

NGCL1206UW2R442G2TRF

WiFi Dual Band Ceramic Chip Antenna



Features

- Stable and reliable performance
- Supports WiFi 2.4 & 5 GHz Band
- Ceramic Material: Loop
- Low Profile, Compact Size
- RoHs Complaint



Applications

- WiFi Certified ac applications
- Wireless communication devices when IEEE802.11 a/b/g/n/ac functions are needed
- IoT applications

Specifications

| Electrical | | |
|-----------------------|--------------|--------------|
| Frequency Range | 2400~2500MHz | 5150~5850MHz |
| Center Frequency | 2442 MHz | 5550 MHz |
| Peak Gain | 1.4 dBi typ. | 2.3 dBi typ. |
| Efficiency | 76% typ. | 67% 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 | |

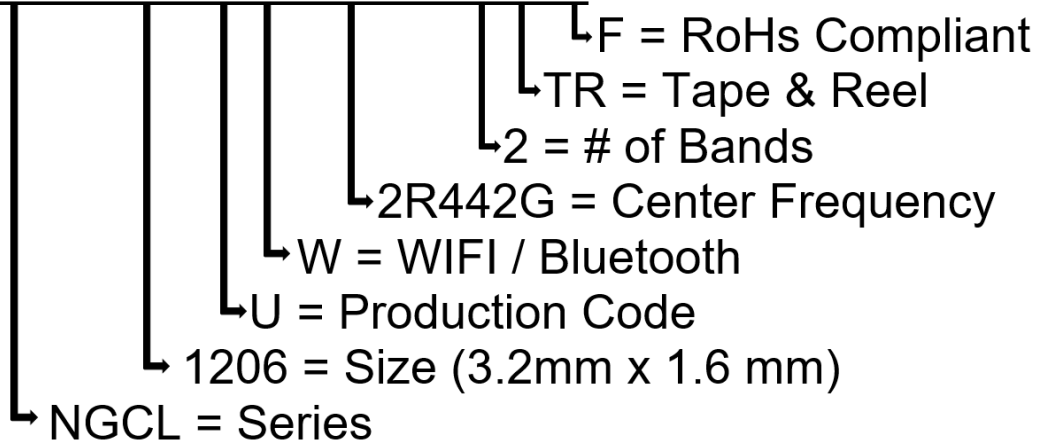
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Part Number Breakdown

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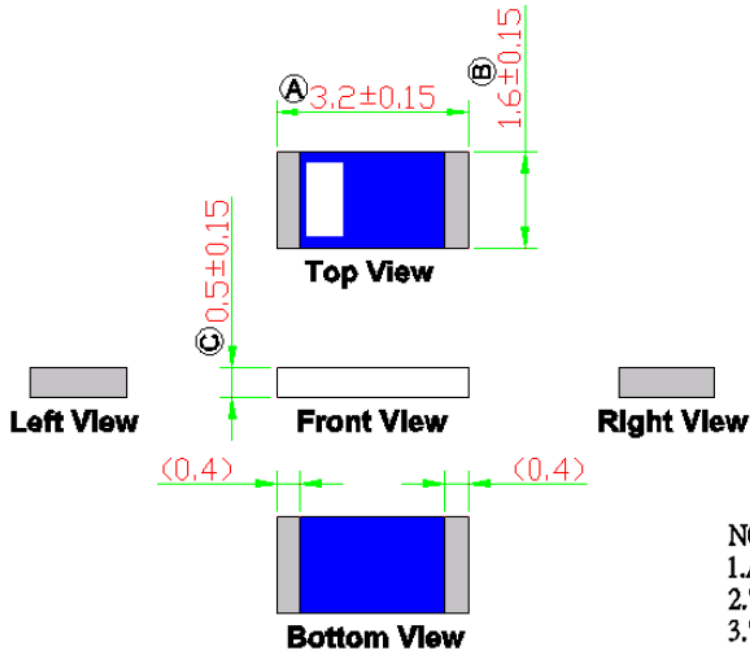


Pin Definition



| PIN | 1 | 2 |
|---------------|--------|-----------------|
| Soldering PAD | Signal | Tuning / Ground |

Dimension Drawing



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

Dimensions (mm) & Mechanical

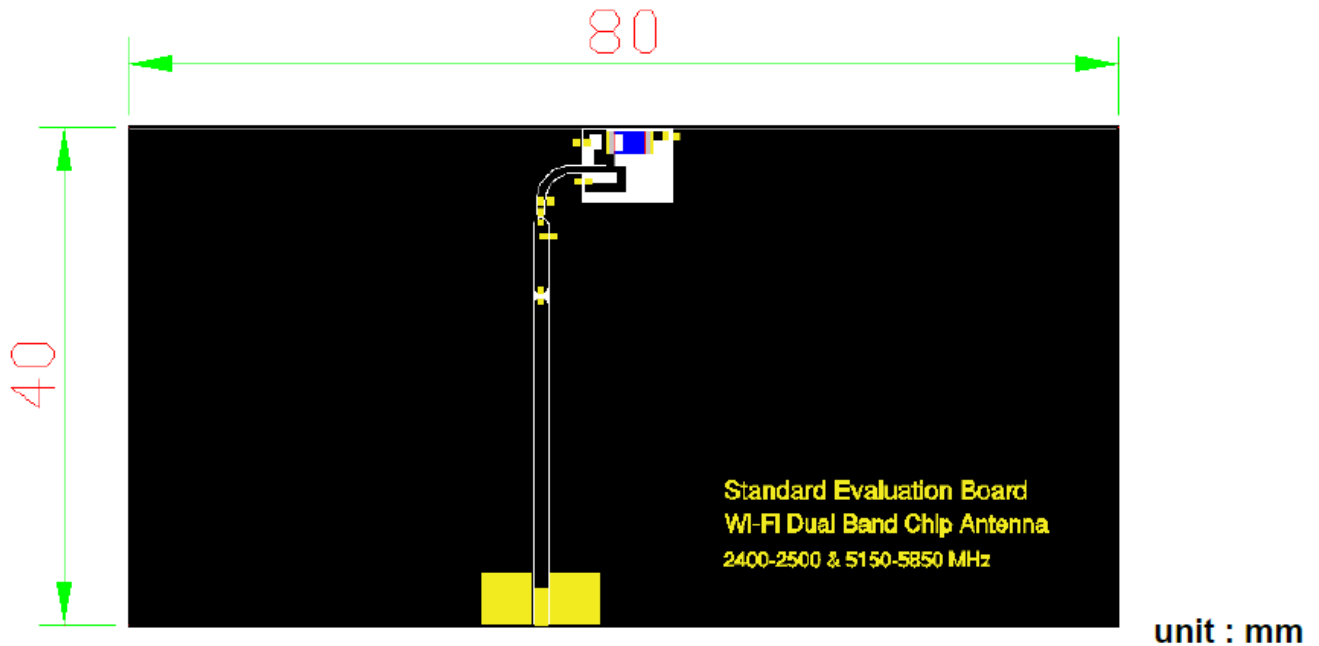
| | |
|-----------------|---------------|
| Body Length (A) | 3.2 ± 0.15 |
| Width (B) | 1.6 ± 0.15 |
| Thickness (C) | 0.5 ± 0.15 |
| Connection Type | SMT |
| Ground Plane | 40 mm x 40 mm |
| Material | Ceramic |

