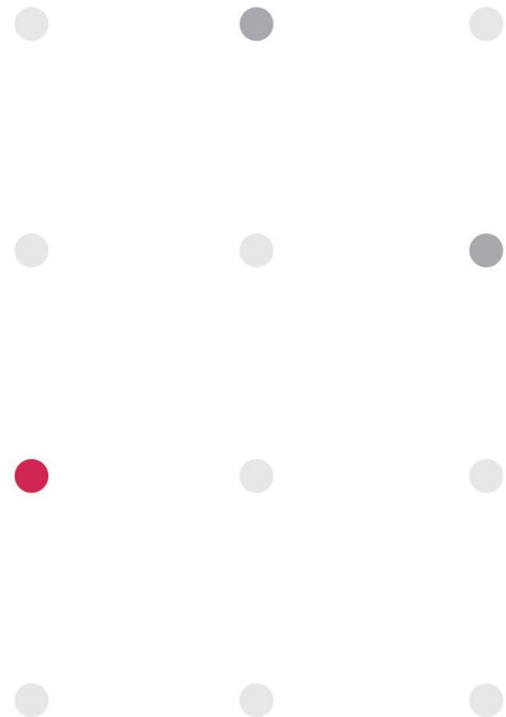




PASSIVE SYSTEM ALLIANCE
INPAQ TECHNOLOGY CO., LTD.



Smart Ring (US 6)

Presented by

Zheng Chang

2025/04/24



Version	Date	Description	Author
V01	2025/04/24	New Release	Zheng Chong

OUTLINE

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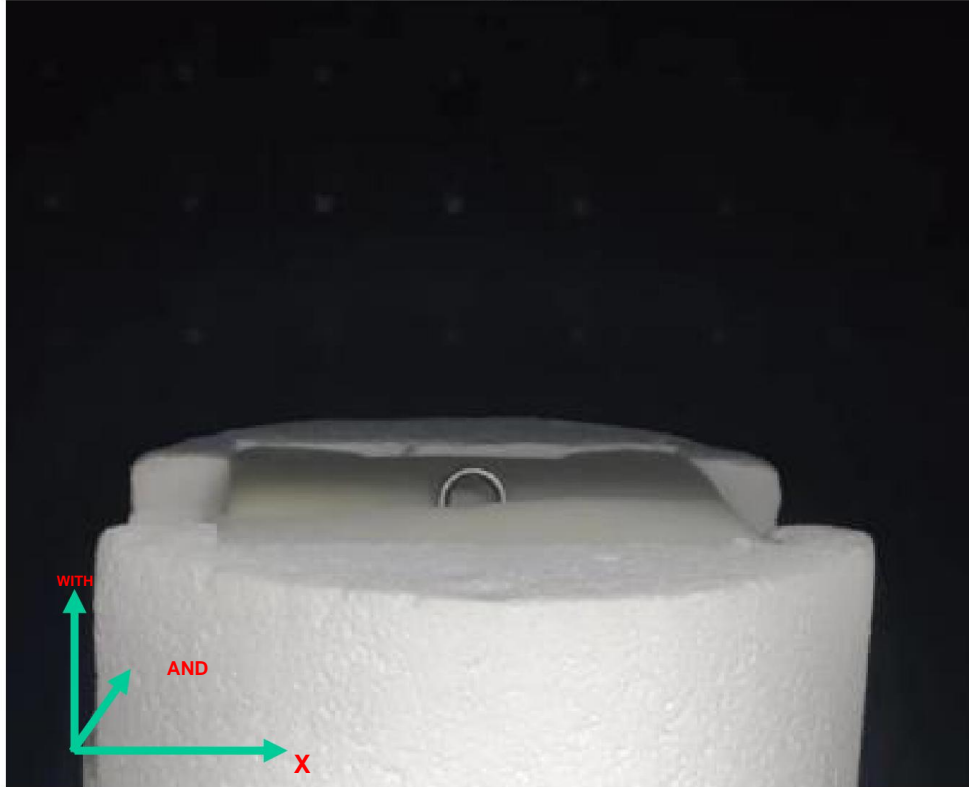
2.4 3D Radiation Patterns

