

## Series: Chip Antenna

### TECHNICAL DATA SHEET

**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x6.25mm keep out area**

**PART NUMBER: W3008C**

#### Features:

- 2400-2483.5MHz
- Size: 3.2 x 1.6 x 1.1mm
- Efficiency: 68 %
- Gain: 1.3 dBi
- Polarization: Linear
- Power Handling: 5W
- RoHS Compliant
- Moisture Sensitivity Level MSL1



#### Applications:

- Bluetooth, BLE, Zigbee, WiFi
- 2.4GHz ISM band radios

All dimensions are in mm / inches

#### Issue: 1946

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**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x6.25mm keep out area**

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### ELECTRICAL SPECIFICATIONS

Frequency	2400-2483.5MHz
Nominal Impedance	50 Ω
Return Loss	-8dB
Radiation Pattern	Omni
Gain	1.3dBi
Efficiency	68%
Polarization	Linear
Power Withstanding	5W

### MECHANICAL SPECIFICATIONS

Weight	0.03 g
Overall Length	3.2 [0.126] MM [INCHES]
Over all width	1.6 [0.063] MM [INCHES]
Over all thickness	1.1 [0.043] MM [INCHES]
MSL (Moisture Sensitivity Level)	1

### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40~+85° C
Storage Temperature	-40~+85° C
RoHS Compliant	Yes

(\*) All RF parameters measured on 80\*37mm PCB with 4\*6.25mm clearance in free space. No matching component used.

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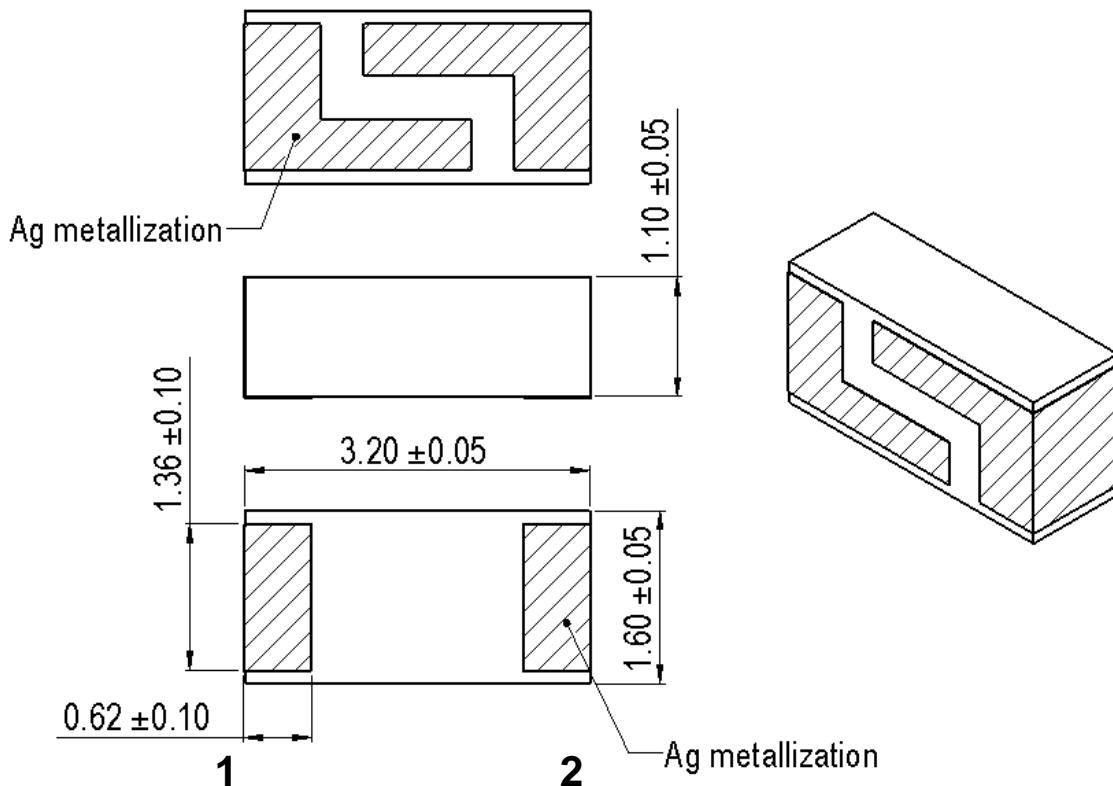
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### MECHANICAL DRAWING



No.	Terminal Name	Terminal Dimensions
1	Feed /GND	0.62 x 1.36 mm
2	Feed /GND	0.62 x 1.36 mm

Antenna is symmetrical, either one of pads 1 or 2 can be used as feed terminal

Note: This type of antenna is called loaded PIFA. One pad (on the bottom of the ceramic chip antenna) that feedline and GND are connected is a basic PIFA antenna structure. And, another pad on the other side that only GND is connected is for capacitive loading. Loaded capacitive value is optimized by the gap distance between two pads on the top surface. In PIFA, there is short mechanism usually in proximity to feed. This RF shorting affects impedance and current distribution mechanism of antenna. The actual antenna top face can seem to be mirrored, however it can be used same as the non-mirrored version. Please follow the design recommendation specified in this data sheet for either case.

