

# NGRM5022UW2R442G1TRF

## 2.4 GHz WIFI / Bluetooth Chip Antenna



### Features

- Stable and reliable performance
- FR4 Material: Monopole
- Low Profile, Compact Size
- RoHs Complaint

### Applications

- ISM 2.4 GHz applications
- ZigBee / BLE applications
- Bluetooth earphone systems
- Hand-held devices when WiFi / Bluetooth functions are needed, e.g., Smart phones
- IEEE802.11 b/g/n
- Wireless PCMCIA cards or USB dongles



### Specifications

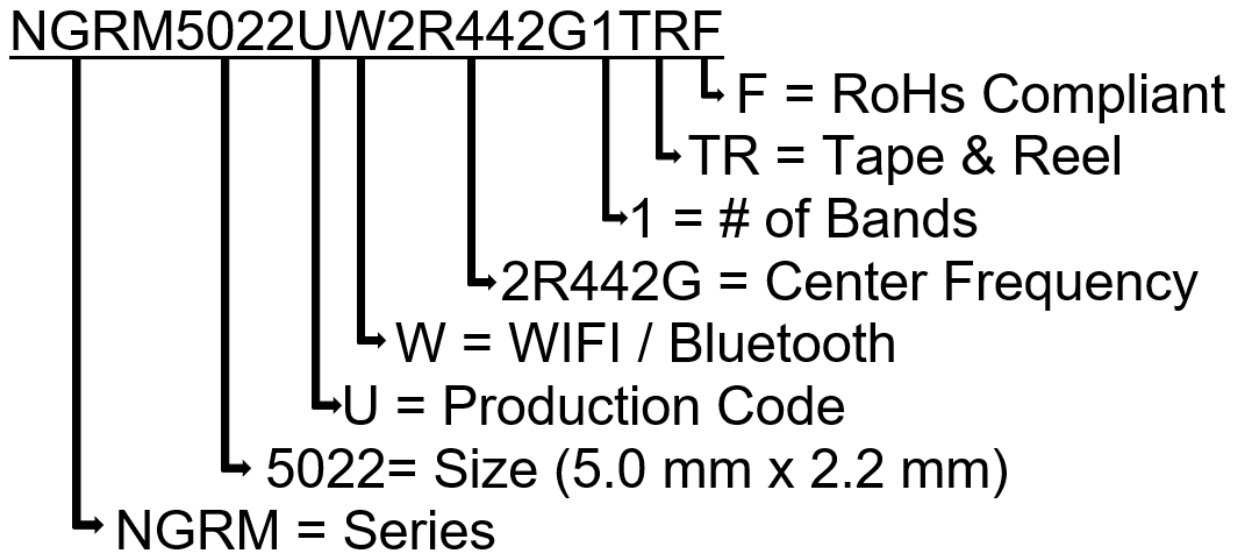
Electrical	
Frequency Range	2400 ~ 2500 MHz
Efficiency	2442 MHz
Peak Gain	2.2 dBi Typ.
Efficiency	66 % Typ.
VSWR	2 Max.
Maximum Input Power	2 W
Polarization	Linear
Impedance	50Ω
Environmental	
Operating Temperature	-40°C~+85°C
Storage Temperature	-5°C~+40°C
Relative Humidity	20% to 70%
Shelf Life	1 year
RoHs Compliant	Yes