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Evaluation Board



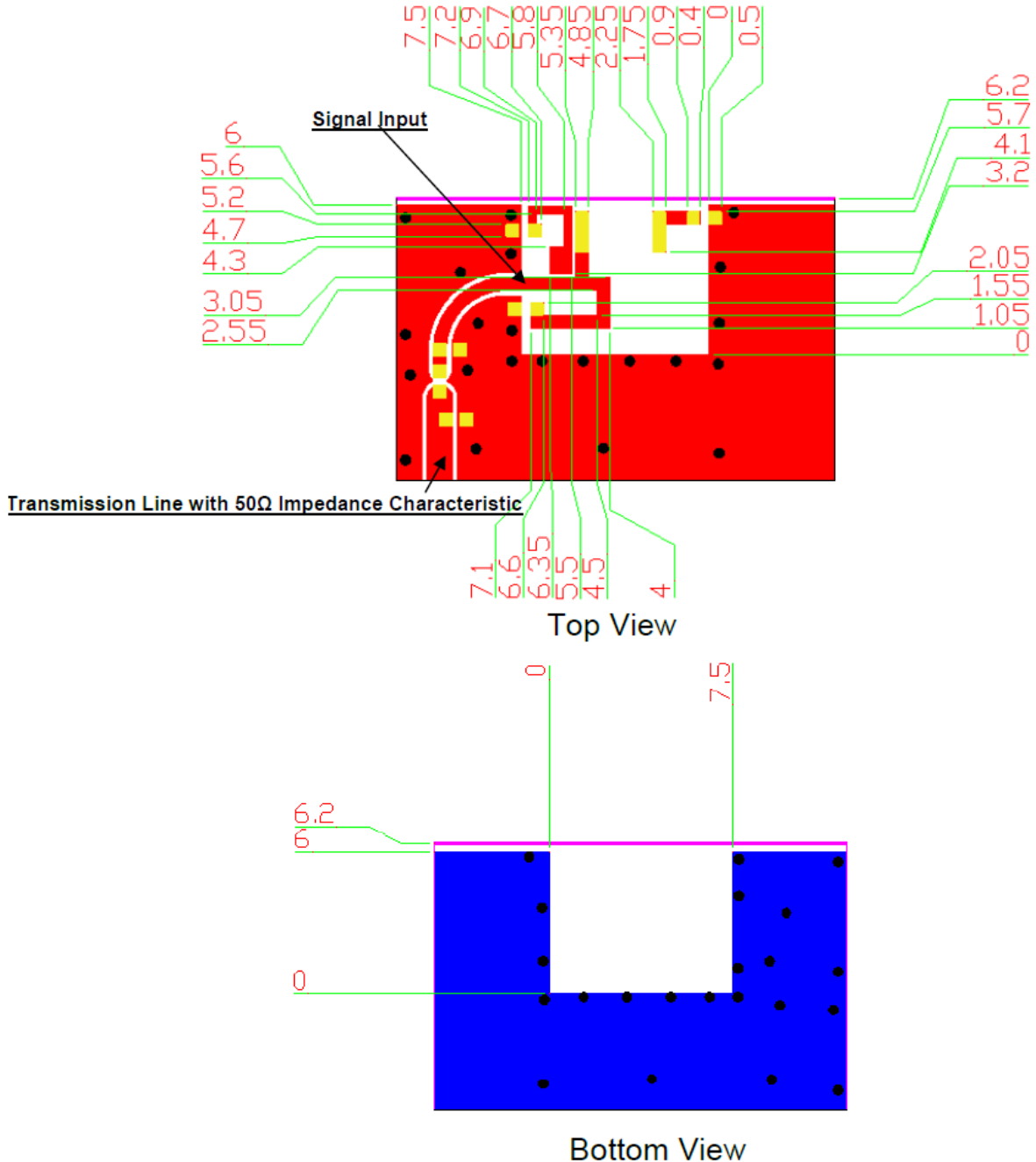
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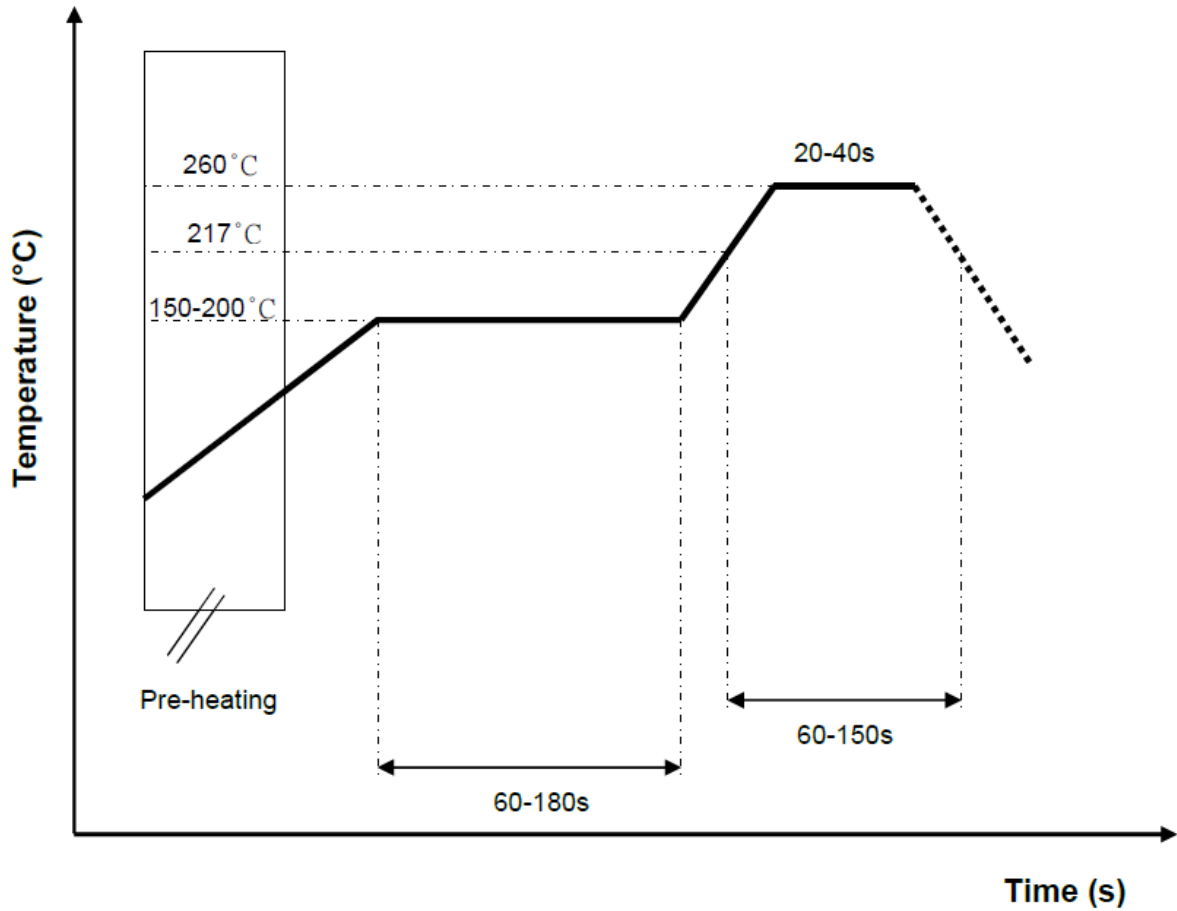