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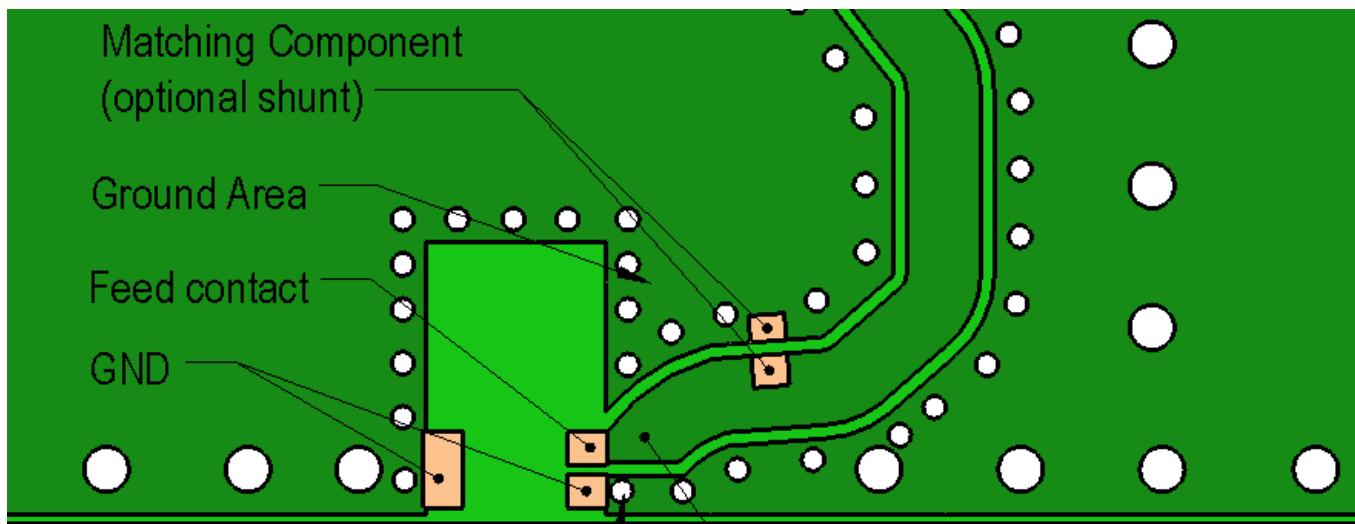
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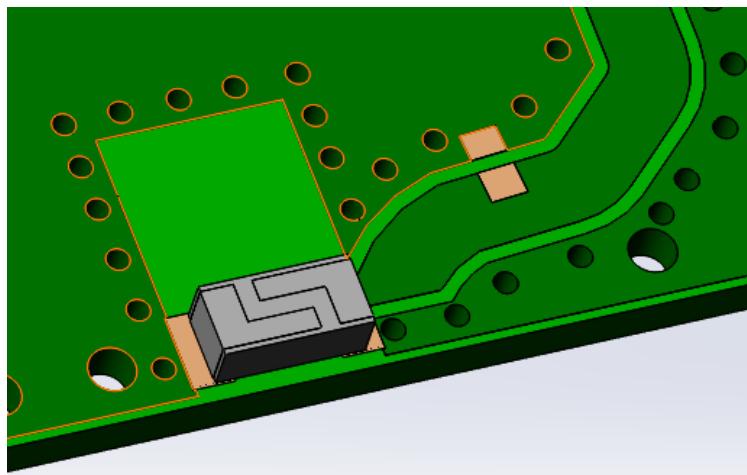
PART NUMBER: W3008C

### MECHANICAL DRAWING AND TERMINAL CONFIGURATION

**Ground cleared under antenna, clearance area 4 mm x 6.25mm**



Any type of 50 Ohm feed line can be used. inner layers on feed line area need to be designed to give 50 Ohm characteristics to feed line.



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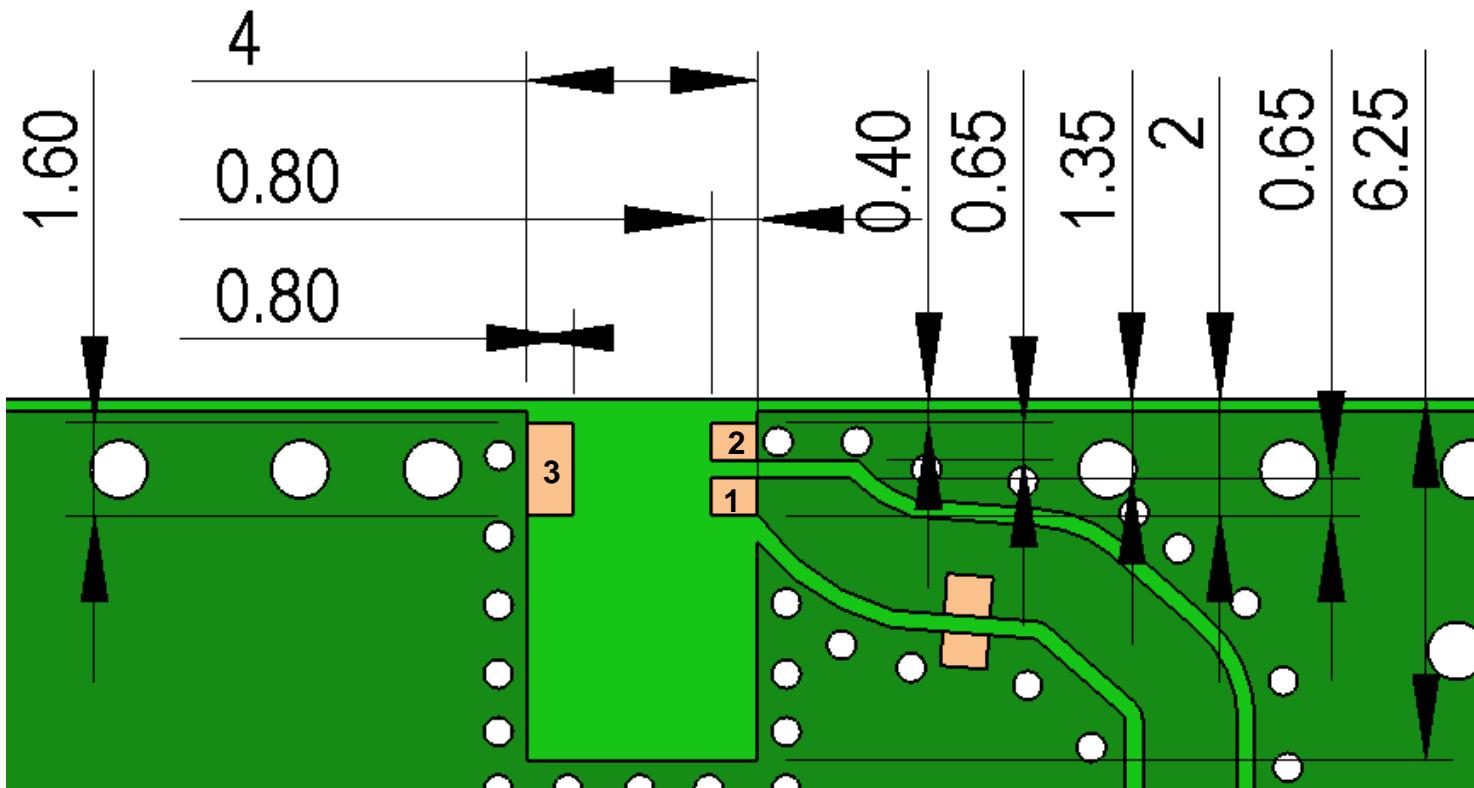
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### MECHANICAL DRAWING AND TERMINAL CONFIGURATION

**Recommended Antenna Pad Dimensions on PCB Layout (top surface)**  
**Ground cleared under antenna, clearance area 4 mm x 6.25 mm**



#### PCB contact pads

No.	Terminal Name	Terminal Dimensions
1	Feed	0,80 x 0,65 mm
2	GND	0,80 x 0,65 mm
3	GND	0,80 x 1,60 mm

