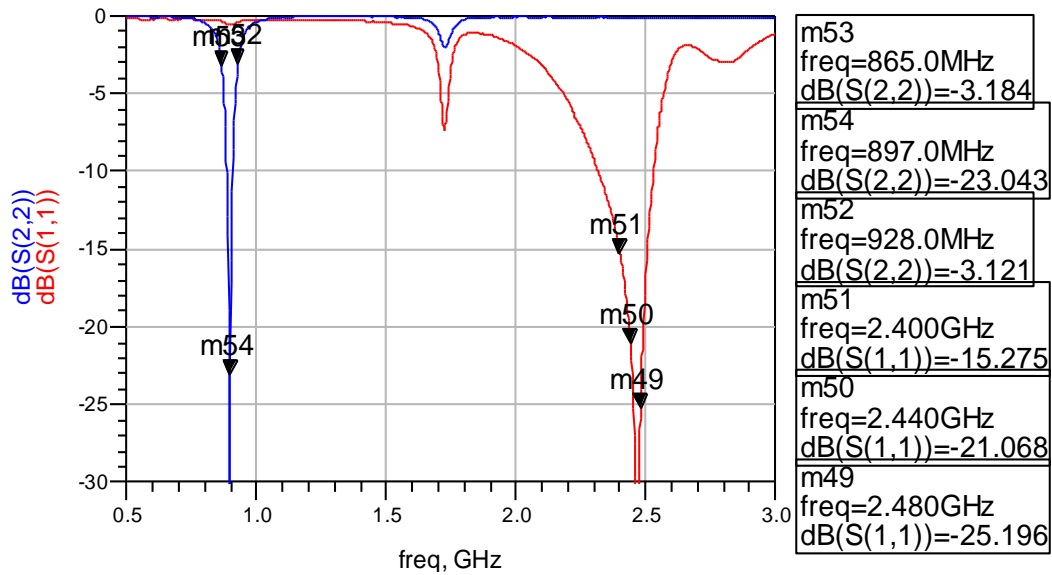
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Mounting Considerations 2: Typical Antenna response Performance (T=25°C)