Solder Land Pattern

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

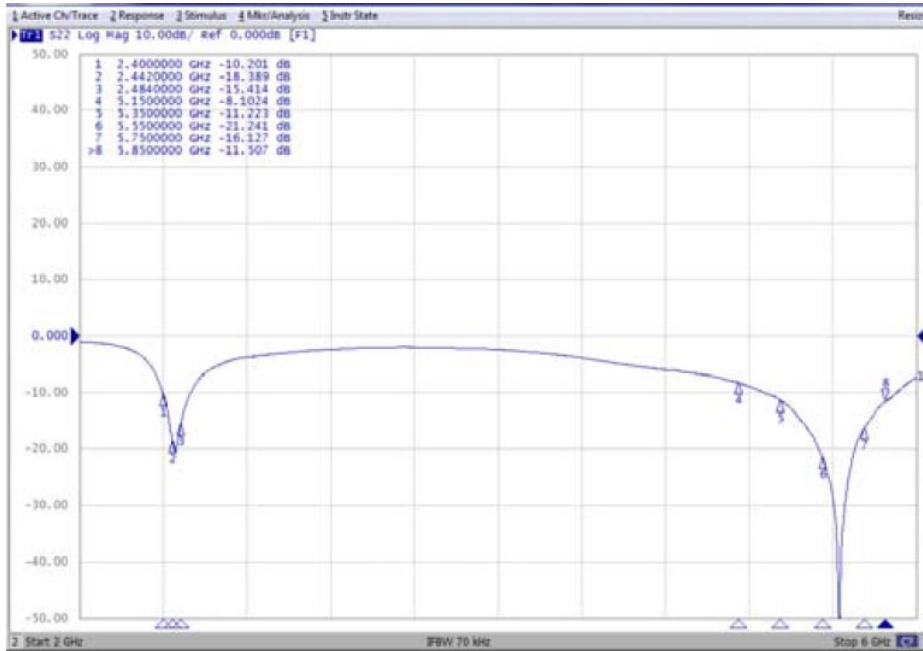


Soldering Conditions

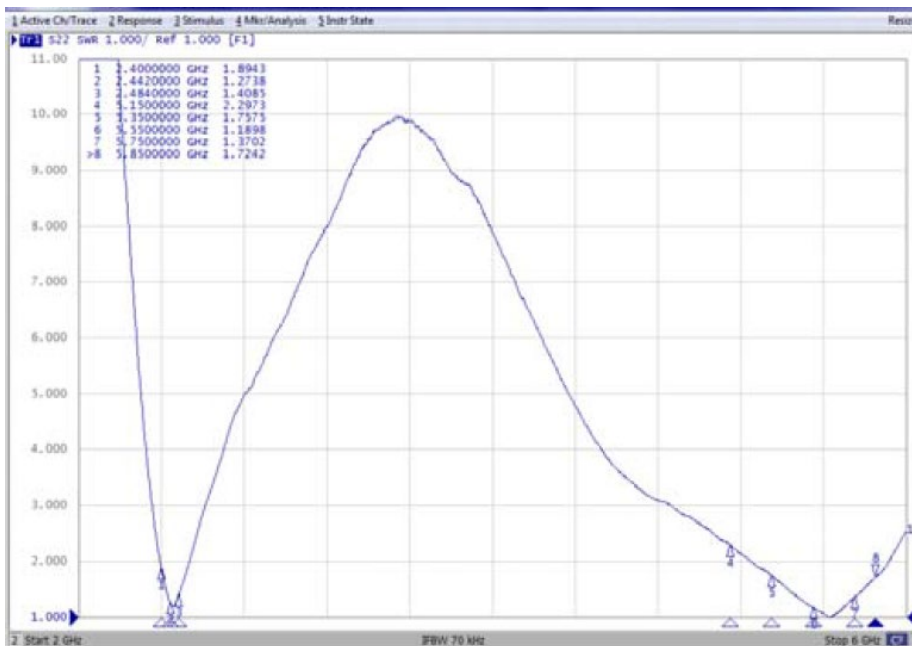




Return Loss (S_{11})

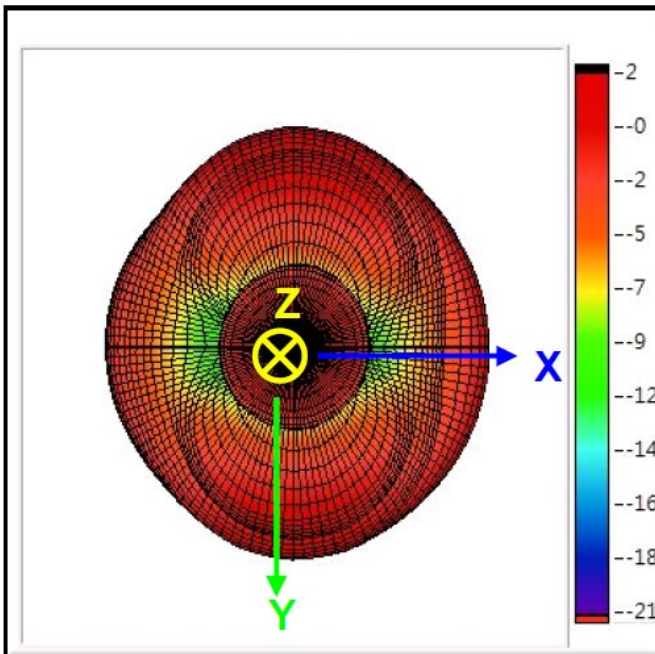
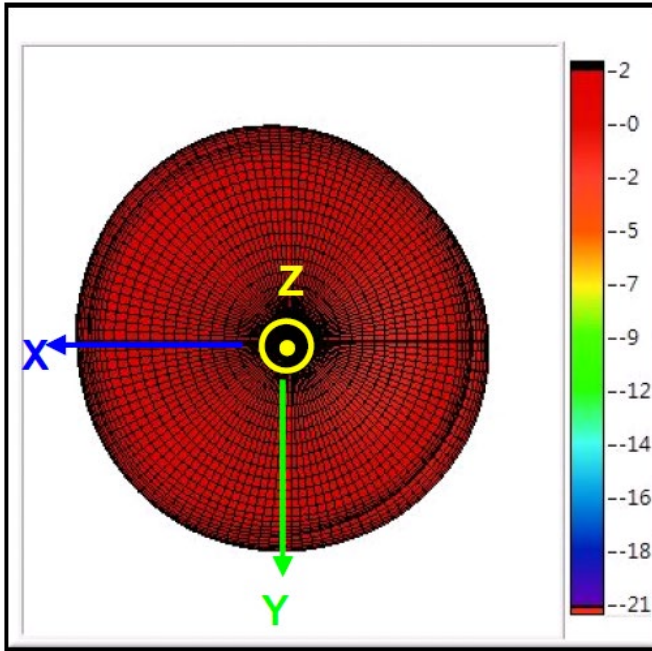


VSWR (S_{11})



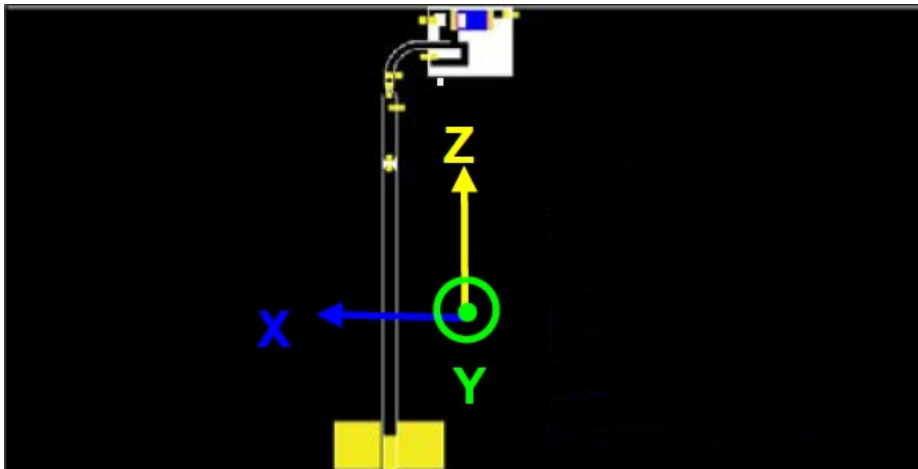
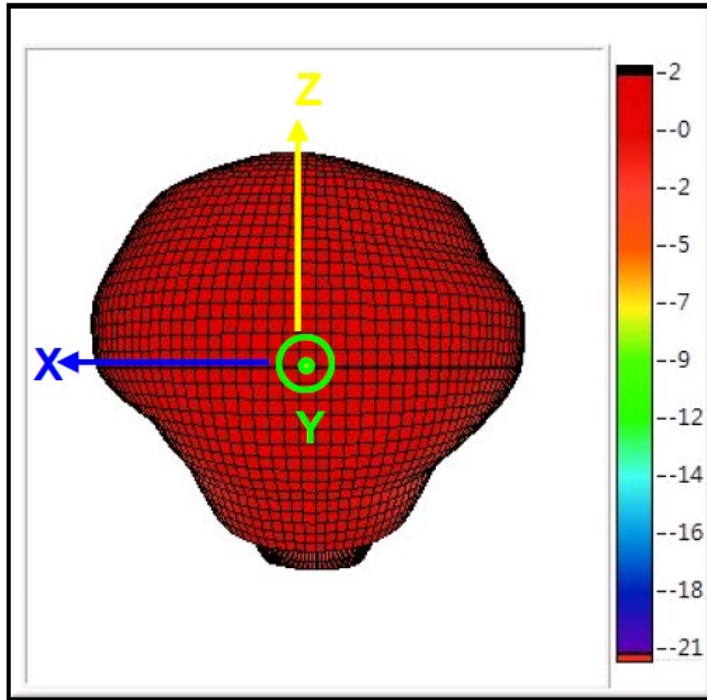
Radiation Patterns

