

Version: SPEC-HEK20240927001
Effective date: 20240927

Dongguan Hekang Electronic co., LTD

Chip Antenna Specification

Customer name: 海福地	Manufacturer: Dongguan Hekang Electronic co., LTD
Customer Part Number: N/A	Product model : Chip antenna
Part name: R16	Part Number : ANT3216R2400A1L0

This Specifications is received

SIGN:

DATE:

Drawn by	Checked by	Approved by
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Address: ROOM 301, BUILDING 7, SHIDAI ZHIRUI TECHNOLOGY, NO. 159 LUWU SANLIAN ROAD,
CHANGPING TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

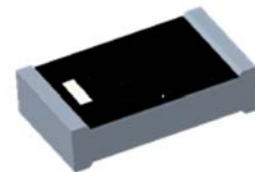
2.4GHz 3216 Chip Antenna: ANT3216R2400A1L0

Application:

WLAN, 802.11b/g, Bluetooth, etc...

Features

SMD, high reliability, ultra compact, Omni-directional...



Part number

ANT 3216 R 2400 A1 L0
(1) (2) (3) (4) (5) (6)

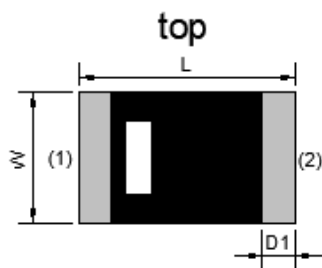
(1) Product Code	Chip Antenna
(2) Size Code	3.2x1.6mm
(3) Packing	Tape and reel
(4) Frequency	2.4GHz
(5) Series	A1
(6) Type	L0

Electrical Specification

Working Frequency Range	2400 ~2484 MHz
Peak Gain	1.08dBi (Typ.)
Impedance	50 Ohm
VSWR	2.5(Max)
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Operation Temperature(°C)	-40~85°C

The specification is defined on HEK EVB.

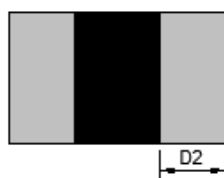
Dimension and Terminal Configuration



Dimension (mm)	
L	3.20+-0.15
W	1.60+-0.15
T	0.60+-0.10
D1	0.50+-0.15
D2	1.30+-0.15

