

PULSE 1608 Chip Antenna Measurement For Holder-Smart Ring Project

Wireless Components
LTCC R&D

September 1, 2022



- **Customer :Holder**
- **Project Name :Ring**
- **Application :Ring**
- **Antenna size :**
1.6 x 0.8 x 0.4 (mm) 2.4GHz chip antenna (ANT1608LL14R2400A)
- **PCB size : 40 * 7 mm**
- **Report date : 2022/09/01**
- **Version : 1**

Pulse Chip Antenna_1608 2.4 GHz Chip Antenna

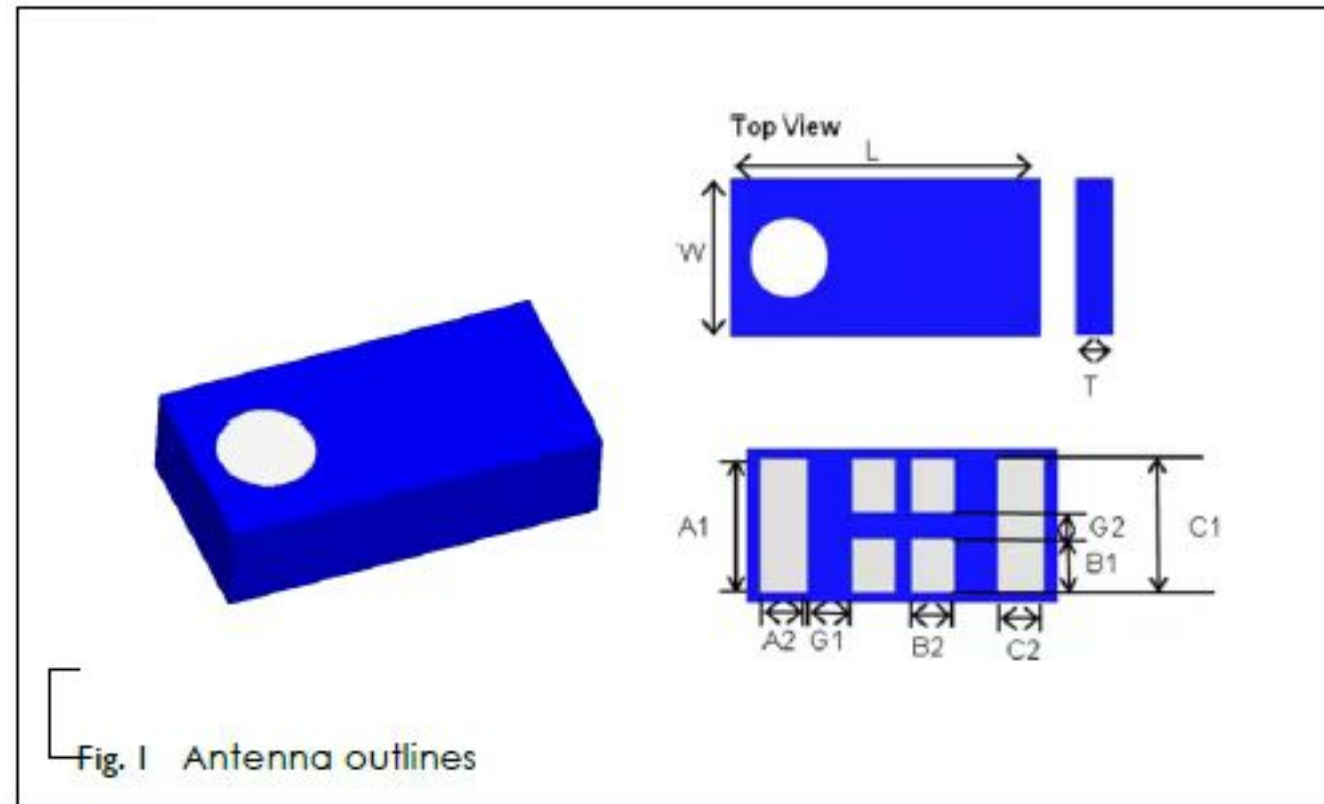
Customer PCB

	DIMENSION
L (mm)	1.6 ± 0.15
W (mm)	0.8 ± 0.15
T (mm)	0.4(max)
A1 (mm)	0.70 ± 0.15
A2 (mm)	0.25 ± 0.15
B1 (mm)	0.30 ± 0.15
B2 (mm)	0.25 ± 0.15
C1 (mm)	0.70 ± 0.15
C2 (mm)	0.25 ± 0.15
G1 (mm)	0.20 ± 0.05
G2 (mm)	0.10 ± 0.05