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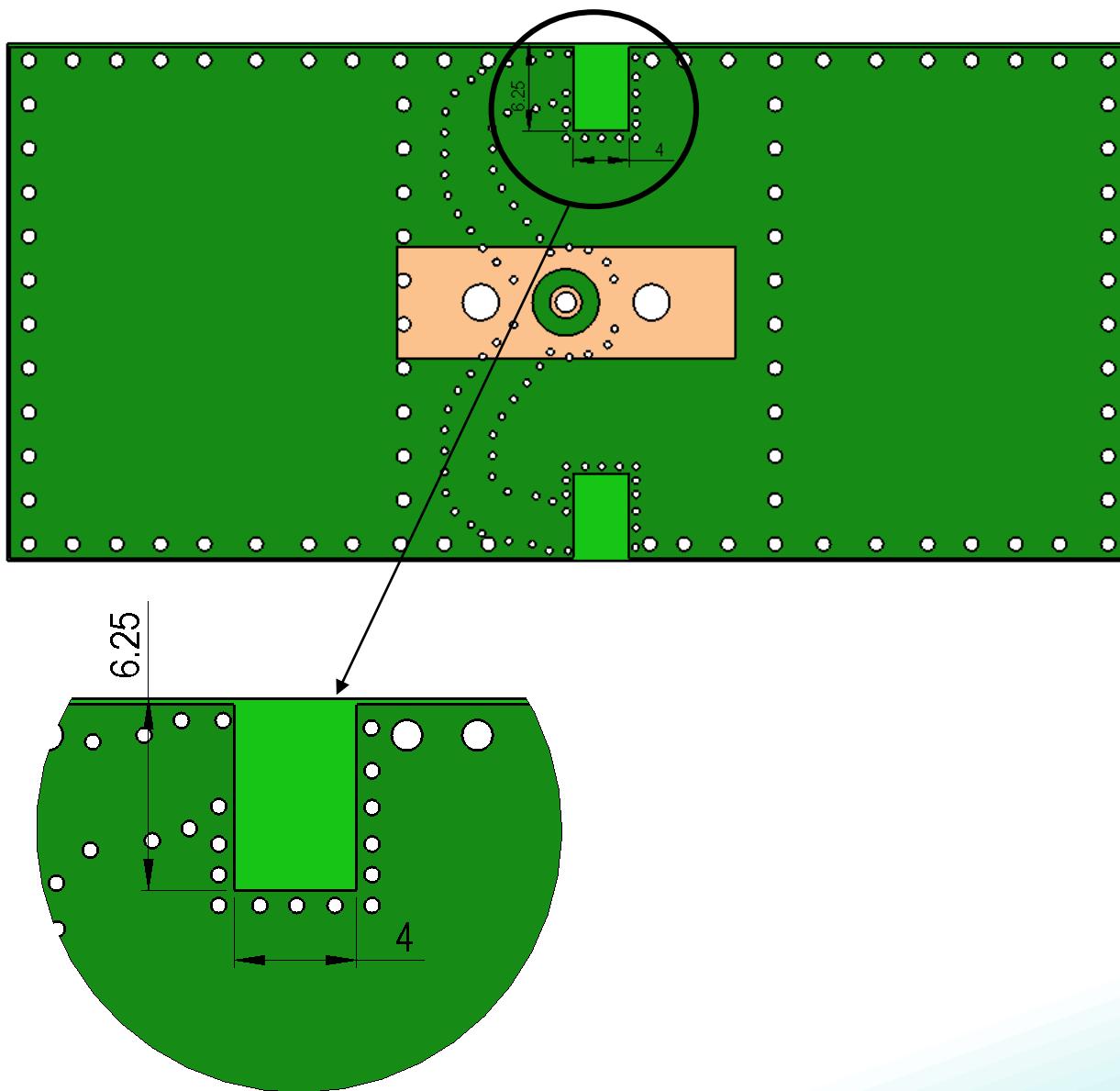
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### MECHANICAL DRAWING AND TERMINAL CONFIGURATION

**Recommended Antenna Pad Dimensions on PCB Layout (bottom surface)**  
**Ground cleared under antenna, clearance area 4 mm x 6.25 mm**



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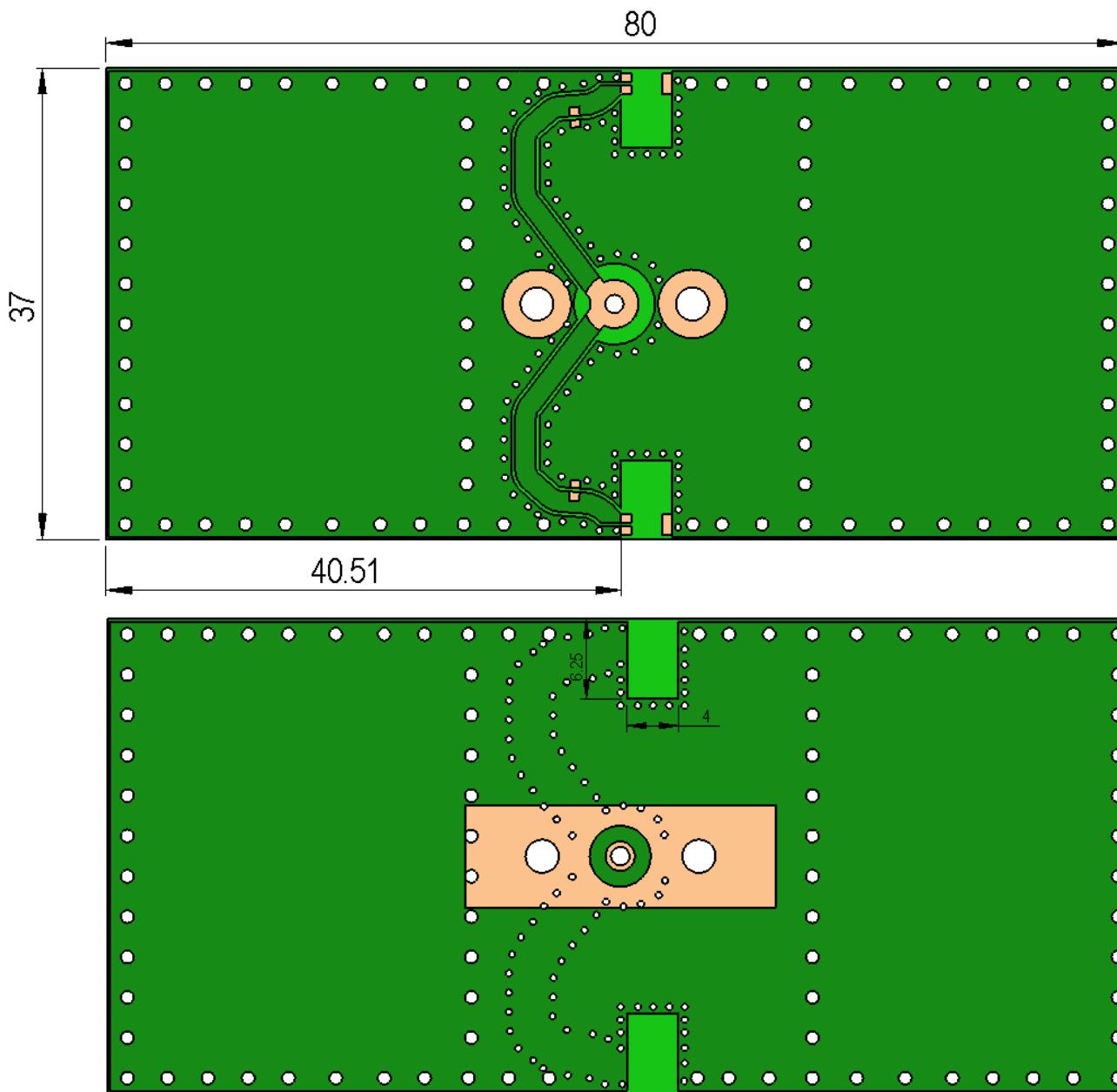
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### MECHANICAL DRAWING AND TERMINAL CONFIGURATION