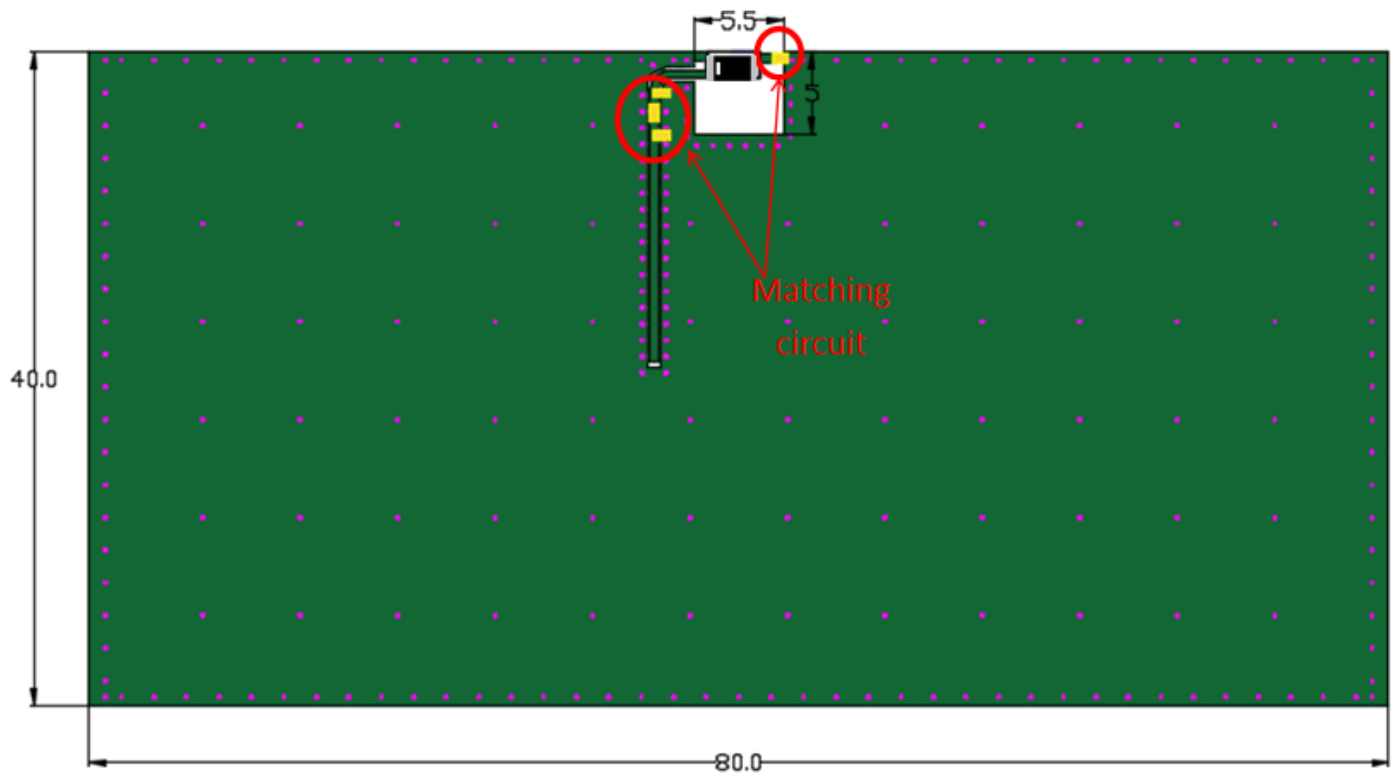
No.	Terminal Name
1	Feeding
2	Ground

btm

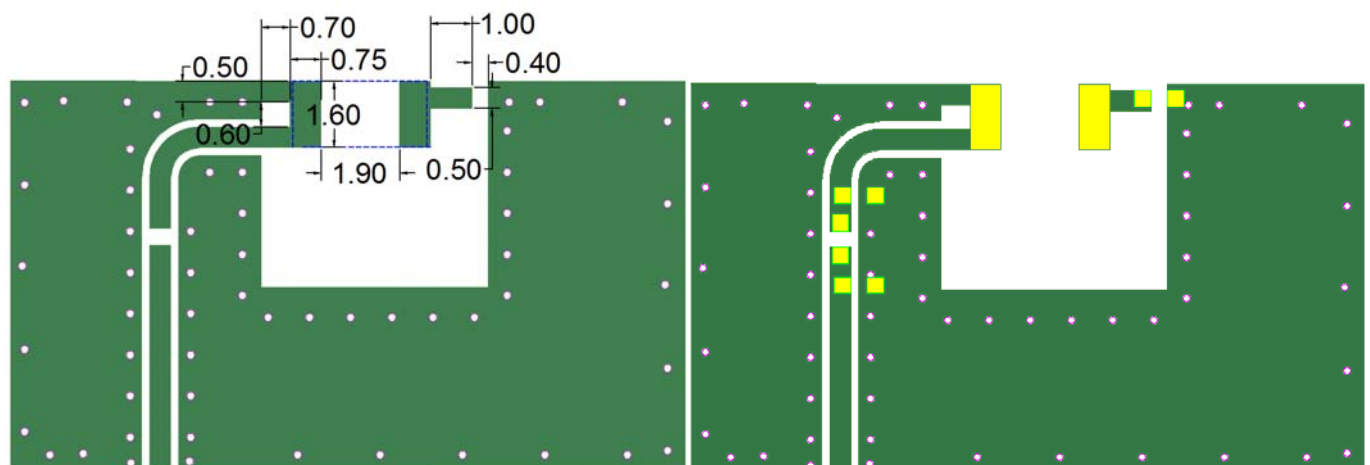


Evaluation Board Reference

PCB Dimension



Antenna Layout Reference