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## Part Number Breakdown

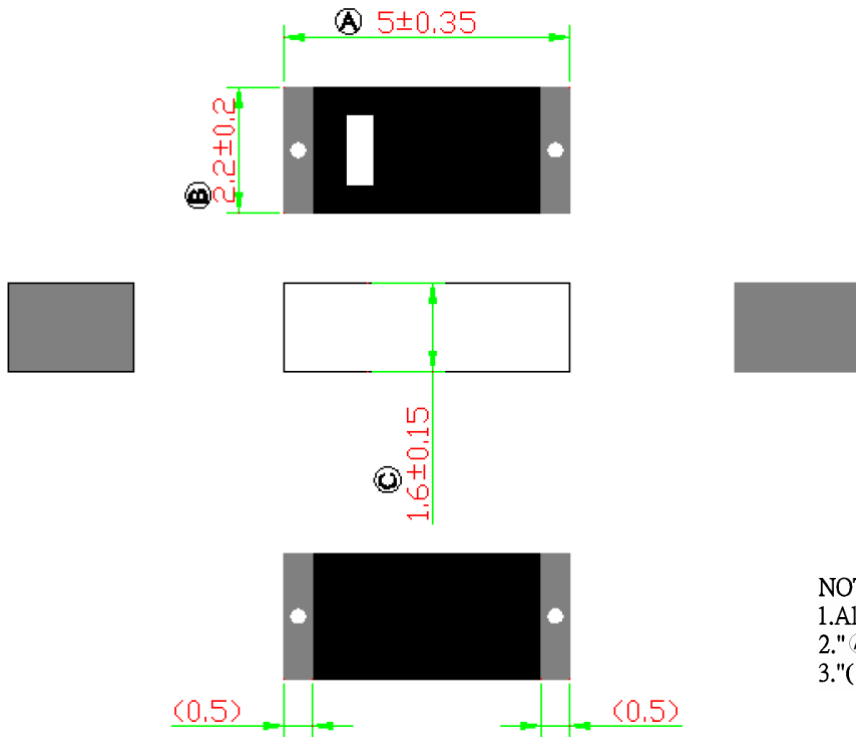


## Pin Definition



PIN	1	2
Soldering PAD	Signal	N/C

### Dimension Drawing



#### NOTE:

1. All materials are RoHS 2.0 compliant.
2. "A~C" Critical Dimensions.
3. "( )" Reference Dimensions.

### Dimensions (mm) & Mechanical

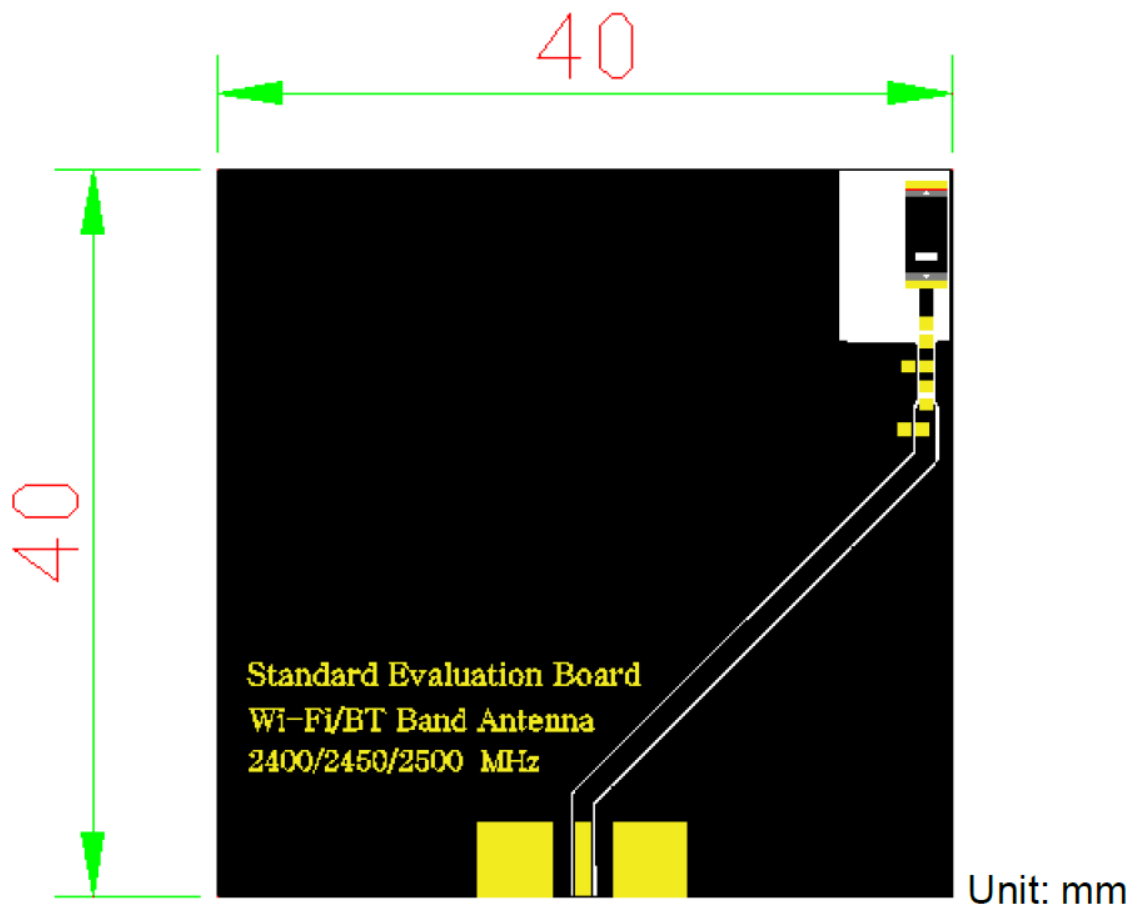
Body Length (A)	$5 \pm 0.35$
Width (B)	$2.2 \pm 0.2$
Thickness (C)	$1.6 \pm 0.15$
Connection Type	SMT
Material	FR4
Ground Plane	40 mm x 40 mm