3D Radiation Gain Pattern 2400 ~ 2500 MHz Band @ 2442 MHz



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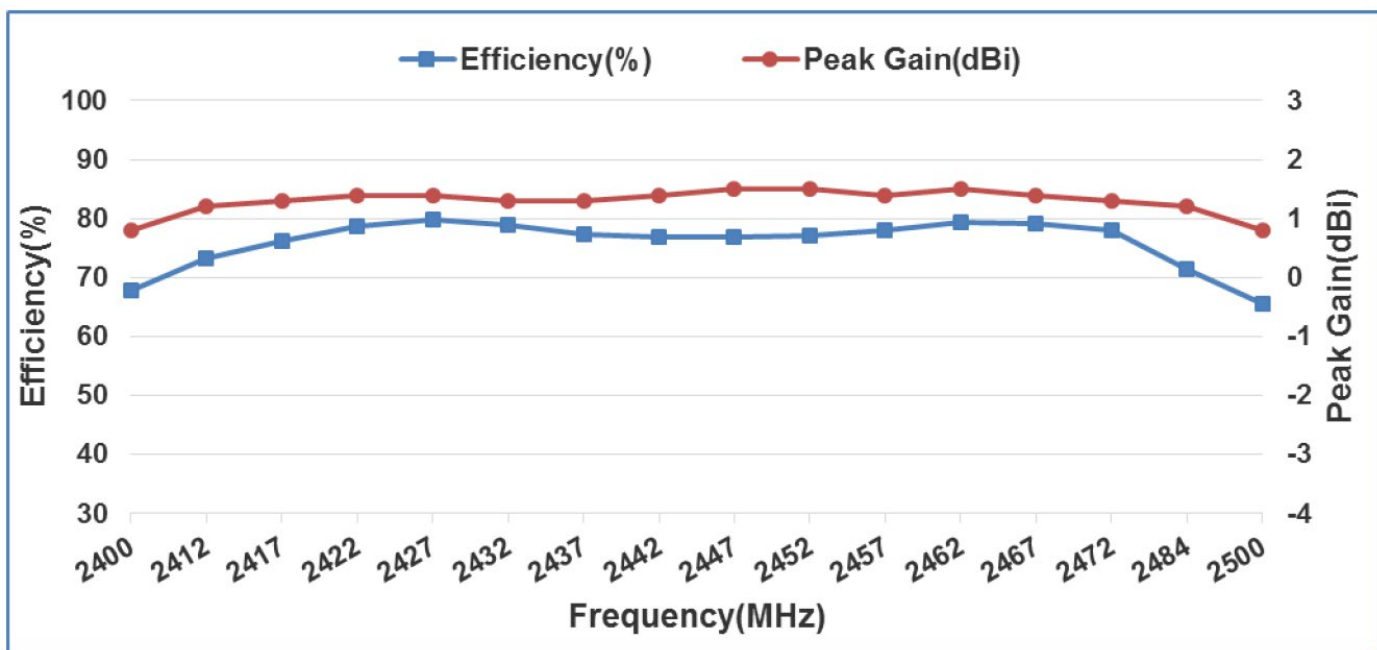




3D Efficiency Table

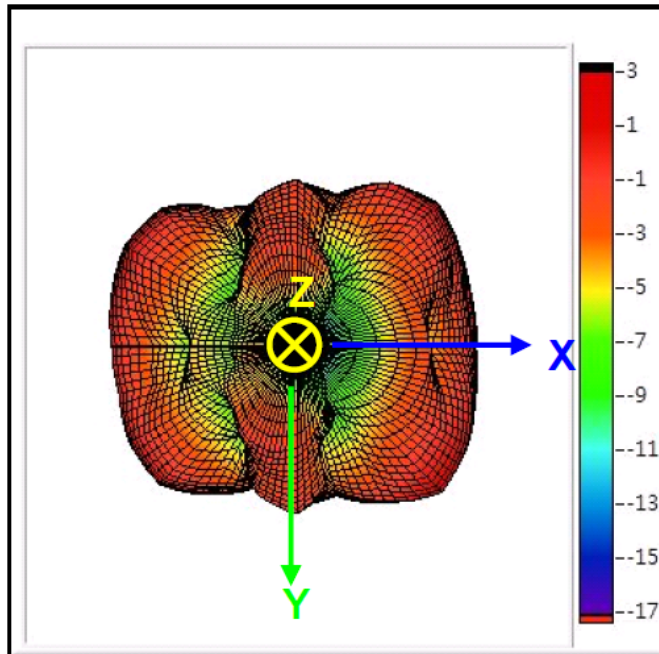
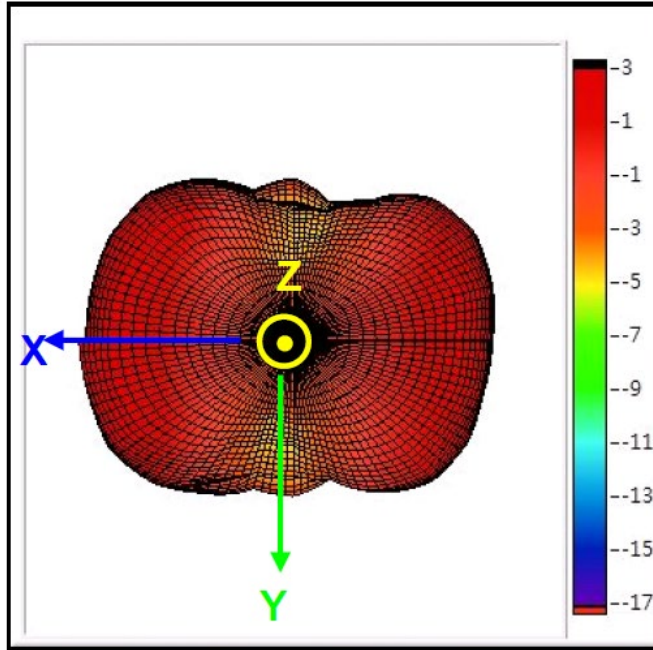
| Frequency(MHz) | 2400 | 2412 | 2417 | 2422 | 2427 | 2432 | 2437 | 2442 | 2447 | 2452 | 2457 | 2462 | 2467 | 2472 | 2484 | 2500 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Efficiency(dB) | -1.7 | -1.4 | -1.2 | -1.0 | -1.0 | -1.0 | -1.1 | -1.1 | -1.2 | -1.1 | -1.1 | -1.0 | -1.0 | -1.1 | -1.5 | -1.8 |
| Efficiency(%) | 67.9 | 73.2 | 76.1 | 78.7 | 79.9 | 78.8 | 77.4 | 76.8 | 76.8 | 77.2 | 78.1 | 79.3 | 79.2 | 78.1 | 71.5 | 65.5 |
| Peak Gain(dBi) | 0.8 | 1.2 | 1.3 | 1.4 | 1.4 | 1.3 | 1.3 | 1.4 | 1.5 | 1.5 | 1.4 | 1.5 | 1.4 | 1.3 | 1.2 | 0.8 |

3D Efficiency vs. Table



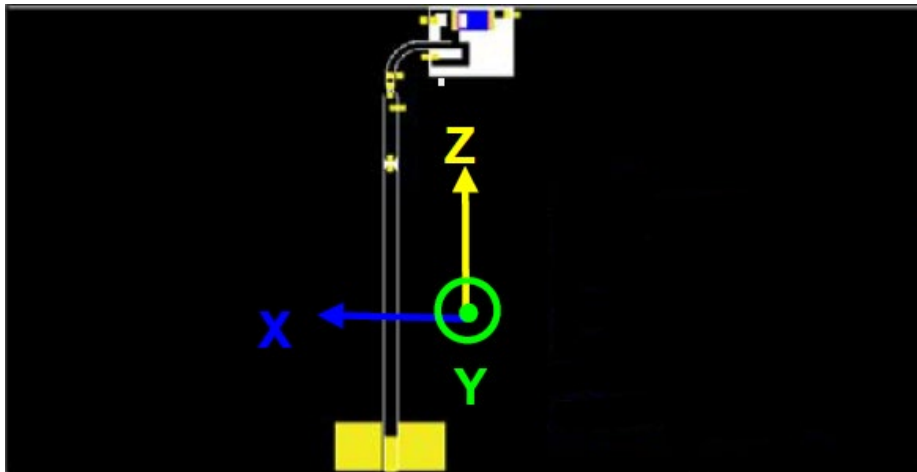
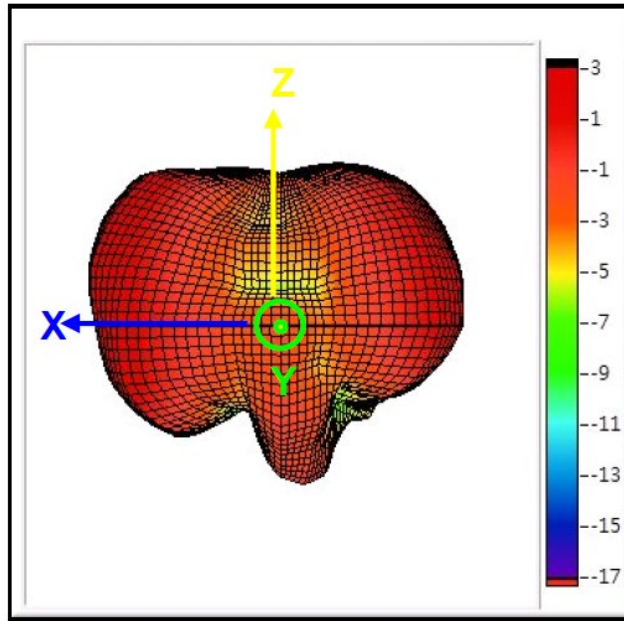
Radiation Patterns