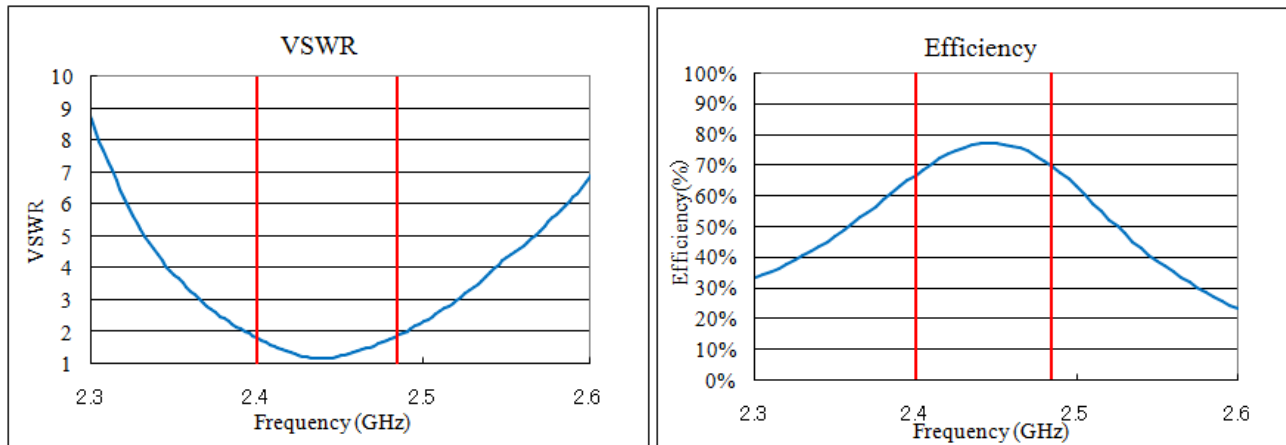


Unit : mm

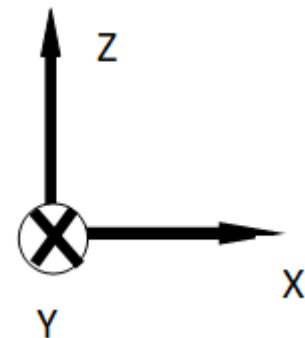
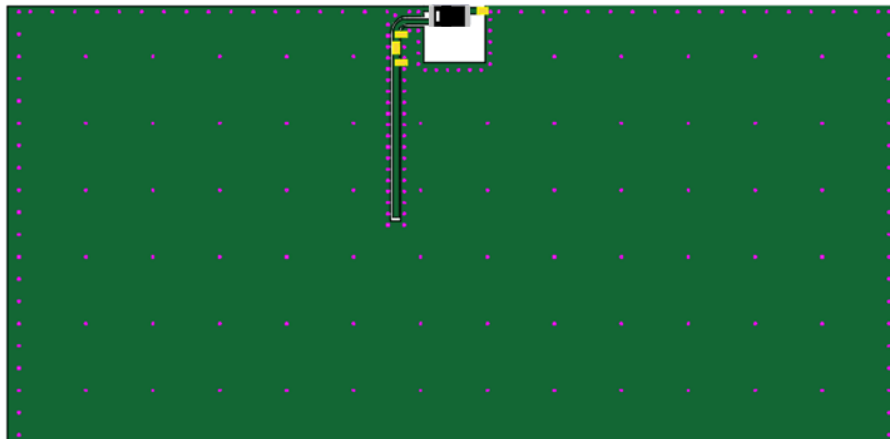
2.4GHz 3216 Chip Antenna: ANT3216R2400A1L0