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## Evaluation Board



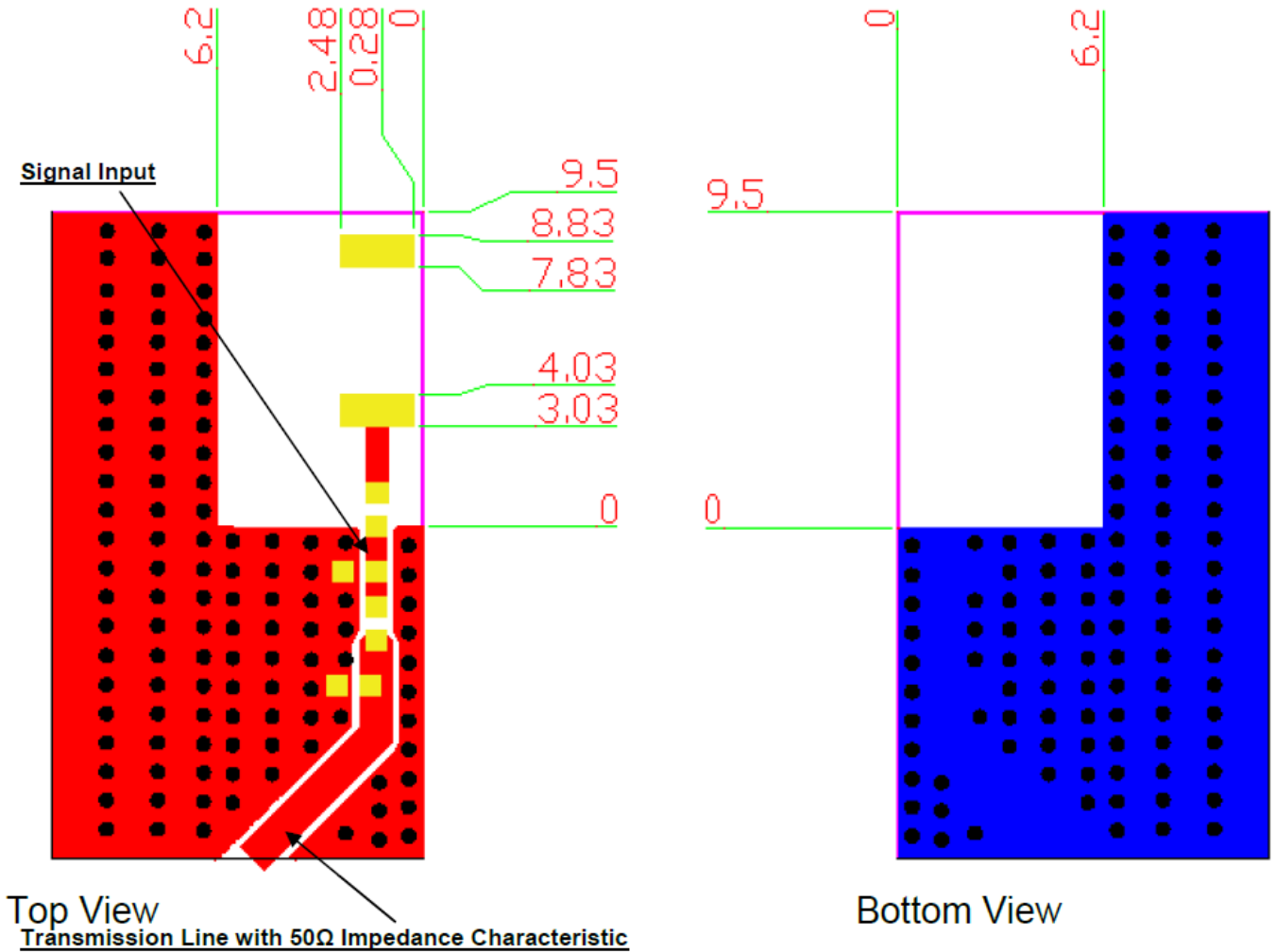
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## Solder Land Pattern

The gold areas represent the solder land pattern. Any recommendations on the matching circuit will be provided according to the customer's installation conditions.