Table 3 Termination configuration

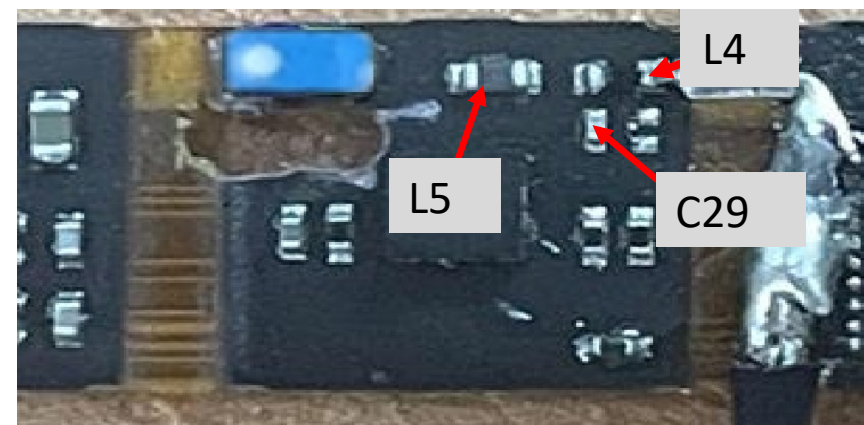
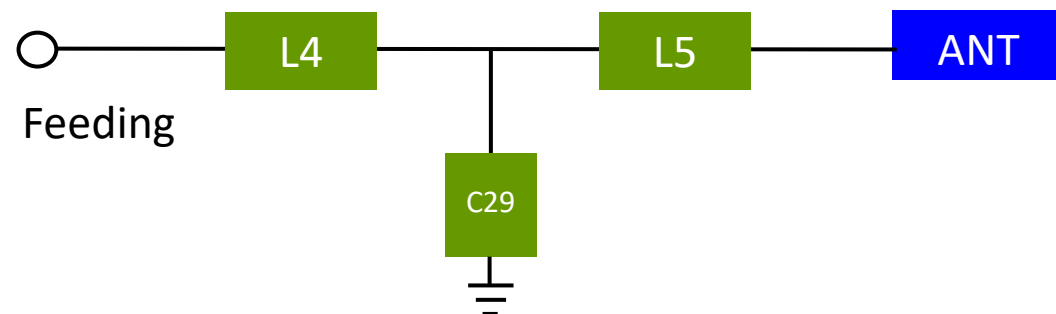
TERMINAL NAME	FUNCTION
A1, A2	Soldering Pad
C1, C2	Feeding Pad

OUTLINES



Matching Circuit

	Matching Value		
	L4	L5	C29
Plastic ring matching circuit	0ohm	5.1nH	1.8pF
Metal ring matching circuit	0ohm	3.9nH	1.8pF