Electrical Characteristics

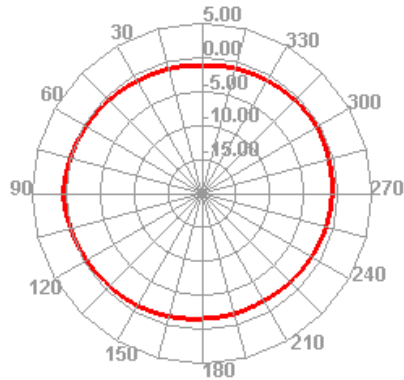
VSWR



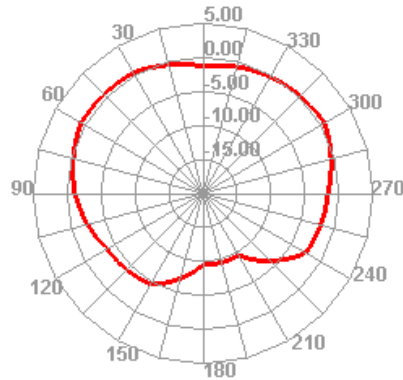
Radiation Pattern



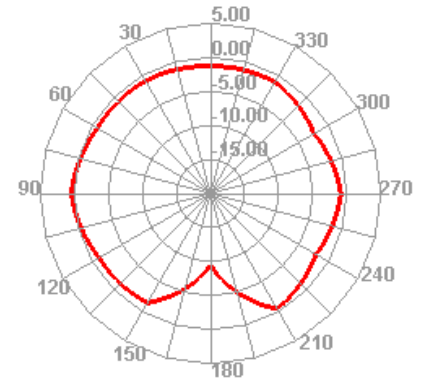
2441.000MHz H



2441.000MHz E1



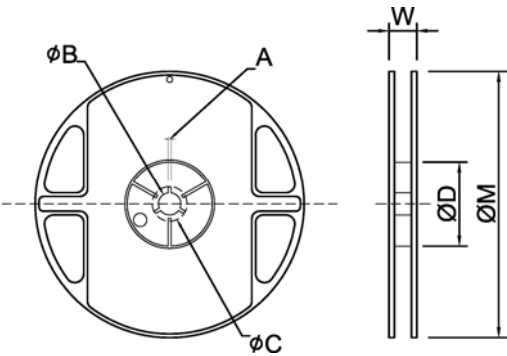
2441.000MHz E2



Taping Specifications

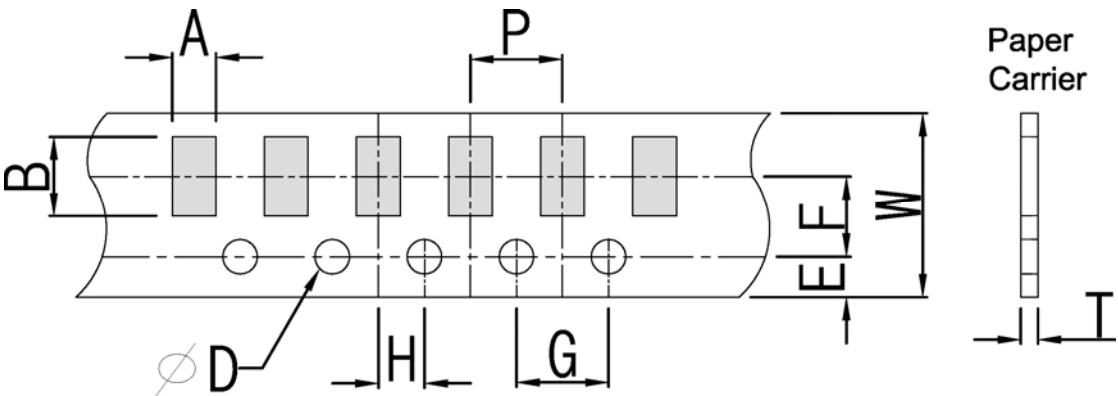
Reel and Taping Specification

Reel Specification



TYPE	SIZE		A	φ B	φ C	φ D	W	φ M
3216	7"	3K/Reel	2.0±0.5	13.5±1.0	21±1.0	60±1.0	11.5±2.0	178±2.0