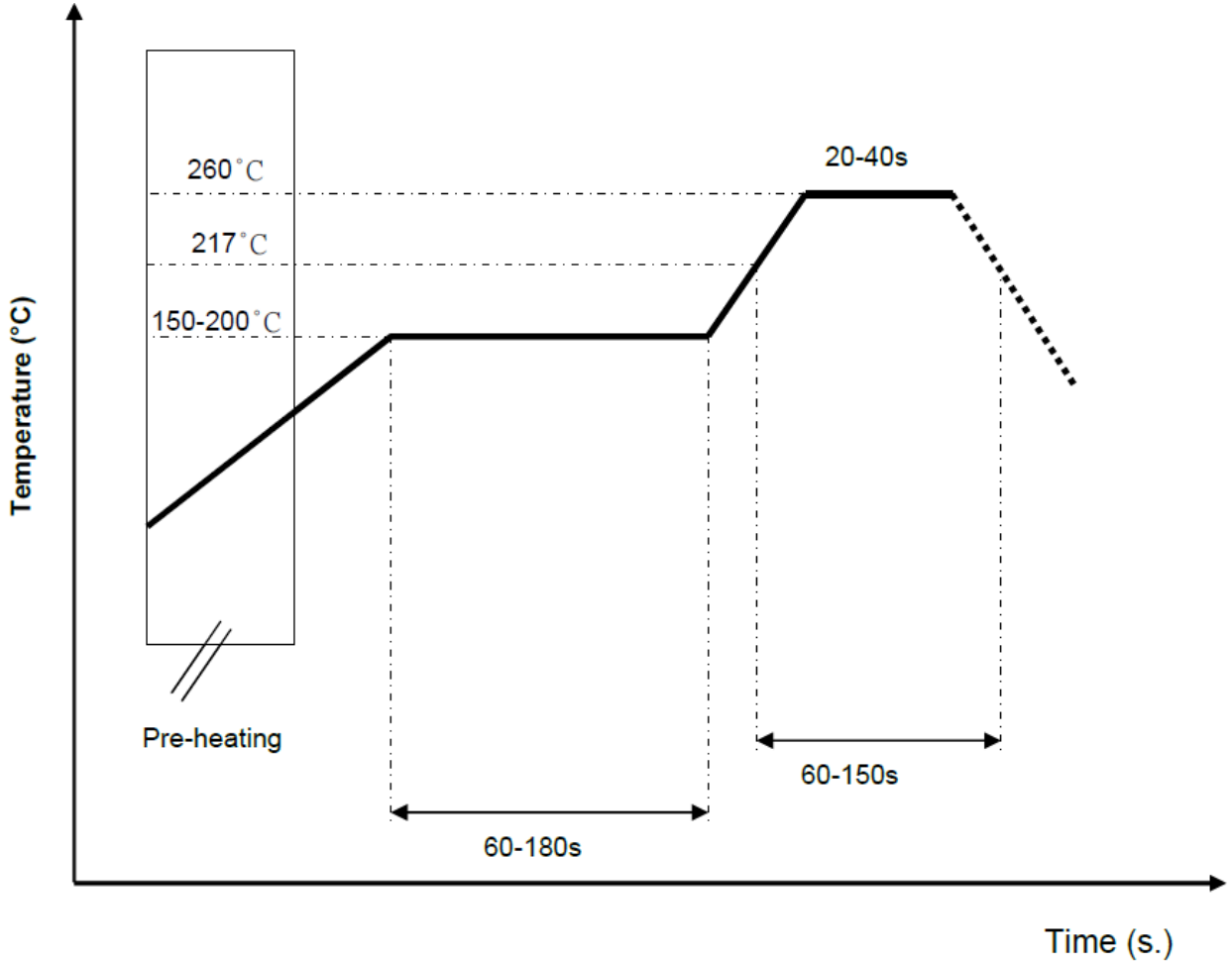


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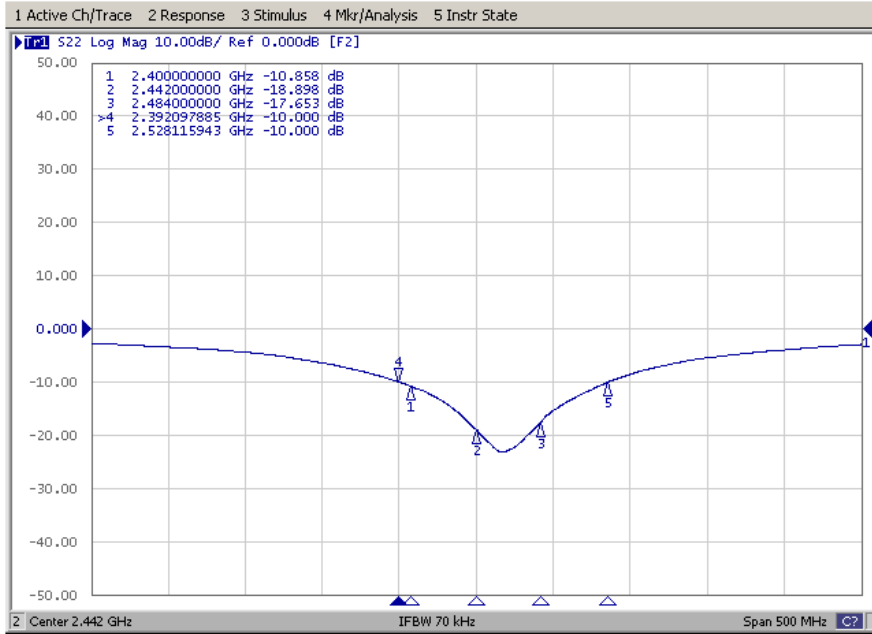
## Soldering Conditions