3D Radiation Gain Pattern 5150 ~ 5850 MHz Band @ 5150 MHz

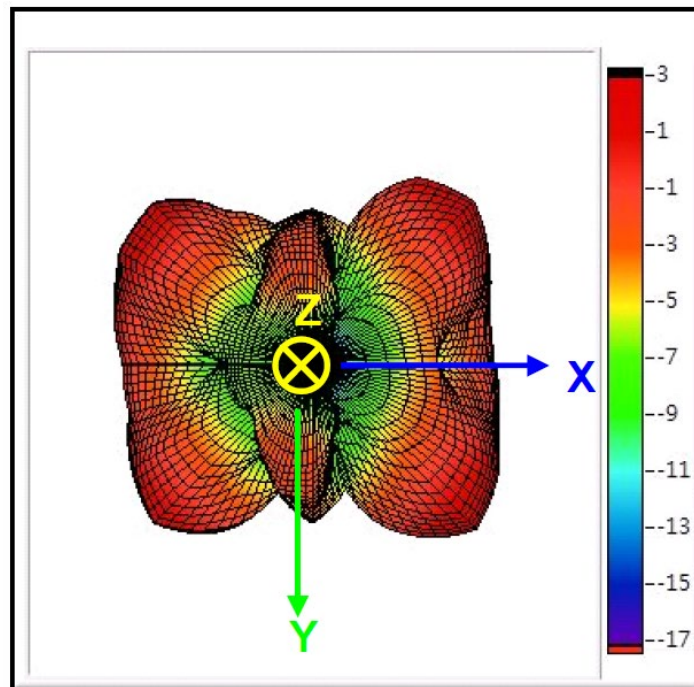
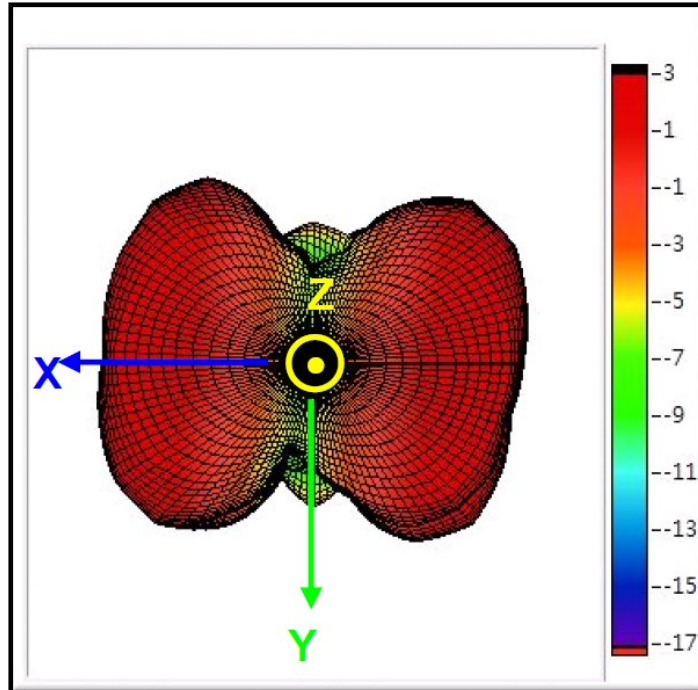


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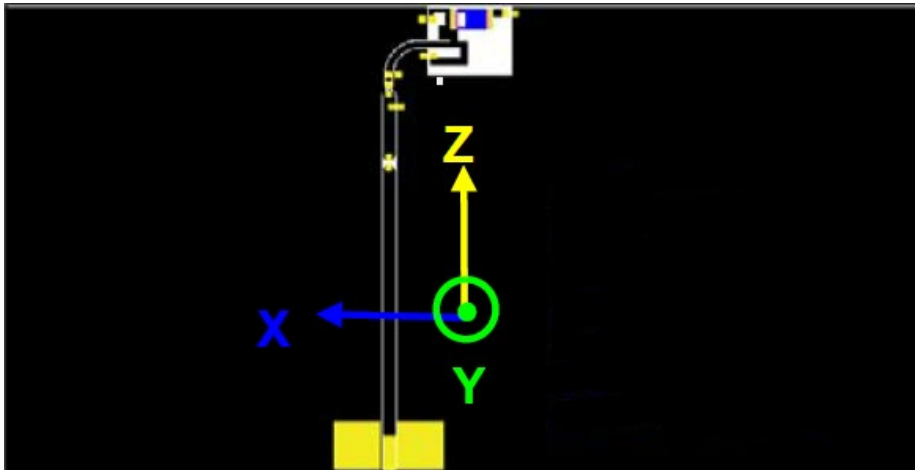
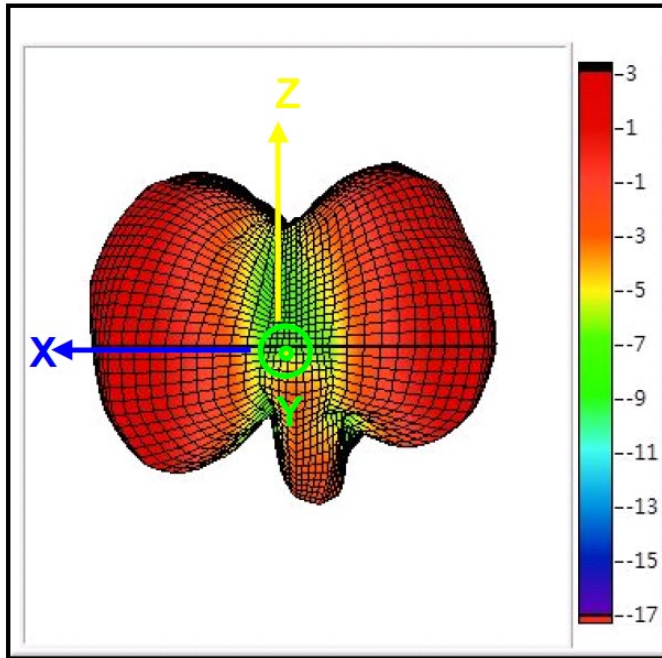


3D Radiation Gain Pattern 5150 ~ 5850 MHz Band @ 5500 MHz

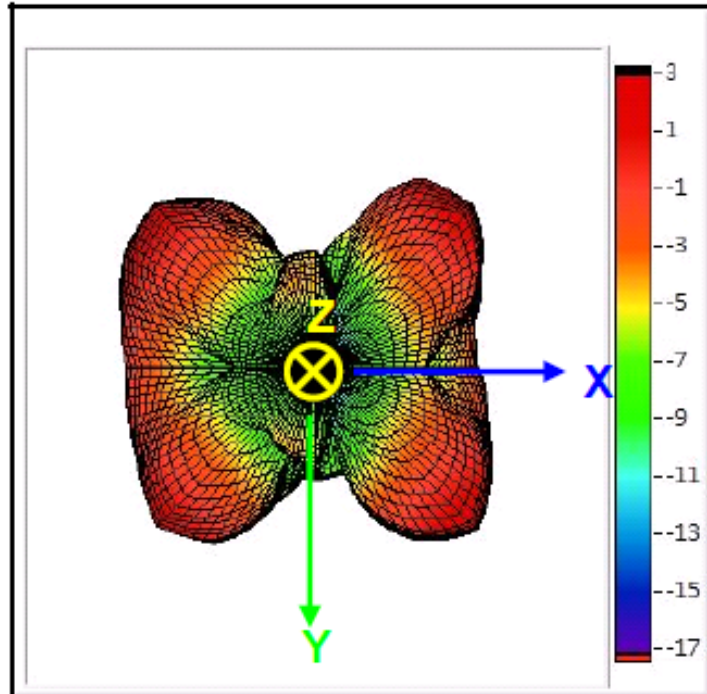
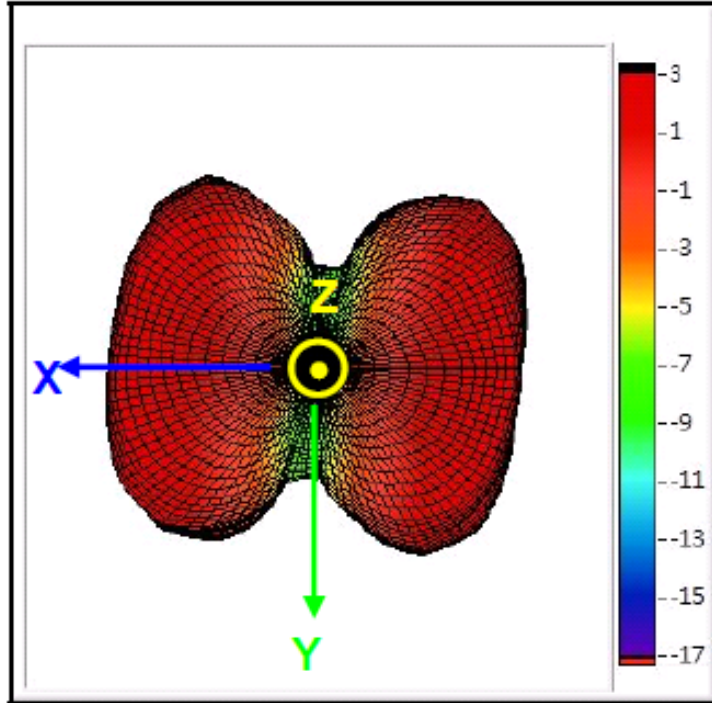