*Recommended test board layout for electrical characteristic measurement, test board outline size 80 x 37mm*



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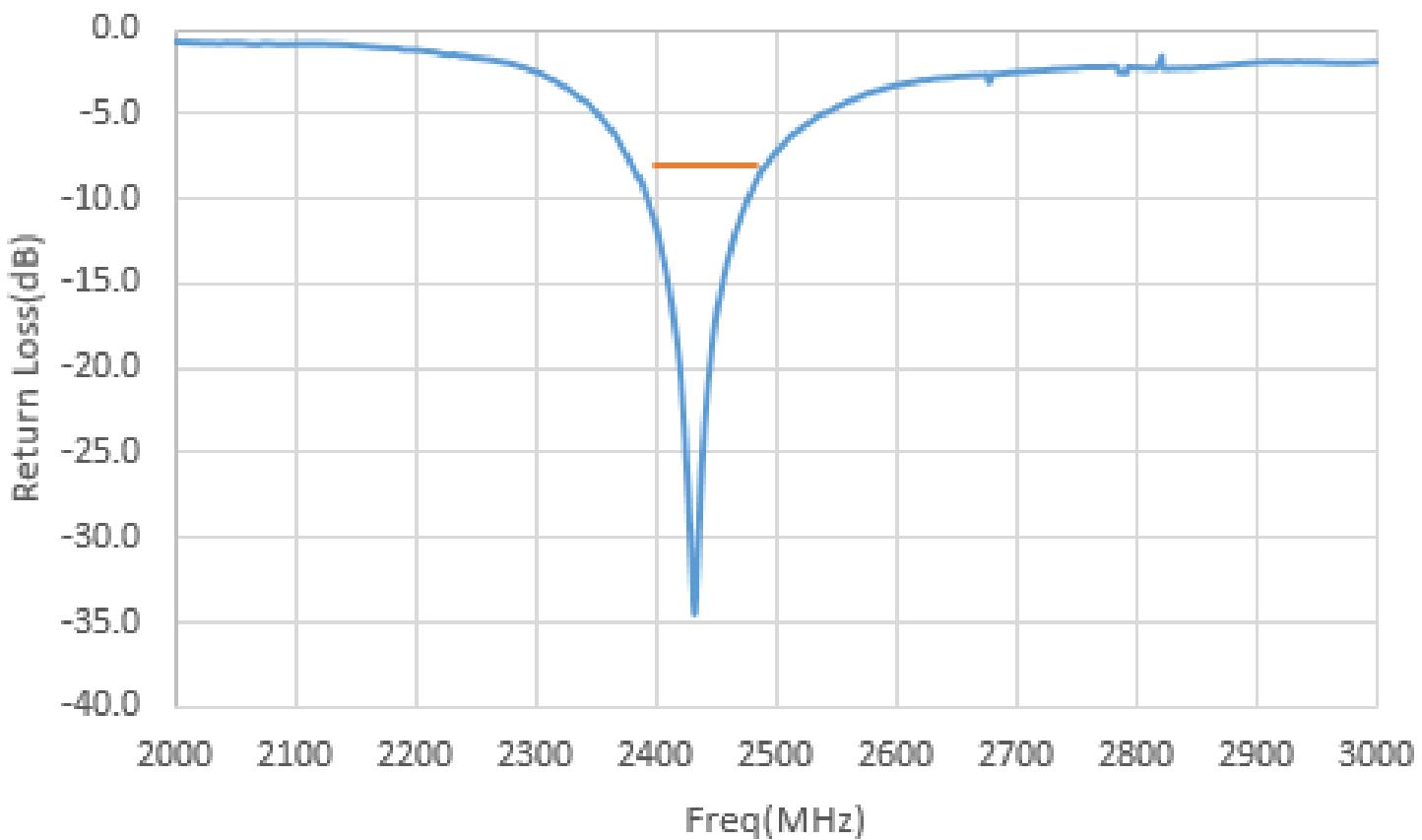
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## CHARTS