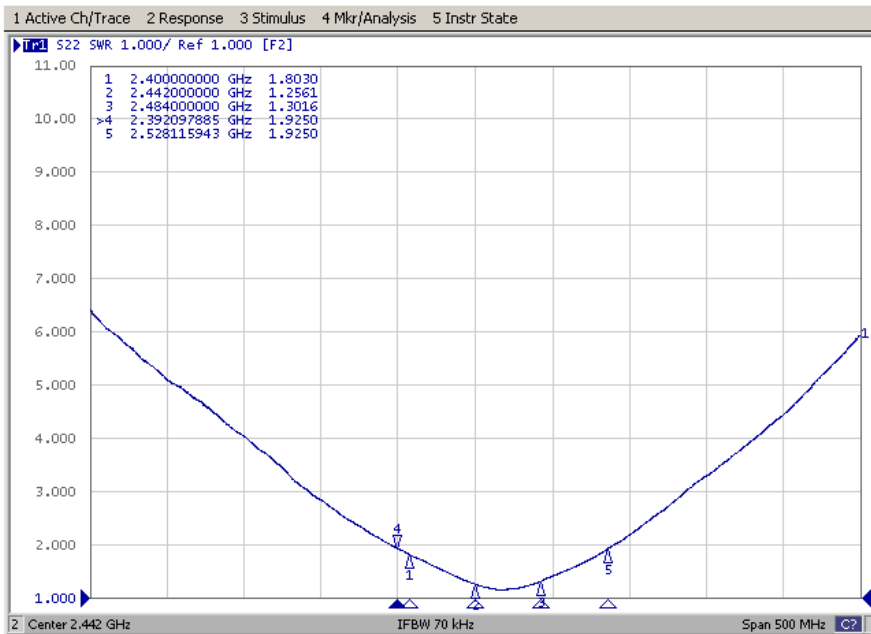


### Return Loss & VSWR

### Return Loss ( $S_{11}$ )



### VSWR ( $S_{11}$ )



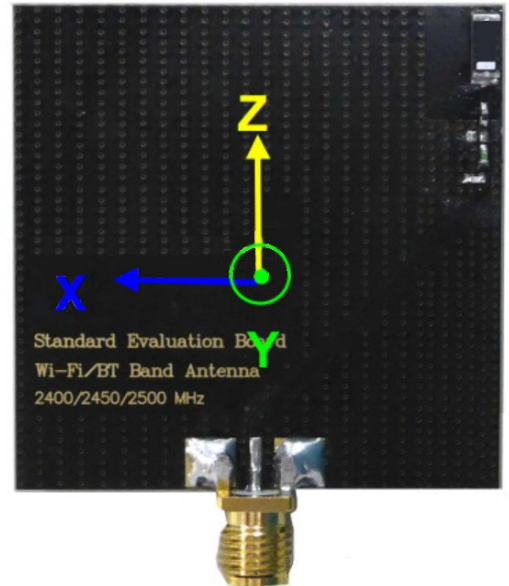
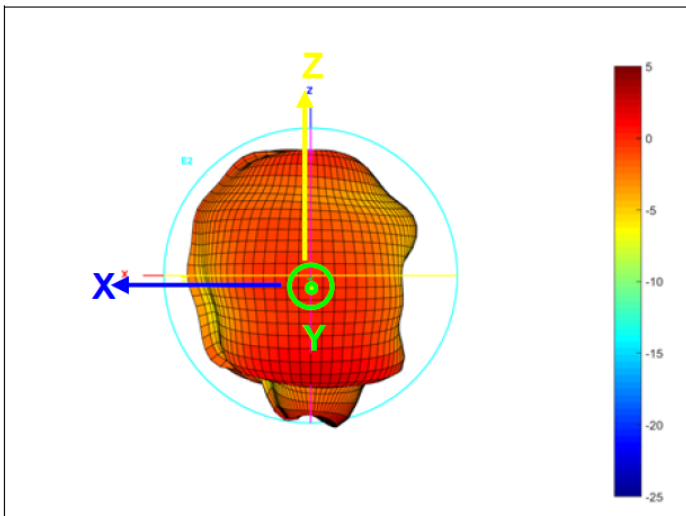