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WIFI Dual Band Ceramic Chip Antenna

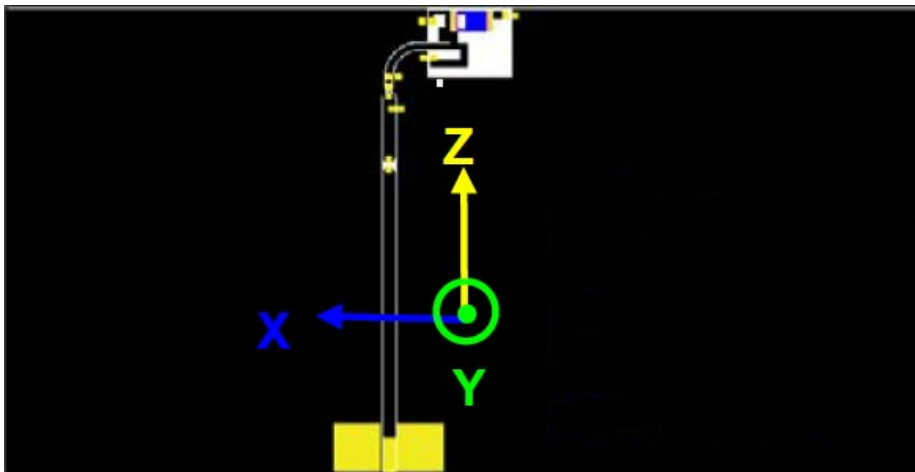
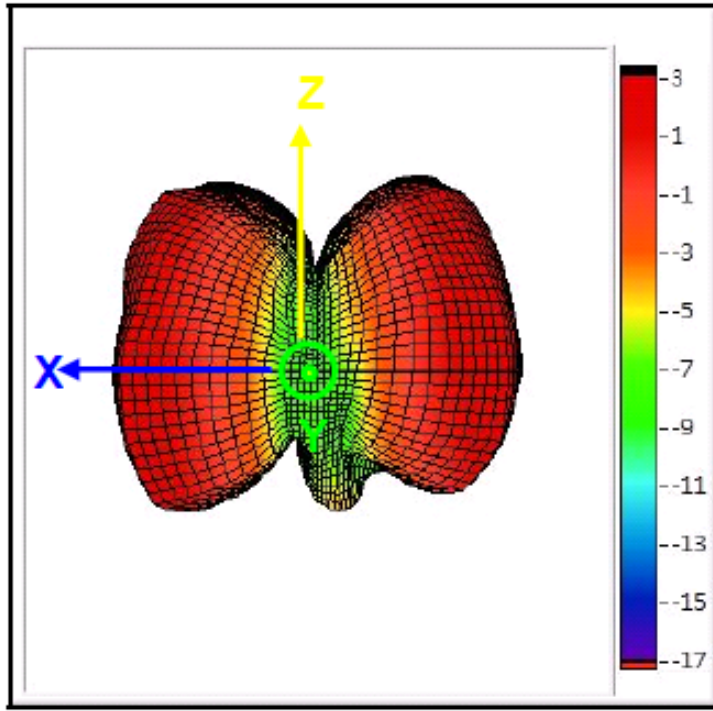


3D Radiation Gain Pattern 5150 ~ 5850 MHz Band @ 5850 MHz



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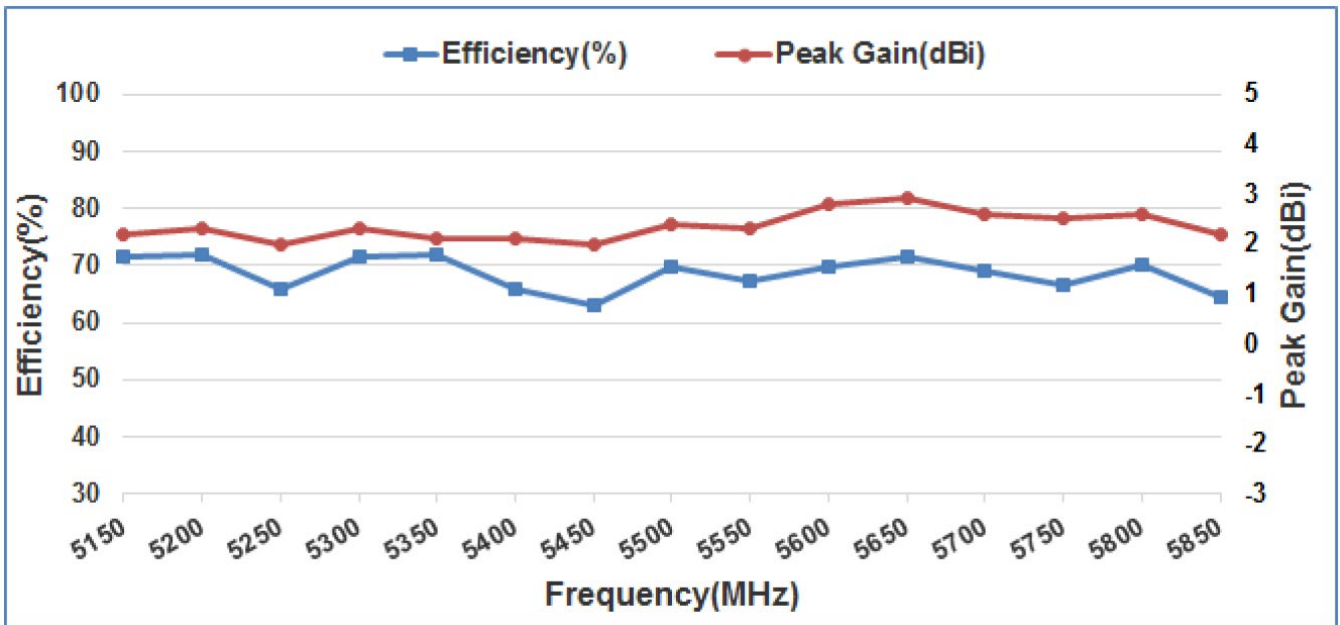