Plastic ring

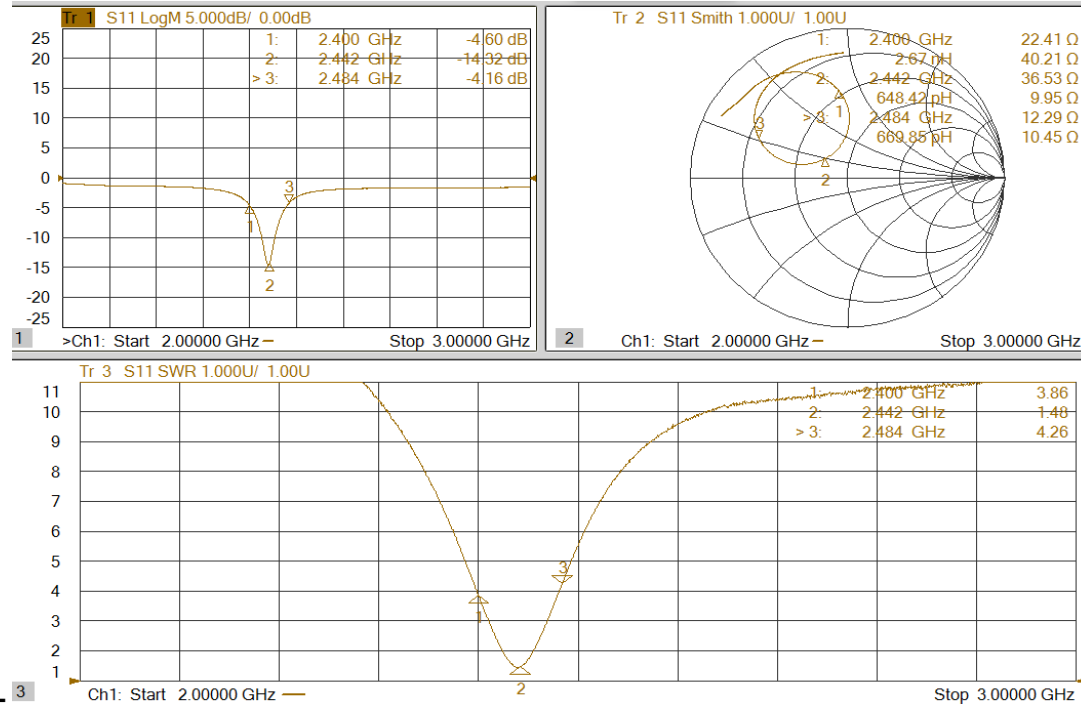


Metal ring

Measurement Data

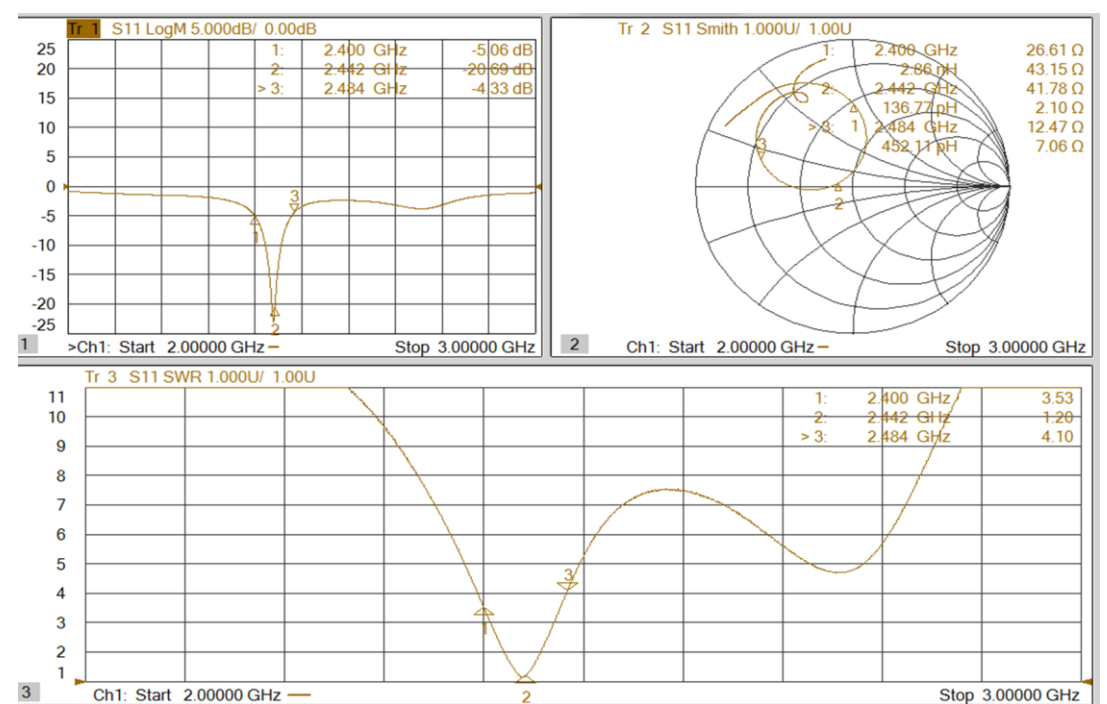
Plastic ring Data

Antenna	ANT1608LL14R2400A		
Frequency (MHz)	2400	2442	2484
R.L. (dB)	-4.60	-14.32	-4.16
Max. Gain (dBi)	-13.96	-12.42	-14.2
Avg. Gain (dB)	-16.00	-15.10	-16.20
Efficiency (%)	2.5	3.1	2.4