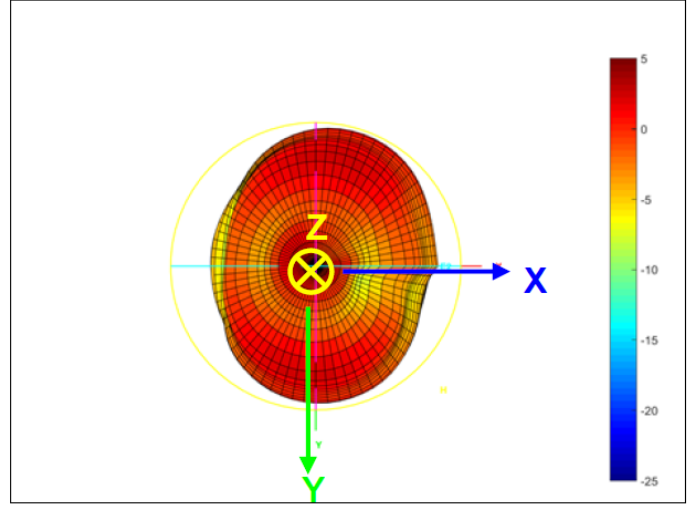
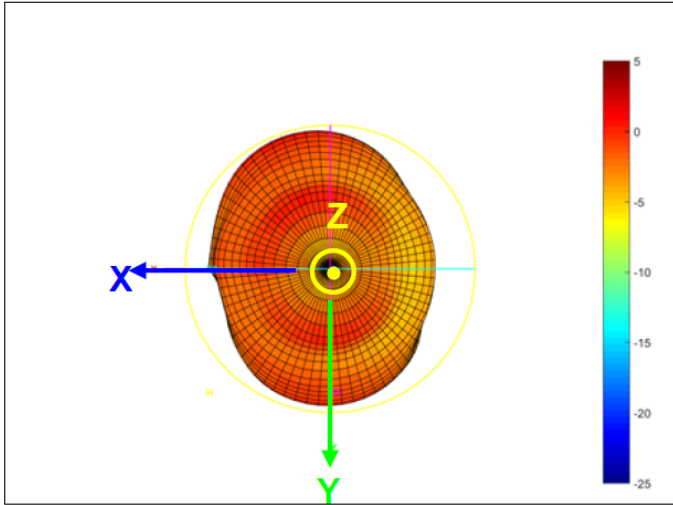
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## Radiation Pattern:

2400 ~ 2500 @ 2442 MHz (unit: dBi)