Return Loss



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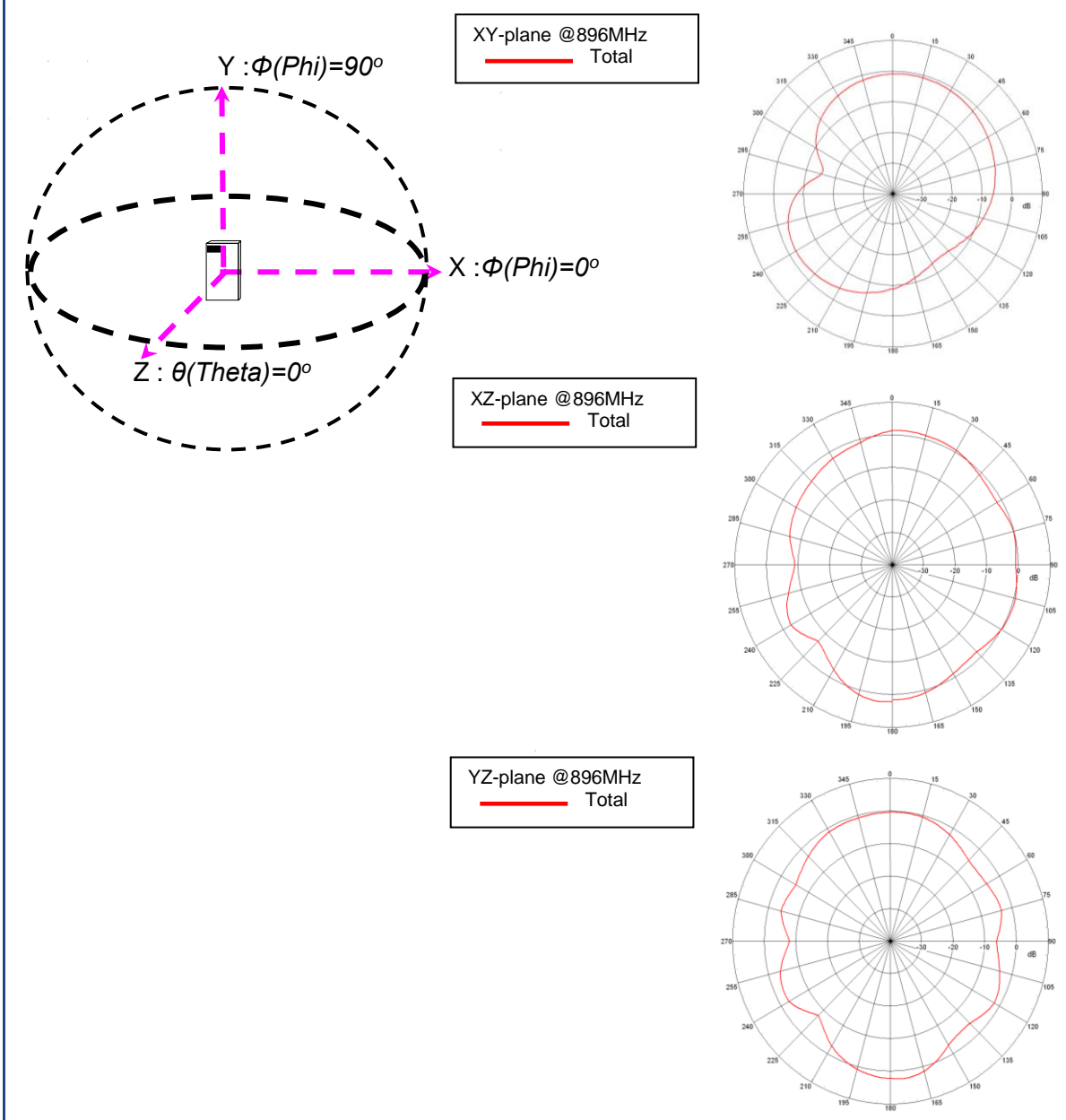
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Mounting Considerations 2: Typical EM Radiation Performance @900MHz Band (T=25°C)