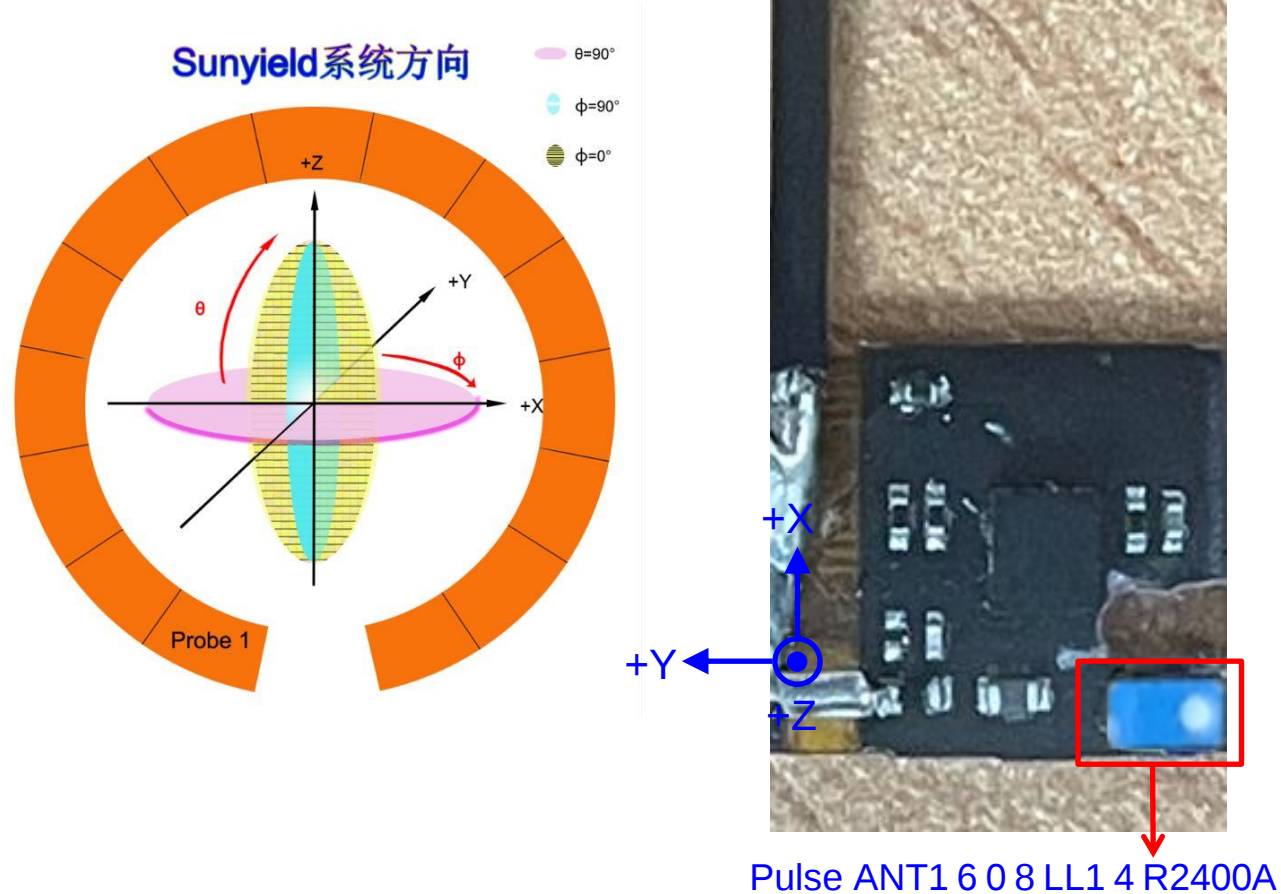
Metal ring Data

Antenna	ANT1608LL14R2400A		
Frequency (MHz)	2400	2442	2484
R.L. (dB)	-5.06	-20.69	-4.33
Max. Gain (dBi)	-15.53	-14.31	-16.36