### Return loss



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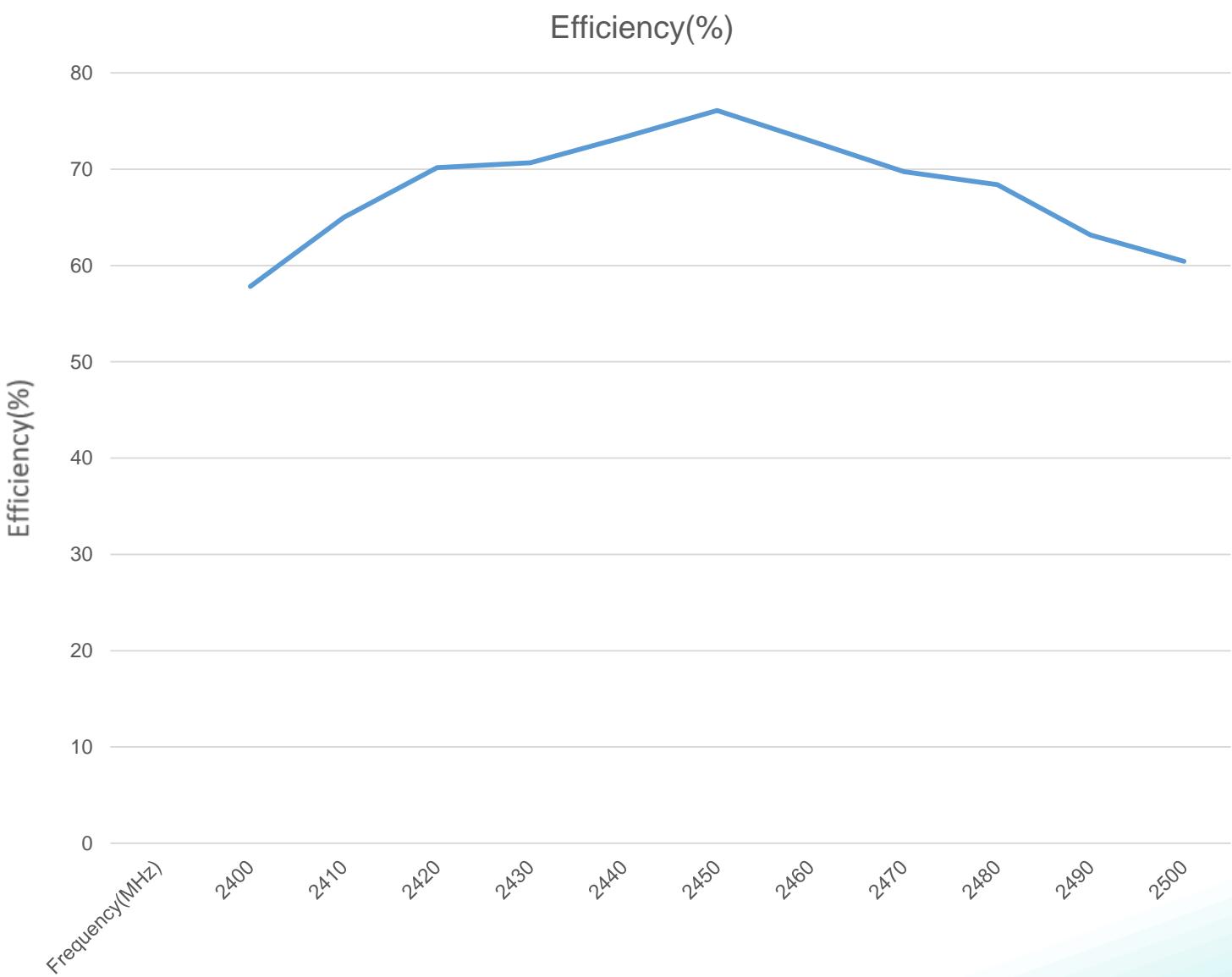
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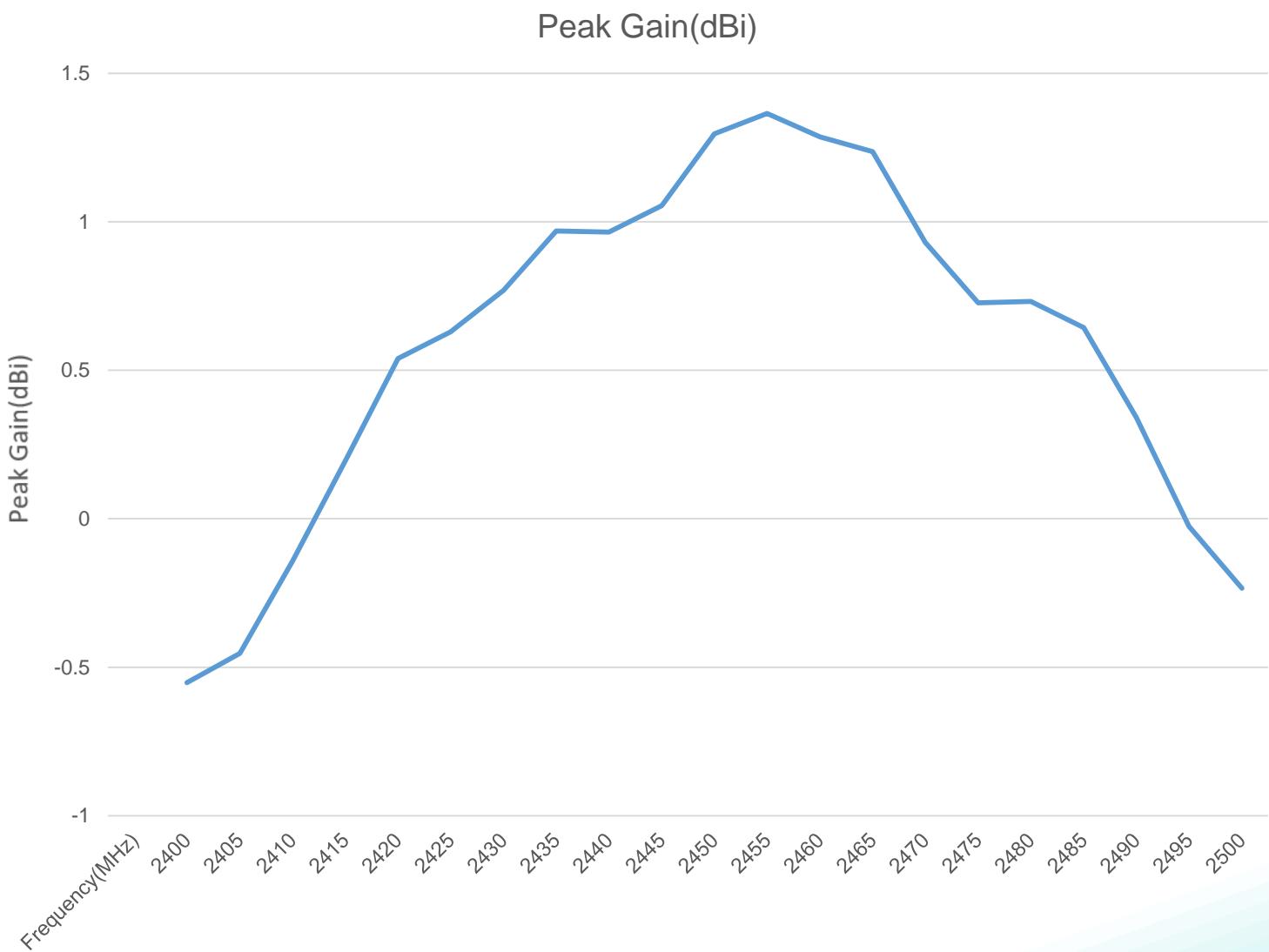