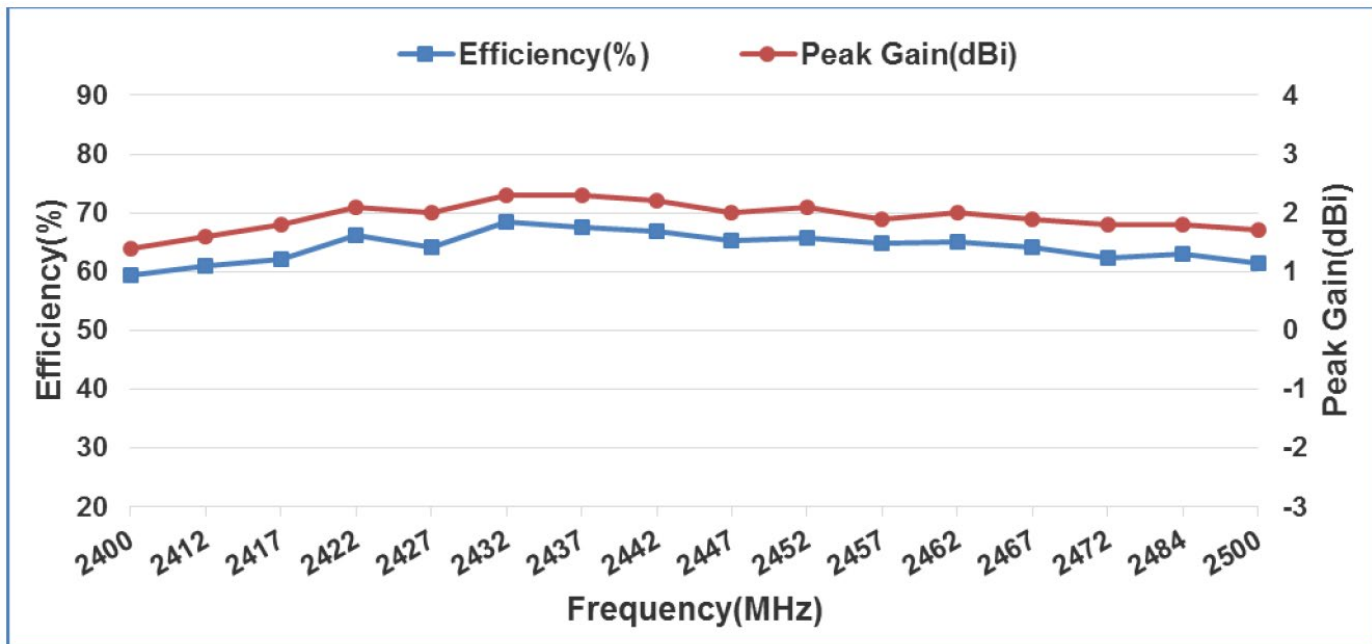




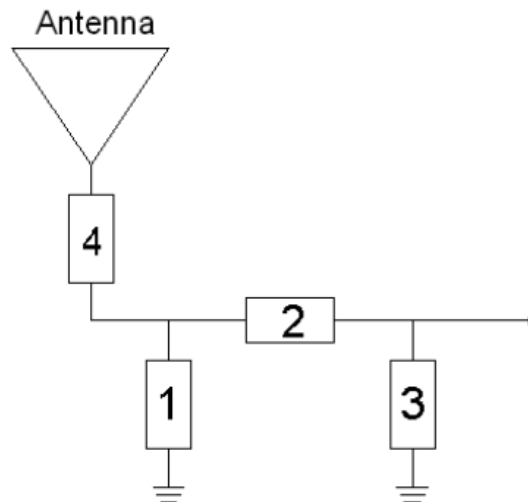
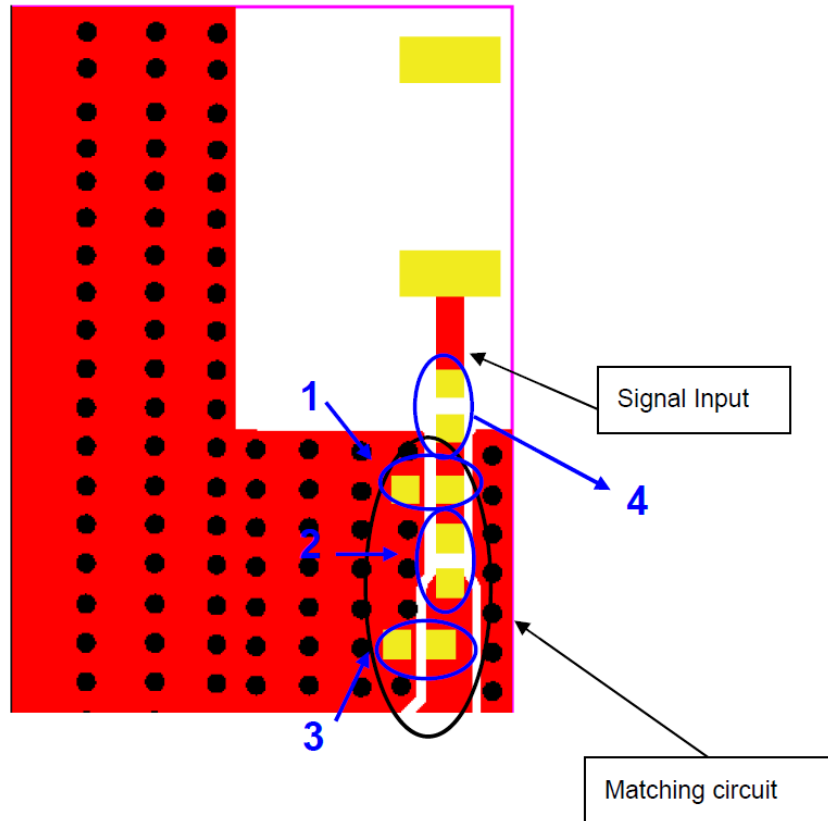
### Efficiency Table