Taping Specification

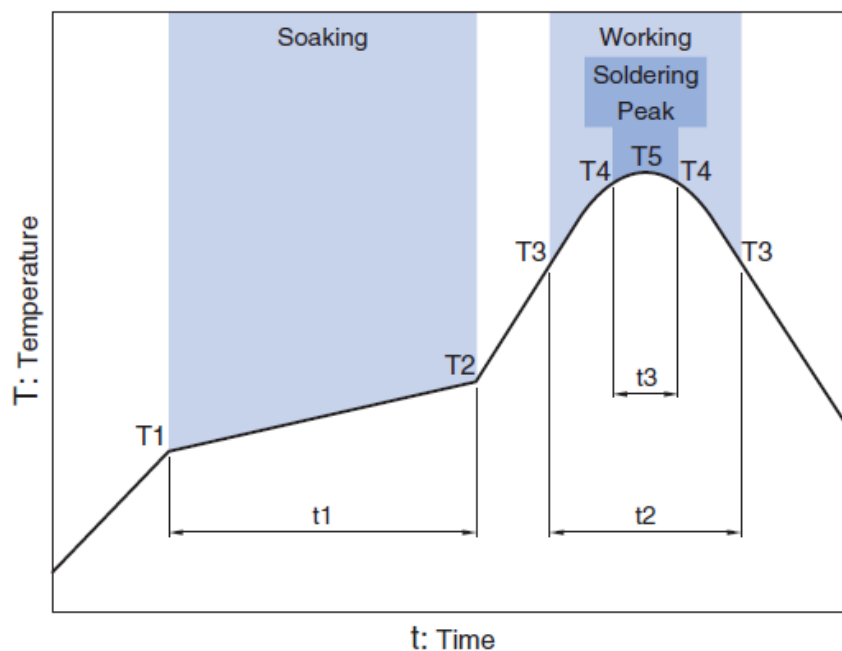


Packaging	Type	A	B	W	E	F	G	H	T	φD	P
Paper Type	3216	1.90±0.20	3.50±0.20	8.0±0.20	1.75±0.10	3.5±0.05	4.0±0.10	2.0±0.05	0.75±0.10	1.50±0.10	4.0±0.1

2.4GHz 3216 Chip Antenna: ANT3216R2400A1L0

Recommended Reflow Profile

Pb free solder



Soaking			Working		Soldering		Peak
Temp.		Time	Temp.	Time	Temp.	Time	Temp.
T1	T2	t1	T3	t2	T4	t3	T5
150°C	180°C	60 to 120sec	230°C	more than 30sec	247 to 253°C	within 10sec	260°C Max.

Revision History

Version	Date	Description
Ver.01	Apr.2023	New issue.

Apr. 2023 Ver.01

Dongguan Hekang Electronic co., LTD

Antenna matching report



Model Name: R16

Frequency: BT(2402~2480MHz)

Date: 2024.05.15

Number: 20240515001

Producer: FAE

Address: ROOM 301, BUILDING 7, SHIDAI ZHIRUI TECHNOLOGY, NO. 159 LUWU SANLIAN ROAD, CHANGPING TOWN, DONGGUAN CITY, GUANGDONG PROVINCE



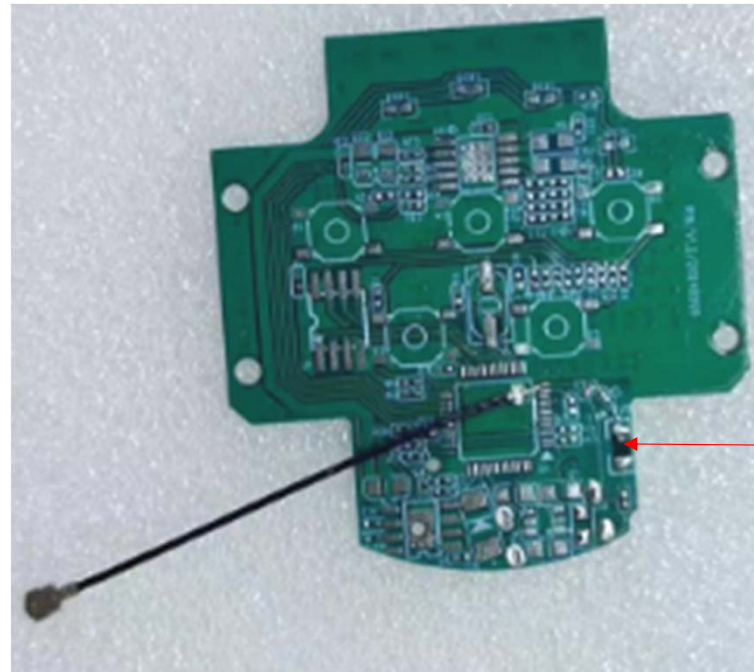
Outline

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Appearance of customer Sample