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## CHARTS

### Peak Gain(dBi)



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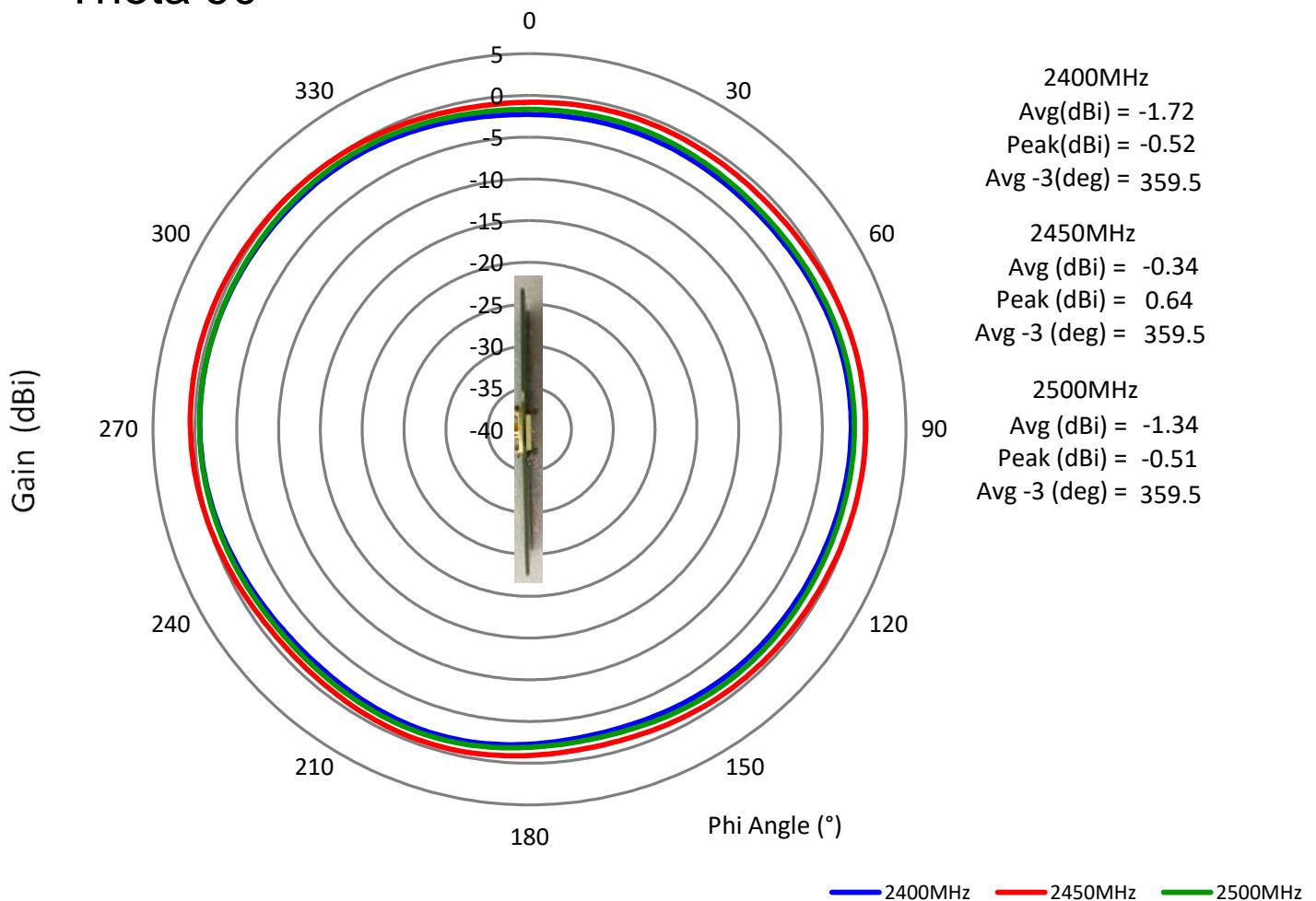
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## CHARTS

### Free Space Radiation Pattern

Theta 90

XY Plane



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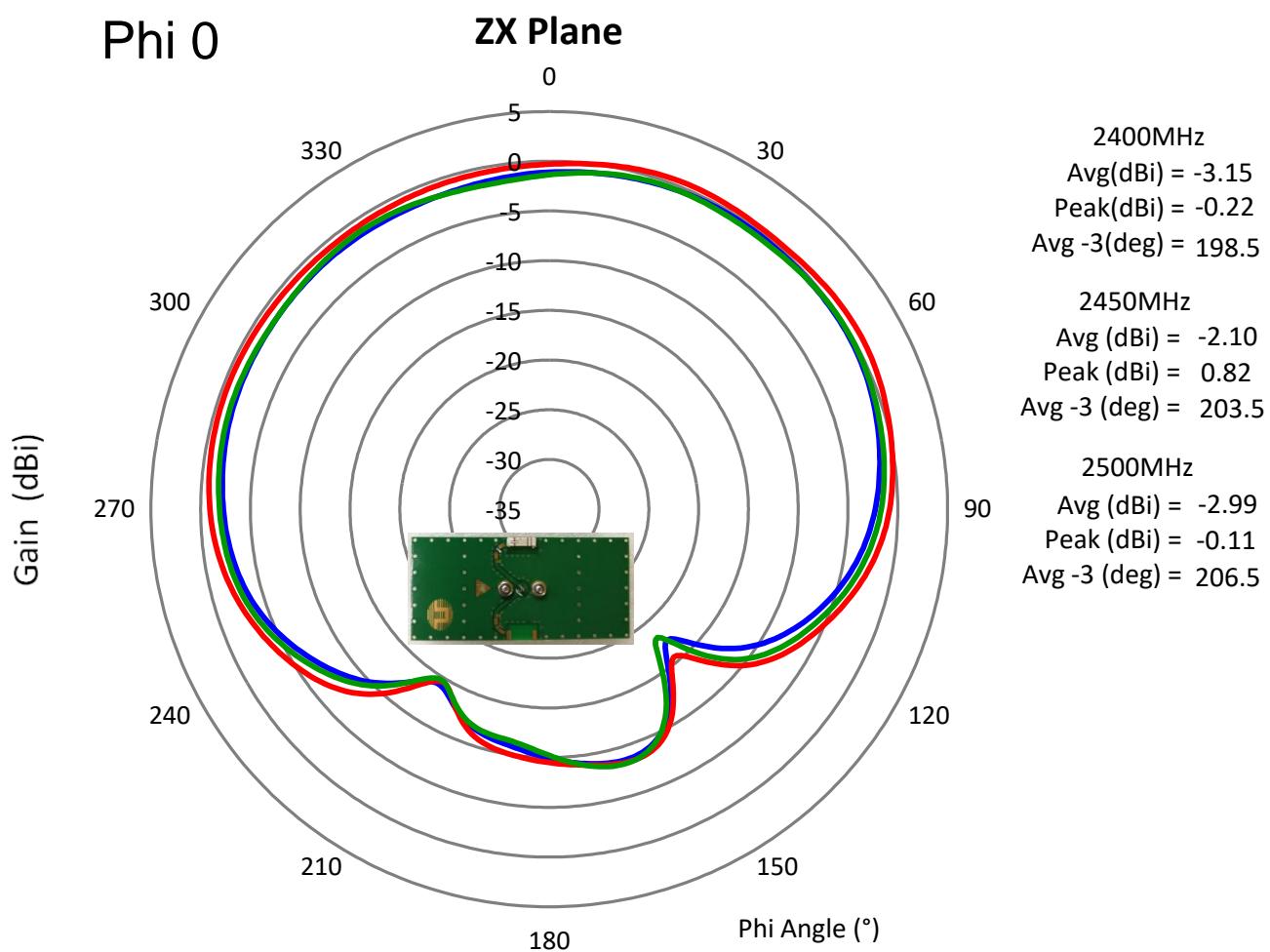


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### Free Space Radiation Pattern