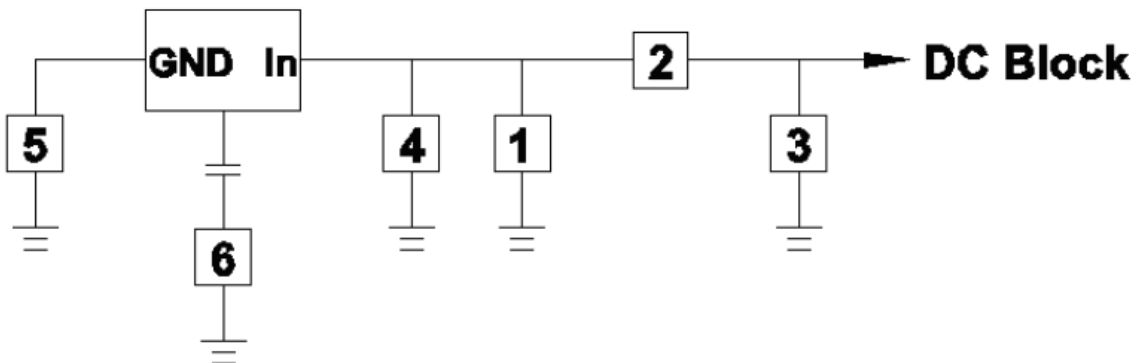
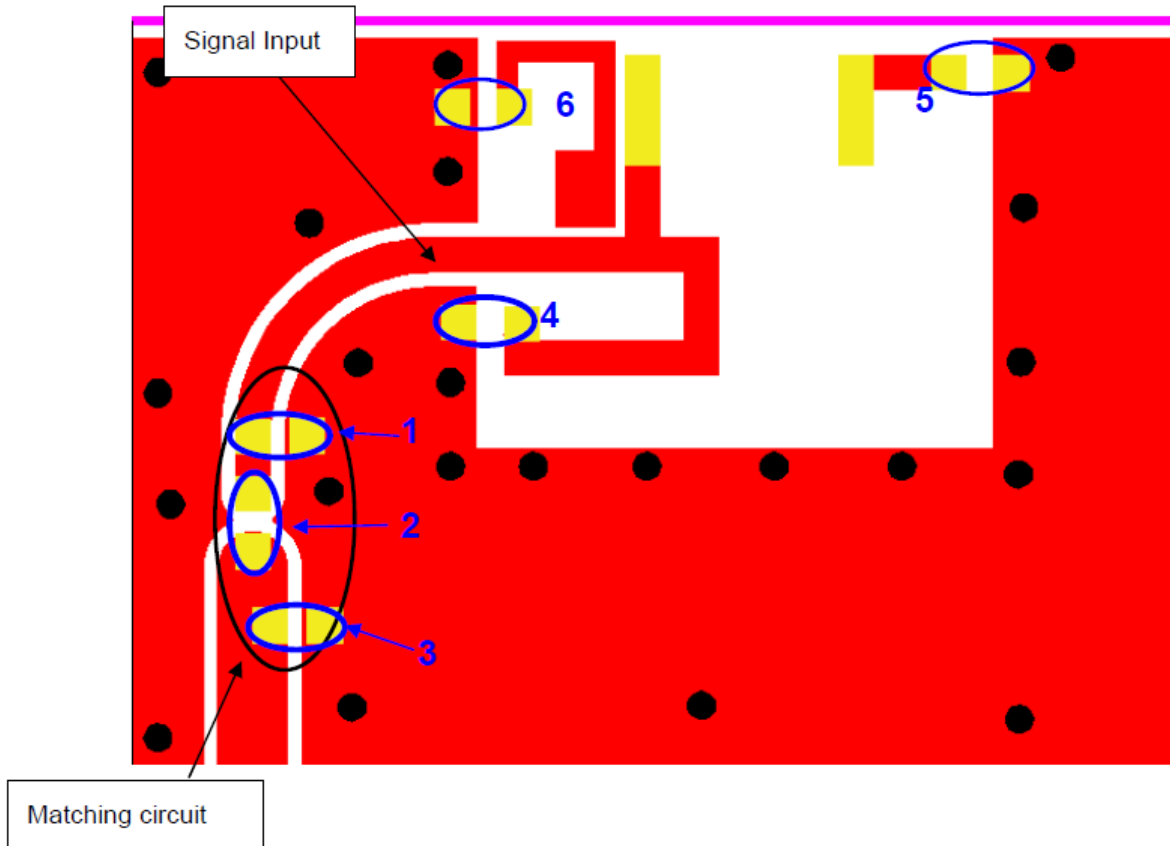
3D Efficiency Table

| Frequency(MHz) | 5150 | 5200 | 5250 | 5300 | 5350 | 5400 | 5450 | 5500 | 5550 | 5600 | 5650 | 5700 | 5750 | 5800 | 5850 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Efficiency(dB) | -1.5 | -1.4 | -1.8 | -1.5 | -1.4 | -1.8 | -2.0 | -1.6 | -1.7 | -1.6 | -1.4 | -1.6 | -1.8 | -1.5 | -1.9 |
| Efficiency(%) | 71.5 | 71.9 | 65.7 | 71.6 | 71.9 | 65.8 | 63.2 | 69.9 | 67.3 | 69.6 | 71.7 | 68.9 | 66.6 | 70.1 | 64.6 |
| Peak Gain(dBi) | 2.2 | 2.3 | 2.0 | 2.3 | 2.1 | 2.1 | 2.0 | 2.4 | 2.3 | 2.8 | 2.9 | 2.6 | 2.5 | 2.6 | 2.2 |

3D Efficiency vs. Table



Frequency Tuning & Matching Circuit

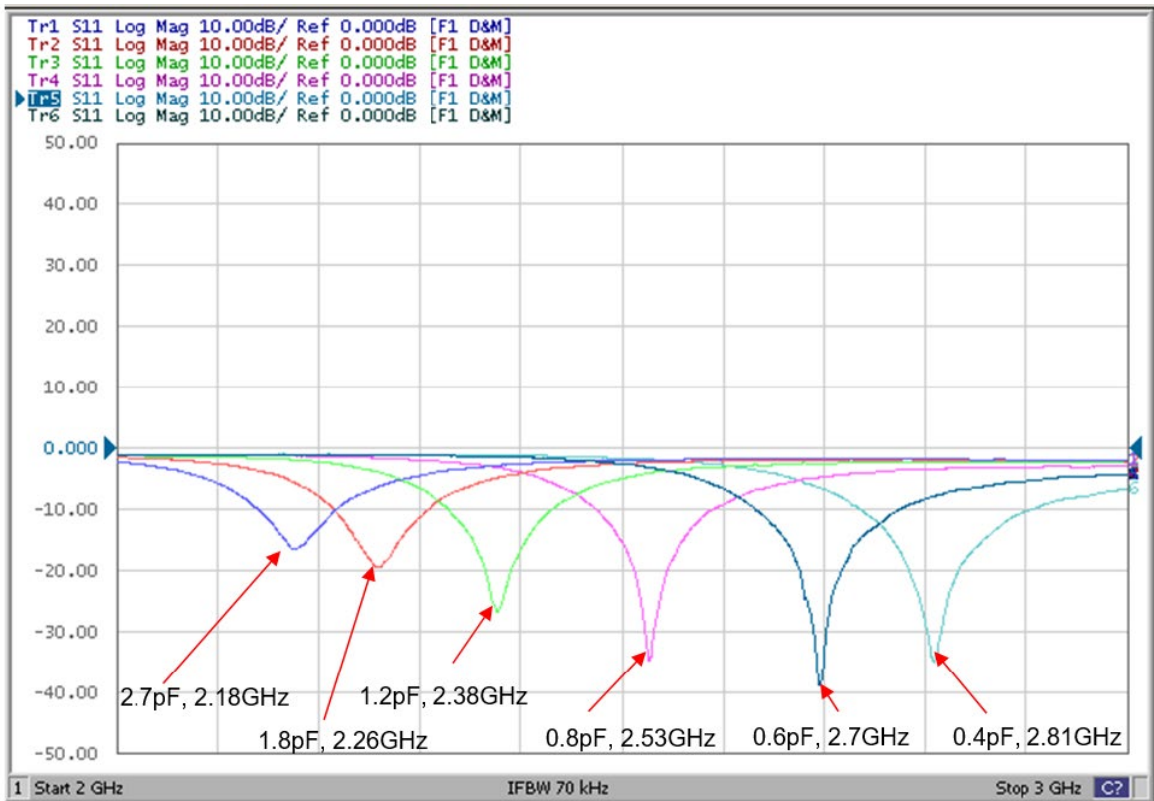
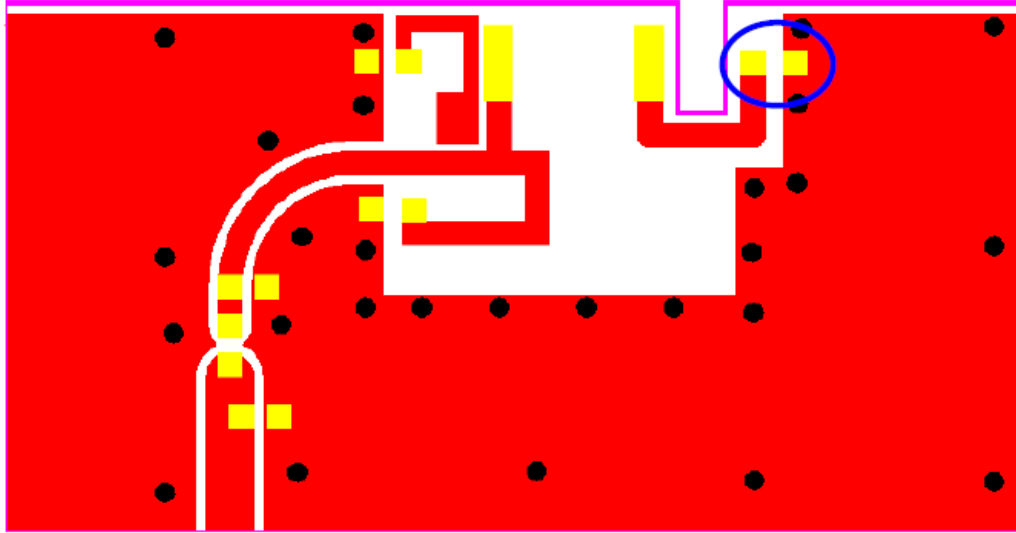