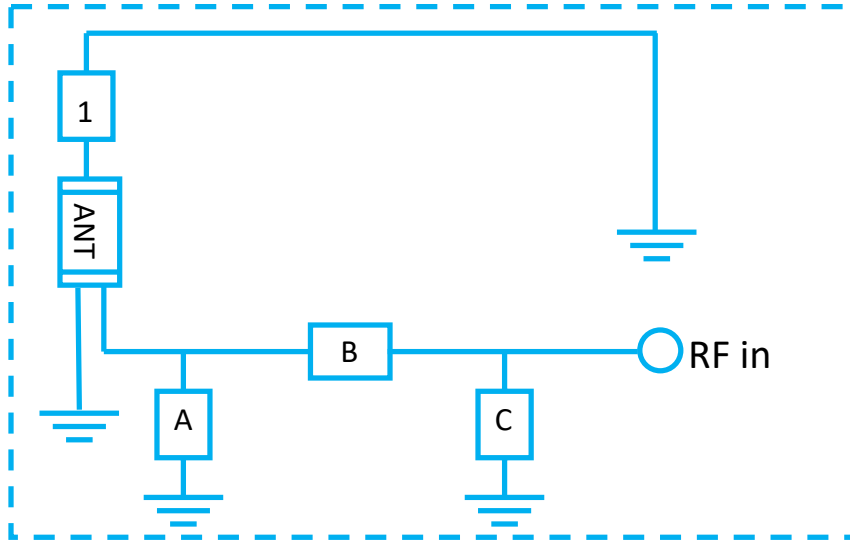


3216 Chip Antenna



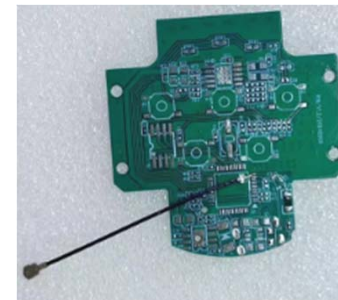
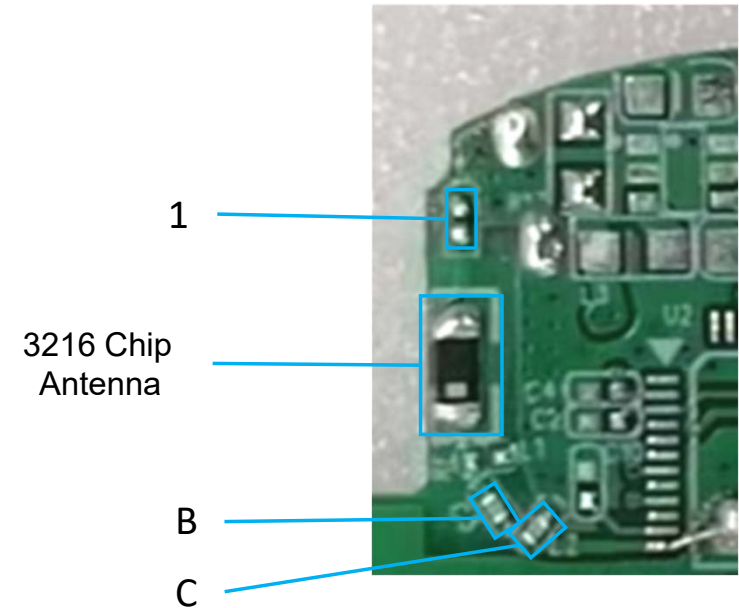