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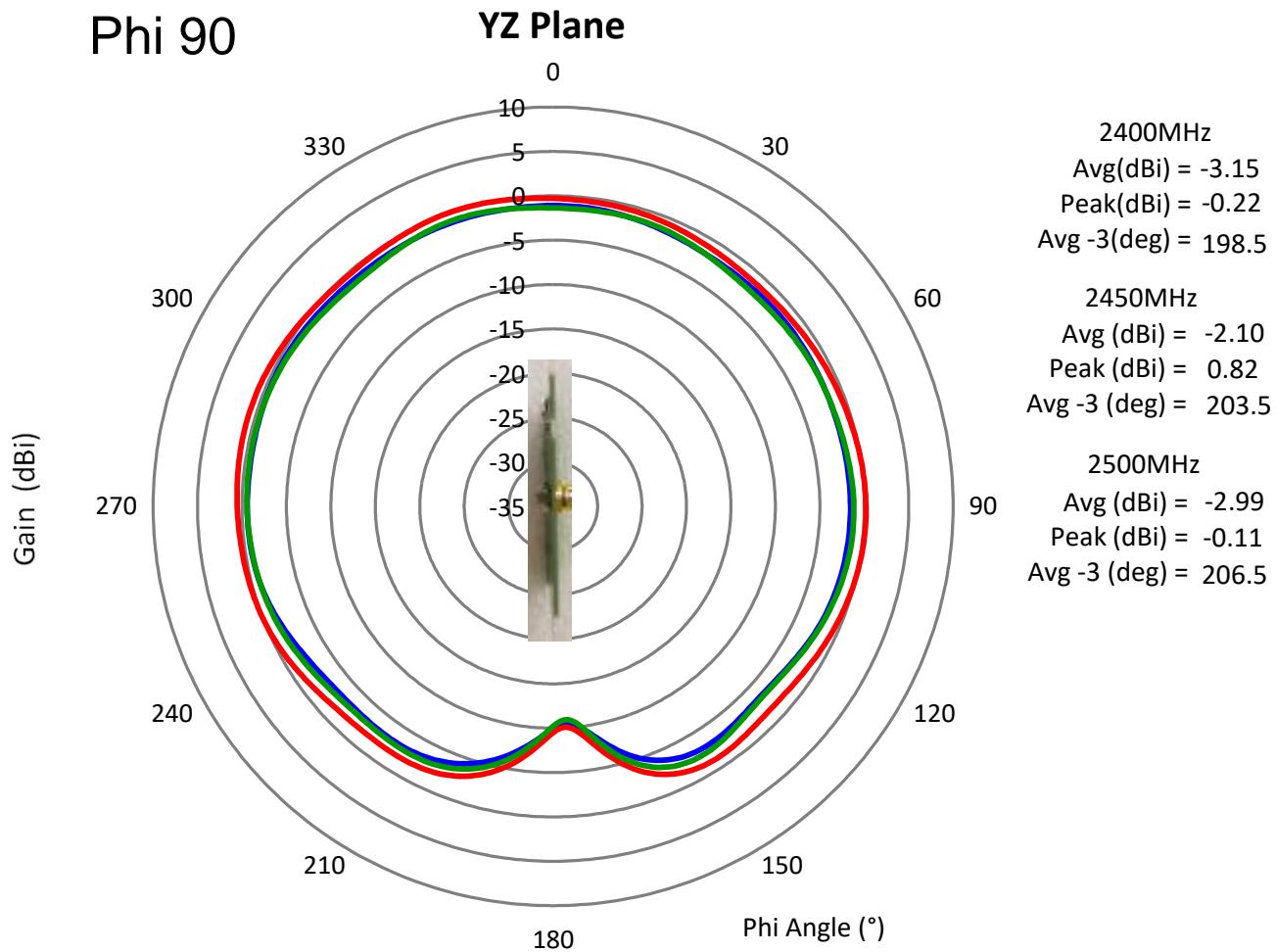


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### Free Space Radiation Pattern



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**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x6.25mm keep out area**
**PART NUMBER: W3008C**
**Series: Chip Antenna**
**Recommendation for reflow soldering process**

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 30 sec
5	Peak temperature in reflow	230 °C for 10 seconds
6	Temperature gradient in cooling	Max -5 °C/s

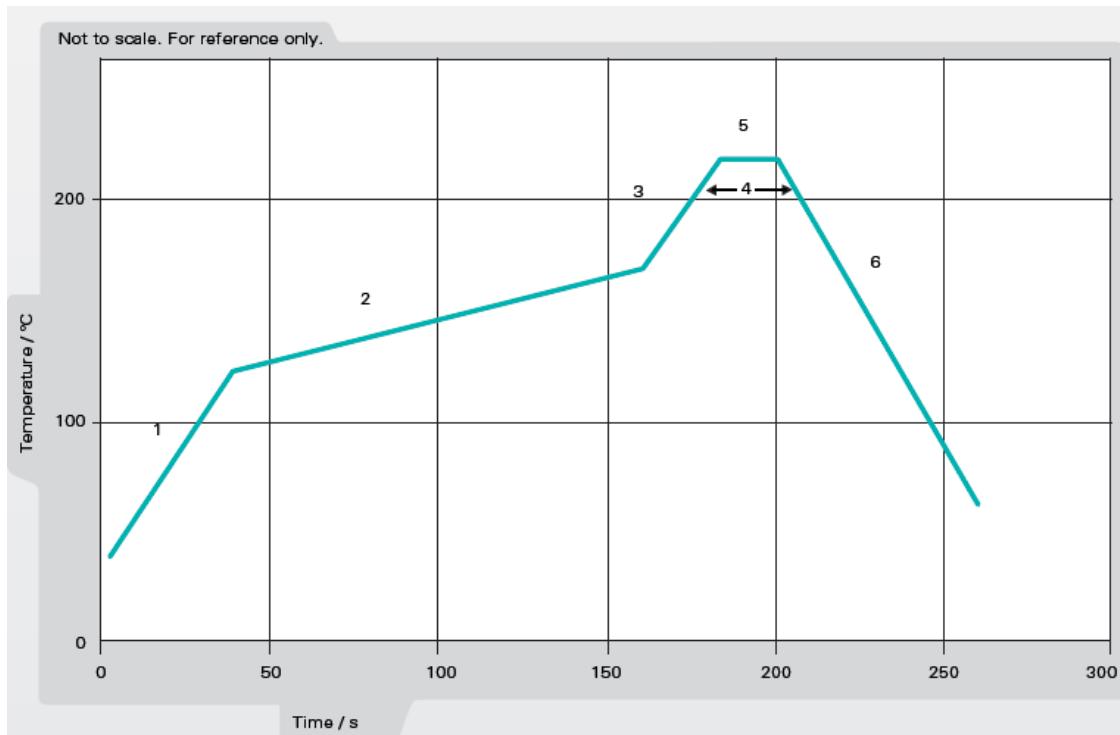


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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### Recommendation for reflow soldering process

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 60 sec
5	Time above 230 °C	Max 50 sec
6	Time above 250 °C	Max 10 sec
7	Peak temperature in reflow	260 °C for 5 seconds
8	Temperature gradient in cooling	Max -5 °C/s