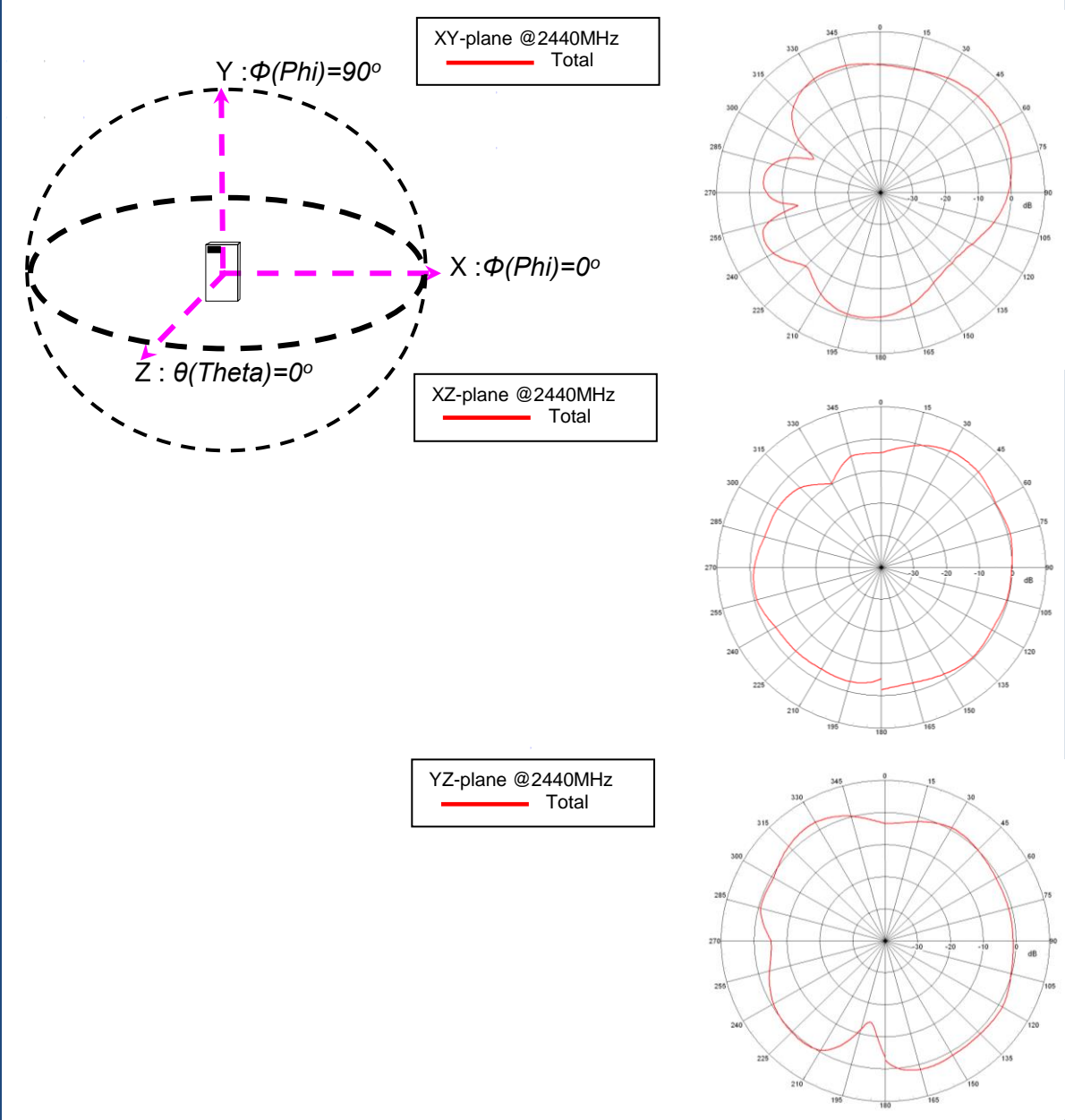
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Mounting Considerations 2: Typical EM Radiation Performance @ 2.4GHz band (T=25°C)



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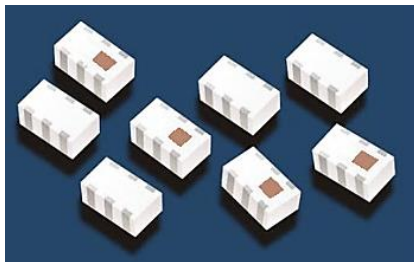
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Single Feed Configuration with Diplexer Option

If there's 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.

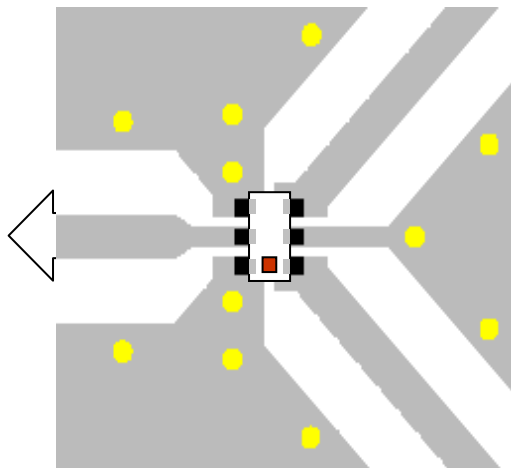


0900DP15A2450

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:

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

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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

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MSL Info

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Packaging information

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For layout review contact our Applications Team at:

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RoHS Compliance

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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.

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На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9