Avg. Gain (dB)	-20.41	-18.26	-21.40
Efficiency (%)	0.90	1.50	0.7

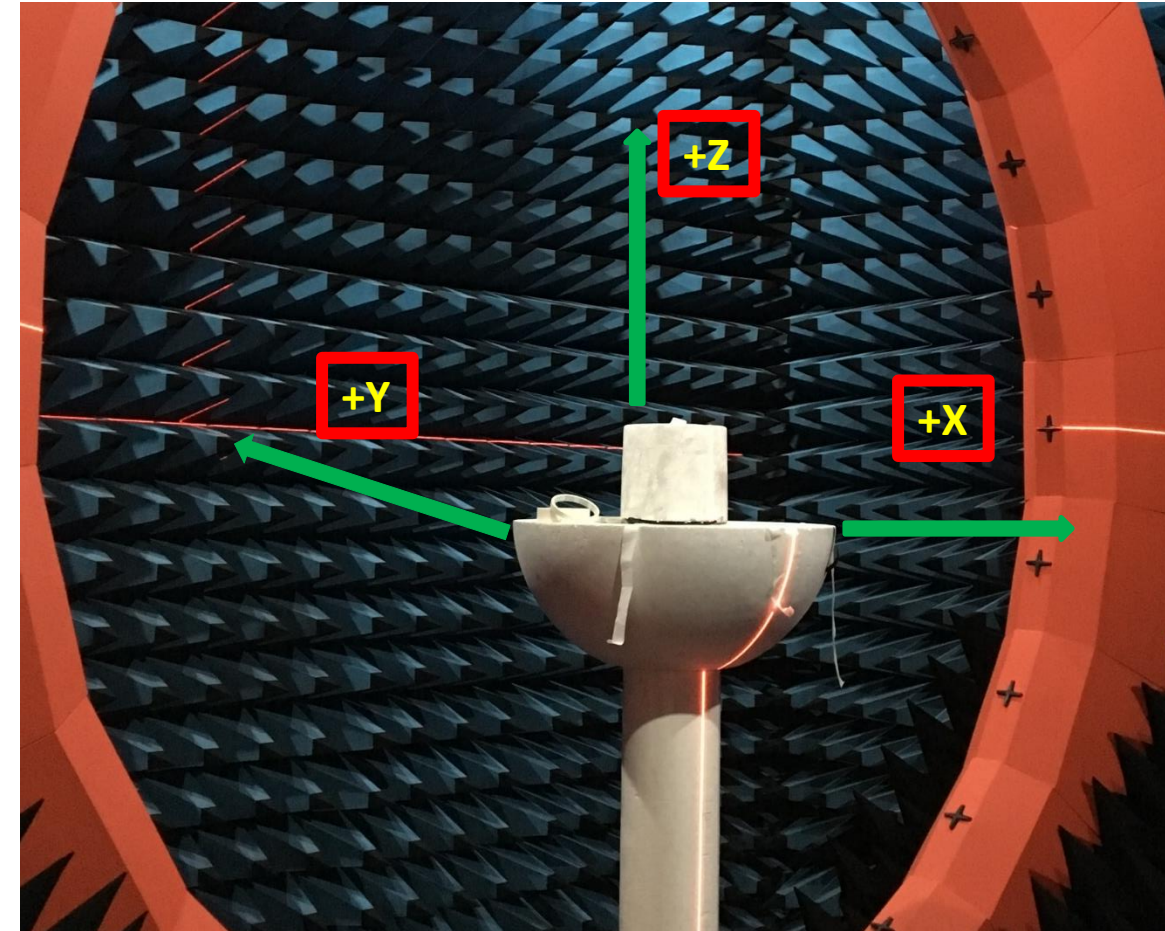


Measurement Configuration

[Direction Definition]