Matching parameters



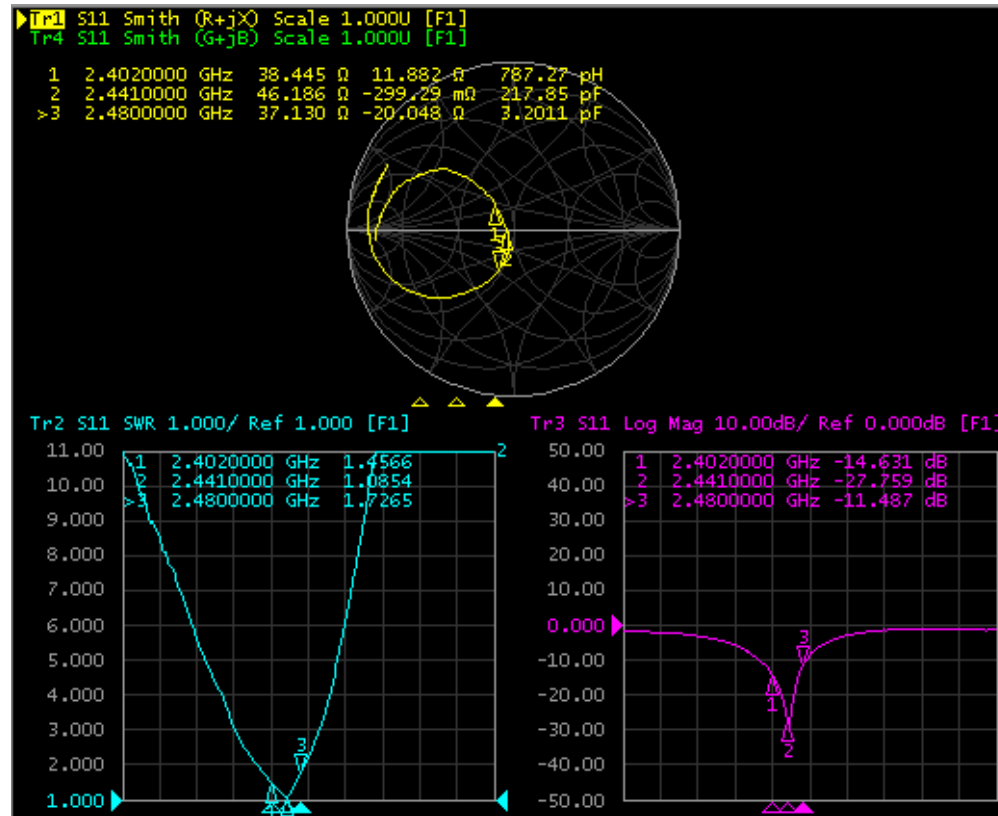
Antenna : ANT3216R2400A1L0

NO	Component	Brand	Description	P/N
1	Inductor	muRata	0402 3.9nH $\pm$ 0.1nH	LQG15HN3N9B02
A	OPEN	N/A	N/A	N/A
B	Capacitor	muRata	0402 0.4pF $\pm$ 0.05pF	GRM1555C1HR40WA16
C	Capacitor	muRata	0402 1.0pF $\pm$ 0.05pF	GRM1555C1H1R0WA16





Antenna S parameters



Item	Value		
	2402(MHz)	2441(MHz)	2484(MHz)
Smith(Ω)	38.44	46.18	37.13
Return loss(dB)	-14.63	-27.75	-11.48
VSWR	1.45	1.08	1.72





Antenna Passive parameter

Frequency (MHz)	Efficiency (%)	Mean Gain (dBi)	Peak Gain (dBi)
2400	54.8	-2.61	0.28
2410	55.3	-2.57	0.37
2420	55.56	-2.55	0.45
2430	56.46	-2.48	0.6
2440	57.2	-2.43	0.7
2450	56.97	-2.44	0.72
2460	57.36	-2.41	0.81
2470	57.11	-2.43	0.82
2480	55.83	-2.53	0.76
Average value	56.28	-2.49	0.61





Conclusion

- The antenna's return loss is greater than 10 dB;
- The average antenna efficiency is greater than 50%, and the 2440MHz efficiency is greater than 55%;



Thanks