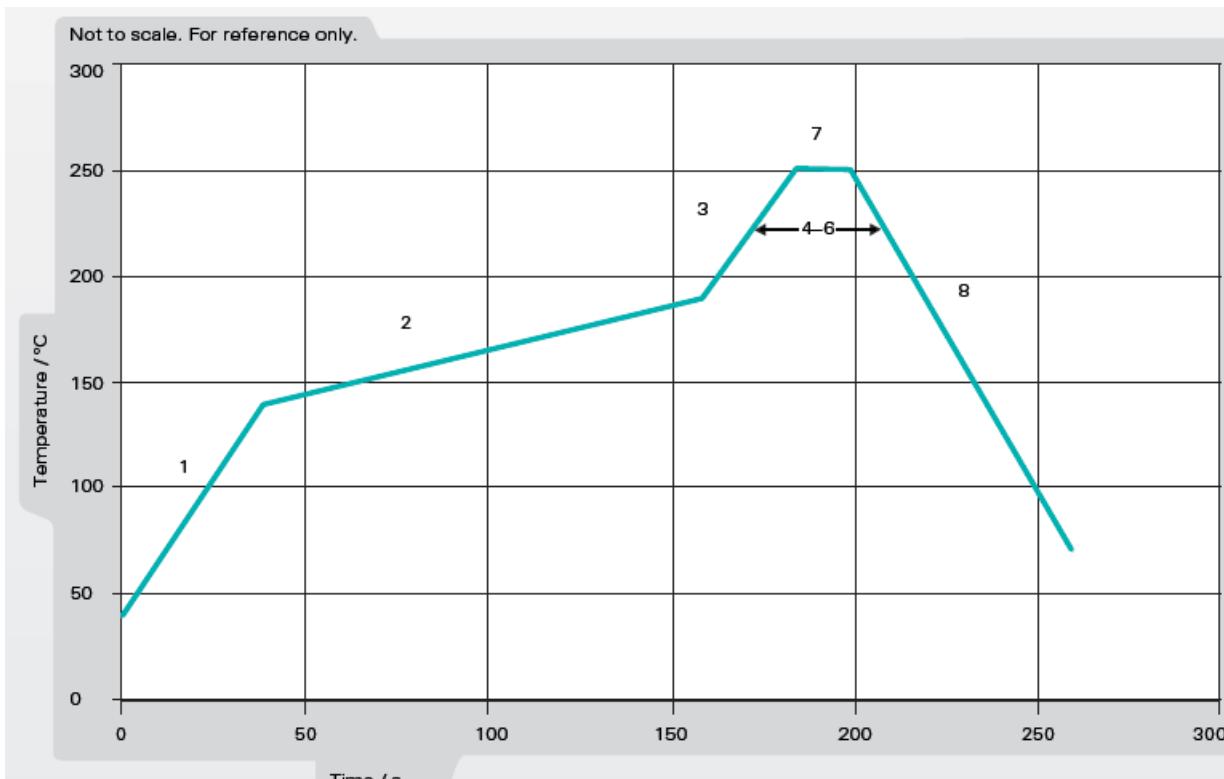


Figure 2. Maximum temperature profile recommendation for reflow soldering process

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## PACKAGING-1

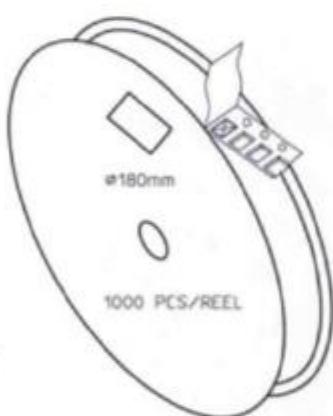
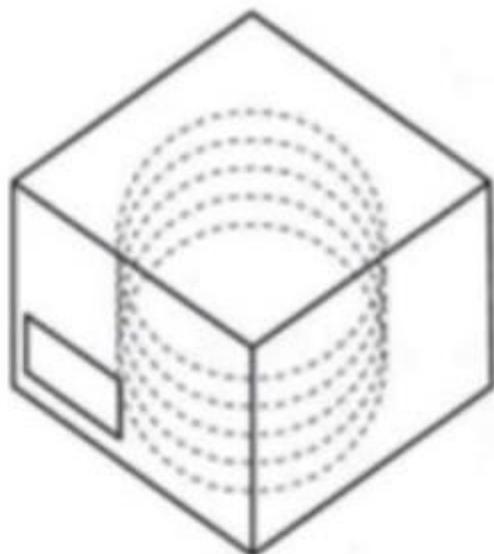
3000pcs antennas per 7" reel

5pcs 7" reel per inner package box

2pcs inner box per out box

Total 30000pcs antenna per out box

Out box size: 390mmx215mmx165mm



LEVEL  
**1**

NOT MOISTURE SENSITIVE

These Devices do not require special storage conditions provided:

1. They are maintained at conditions equal to or less than 30°C and 85% RH.
2. They are solder reflowed at a peak body temperature which does not exceed 260°C.

Note: Level 1 and body temperture defined by IPC/JEDEC J-STD-020

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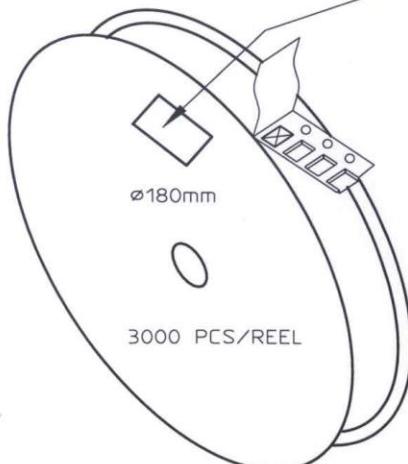
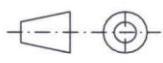
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## PACKAGING-2

	REEL LABEL INFORMATION:
	<ul style="list-style-type: none"> <li>- TRACEABILITY</li> <li>- QUANTITY</li> <li>- PRODUCT CODE</li> </ul>
	CARRIER TAPE H85-00125 width=8,00 depth=1,22 COVER TAPE H85-00126 width=5,60
	LENGTH OF TAPE:
	<ul style="list-style-type: none"> <li>- Leader section: min 350 mm before component section</li> <li>- Trailer section: min 40 mm after component section.</li> </ul>
	Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.
	BOX H85-00128 (182x182x132) 1 pcs
	- LABEL 1 pcs/BOX
	REEL H85-00127 (D180, W12) 10 pcs
	- REEL LABEL 1 pcs/REEL
MATERIAL	
HANDLINGS	
	
RATIO	DRWN 090507 PeHa H
	DGNER G
	CHKD F
	APPRD E
	APPRD BY D
	C
	B
	A
DENOMINATION	VERSION MOD/DATE/NAME
PACKING FORM	

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