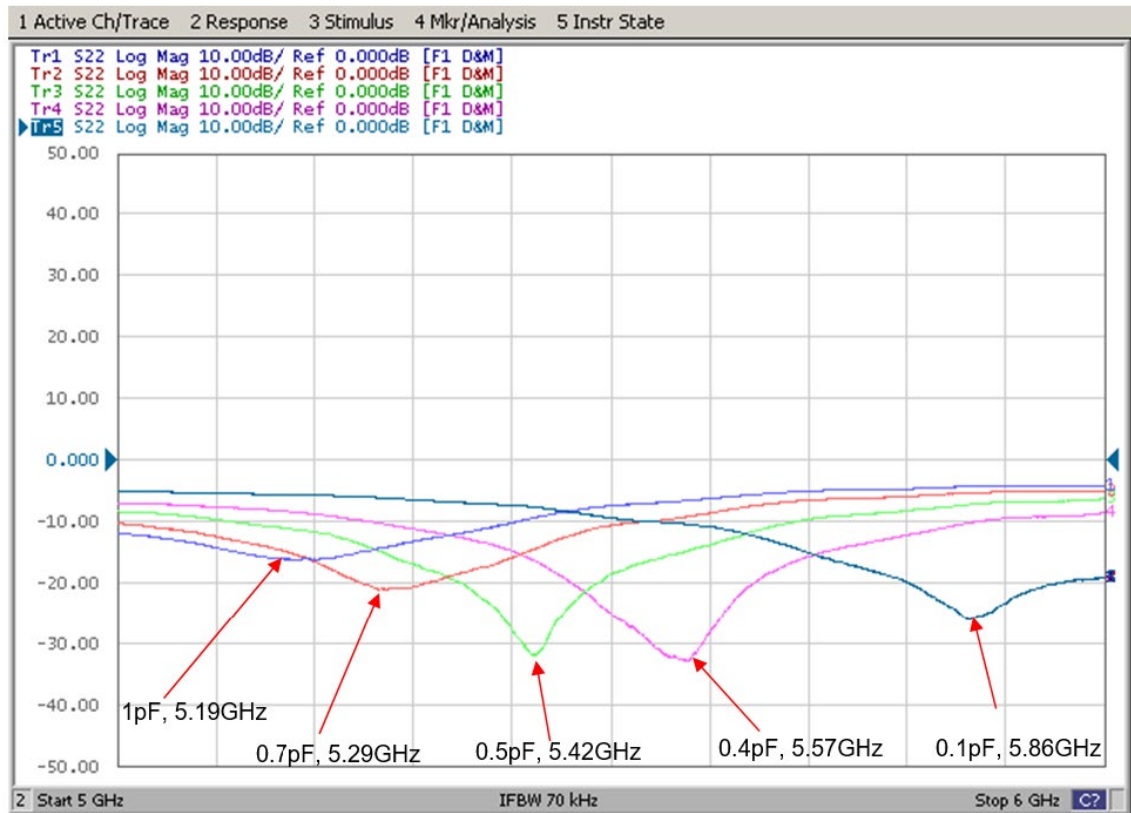
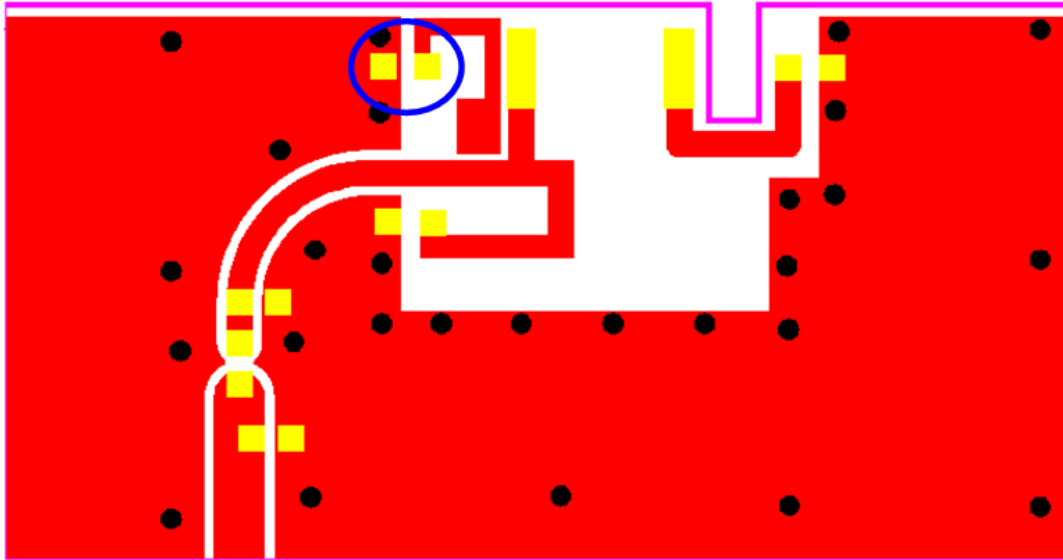
System Matching Circuit Component

| Location | Description | Tolerance | NIC Part Number |
|---------------------------|---------------|-----------|--|
| 1 | N/A | - | |
| 2 | 1 nH, (0402) | ±0.3nH | NML04D1N0TRF |
| 3 | 0.2pF, (0402) | ±0.05pF | NMC-Q0402NPO0R2A50TRPF |
| 4 Fine Tuning Elements | 22pF, (0402) | ±5% | NMC-Q0402NPO220J50TRPF |
| 5 Fine Tuning Elements | 1 pF, (0402) | ±0.05pF | NMC-Q0402NPO1R0A50TRPF |
| 6 Fine Tuning Elements | 0.2pF, (0402) | ±0.05pF | NMC-Q0402NPO0R2A50TRPF |

Frequency Tuning Element (2400 ~ 2500 MHz Band)



Frequency Tuning Element (5150 ~ 5850 MHz Band)



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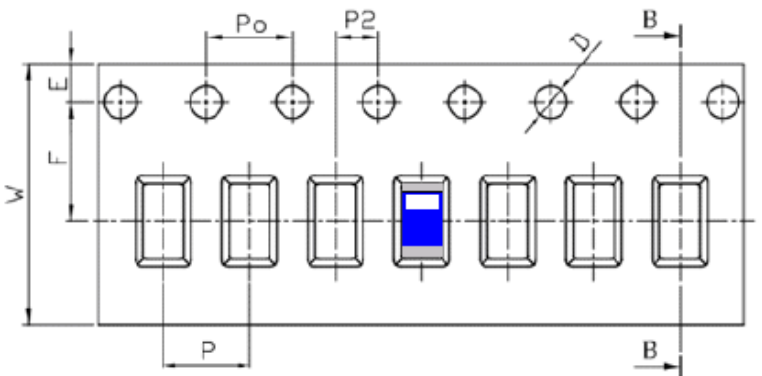
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Packing

- (1) Quantity/Reel: 5000 pcs/Reel
- (2) Plastic tape: Black Conductive Polystyrene.

a. Tape Drawing



b. Tape Dimensions (unit: mm)

| Feature | Specifications | Tolerances |
|---------|----------------|----------------|
| W | 12.00 | ±0.30 |
| P | 4.00 | ±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 |

c. Reel Drawing