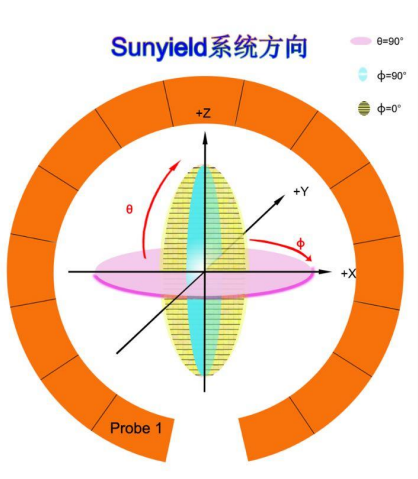


[Testing Environment]

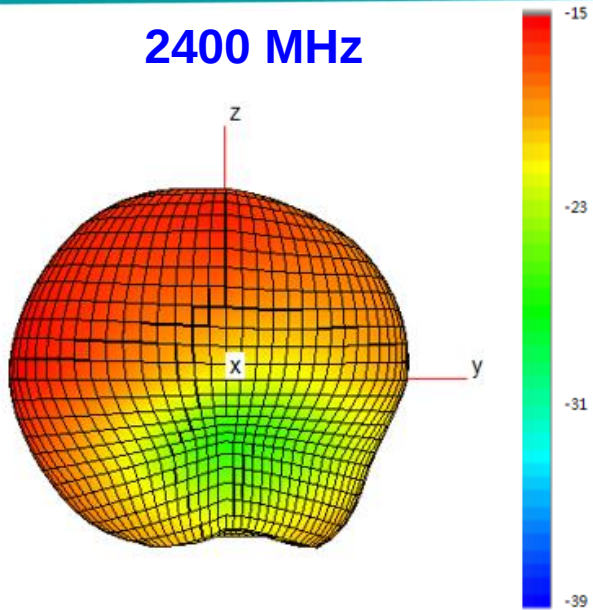


Radiation Pattern (3D)