Frequency(MHz)	2400	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2484	2500
Efficiency(dB)	-2.3	-2.2	-2.1	-1.8	-1.9	-1.6	-1.7	-1.8	-1.9	-1.8	-1.9	-1.9	-1.9	-2.0	-2.0	-2.1
Efficiency(%)	59.3	60.9	62.2	66.1	64.2	68.4	67.5	66.8	65.2	65.8	64.8	65.1	64.0	62.4	63.0	61.5
Peak Gain(dBi)	1.4	1.6	1.8	2.1	2.0	2.3	2.3	2.2	2.0	2.1	1.9	2.0	1.9	1.8	1.8	1.7

### Efficiency vs. Frequency



### Frequency Tuning & Matching Circuit





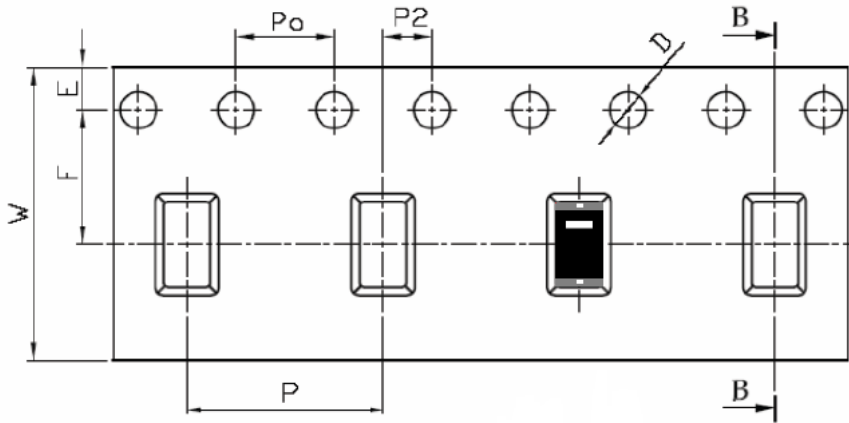
### System Matching Circuit Component

Location	Description	Tolerance	NIC Part Number
1	N/A	-	-
2	2.2nH, (0402)	±0.1nH	<a href="#">NMLQ04B2N2TRF</a>
3	1pF, (0402)	±0.1pF	<a href="#">NMC-Q0402NPO1R0B50TRPF</a>
4	0Ω, (0402)	-	<a href="#">NRC04ZOTRF</a>

### Packing

- (1) Quantity/Reel: 3000 pcs/Reel
- (2) Plastic tape:

#### a. Tape Drawing



#### b. Tape Dimensions (unit: mm)

Feature	Specifications	Tolerances
W	12.00	±0.30
P	8.00	±0.10
E	1.75	±0.10
F	5.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 -0.00
P0	4.00	±0.10
10P0	40.00	±0.20