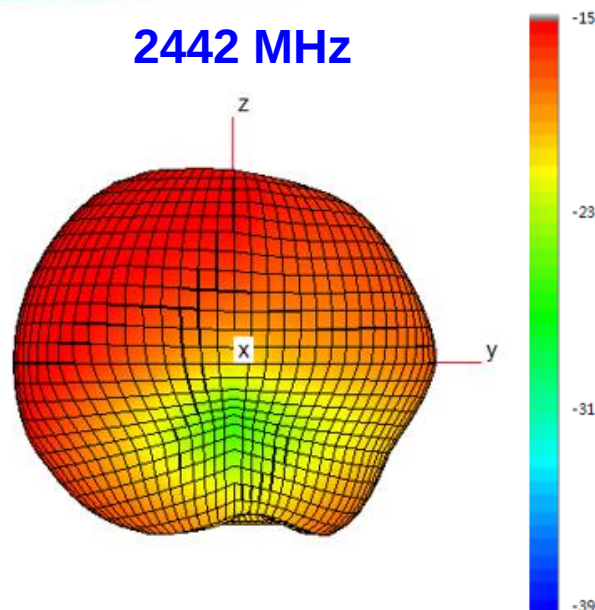
Plastic ring



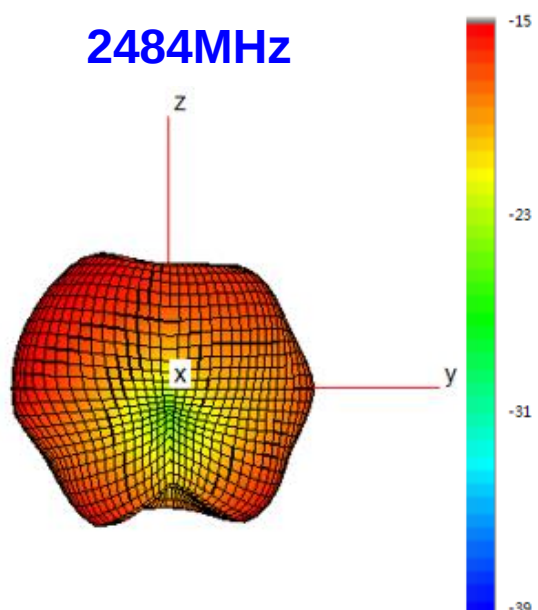
2400 MHz



2442 MHz

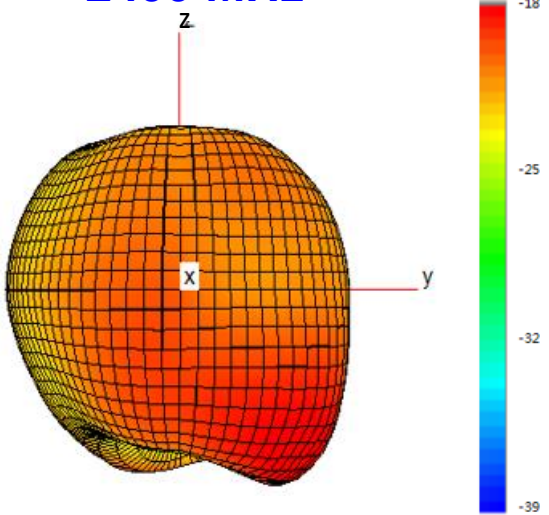


2484MHz

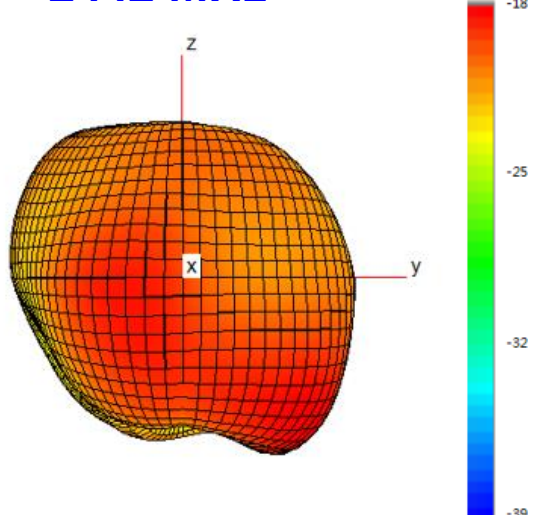


Metal ring

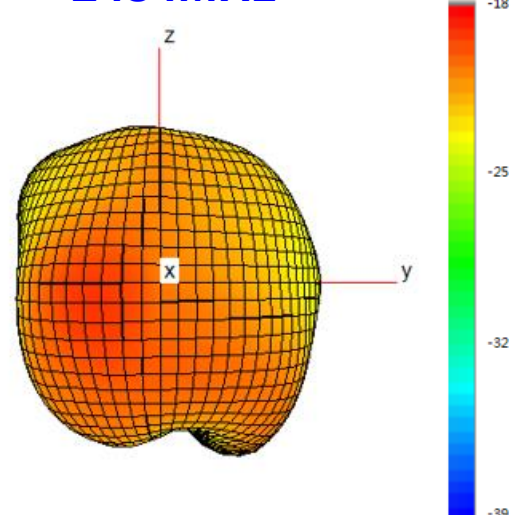
2400 MHz



2442 MHz



2484MHz



Even though it matches the intermediate frequency, But there may be some damage due to some Rework on the board, And the original matching circuit planning will affect the efficiency of the antenna in the clearance area.



Thank You