3. Summary

1. Measurement Information

Free Space

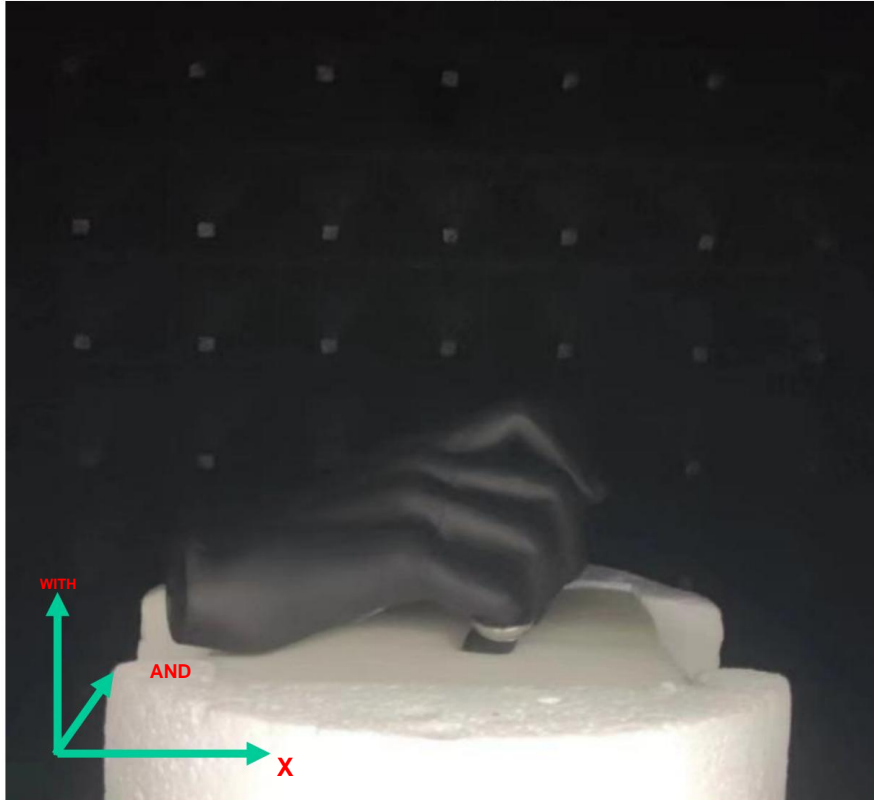
1.1 Experimental Setup



1. Measurement Information

Hand Model

1.1 Experimental Setup



1. Measurement Information

1.2 Antenna Solution Detail



Shell diameter: 22.5mm Metal

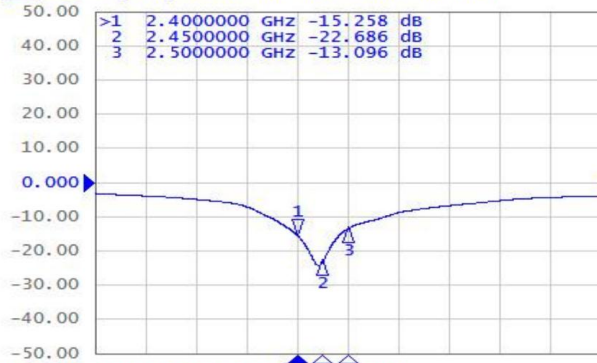
shell antenna, use internal screws to fix the motherboard and the outer frame

2. Antenna Characteristics

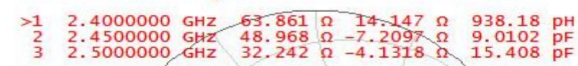
Free Space

2.1 S-Parameter

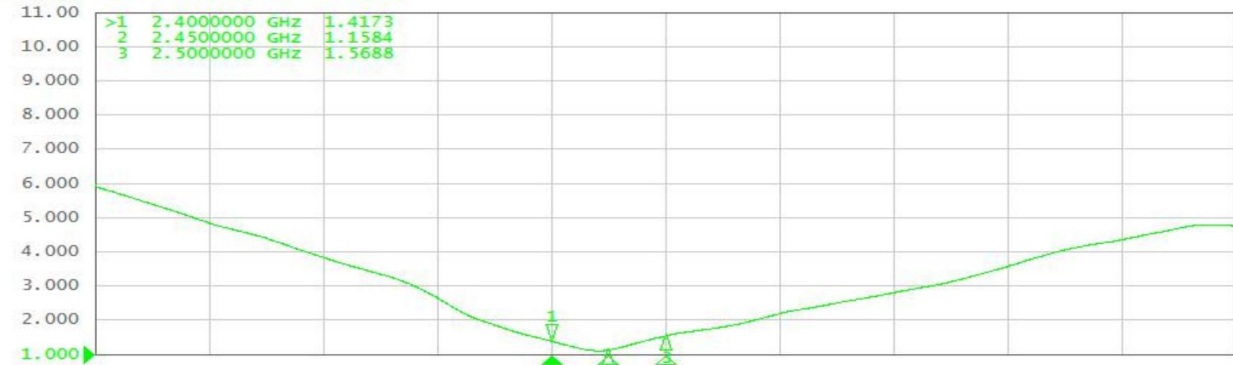
Tr1 S22 Log Mag 10.00 dB/ Ref 0.000 dB [F1]



Tr2 S22 Smith (R+jX) Scale 1.000 u [F1]



Tr3 S22 SWR 1.000 / Ref 1.000 [F1]

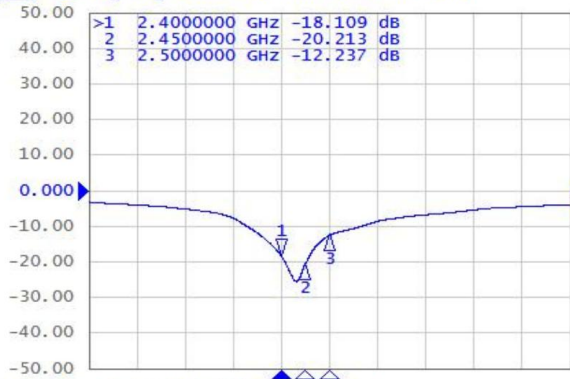


2. Antenna Characteristics

Hand Model

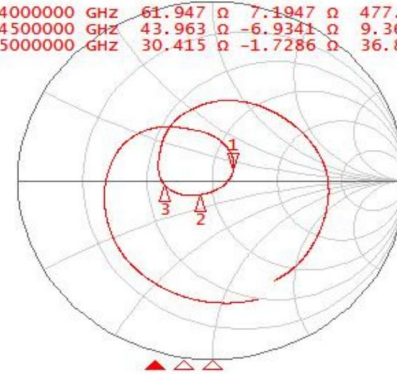
2.1 S-Parameter

Tr1 S22 Log Mag 10.00 dB/ Ref 0.000 dB [F1]

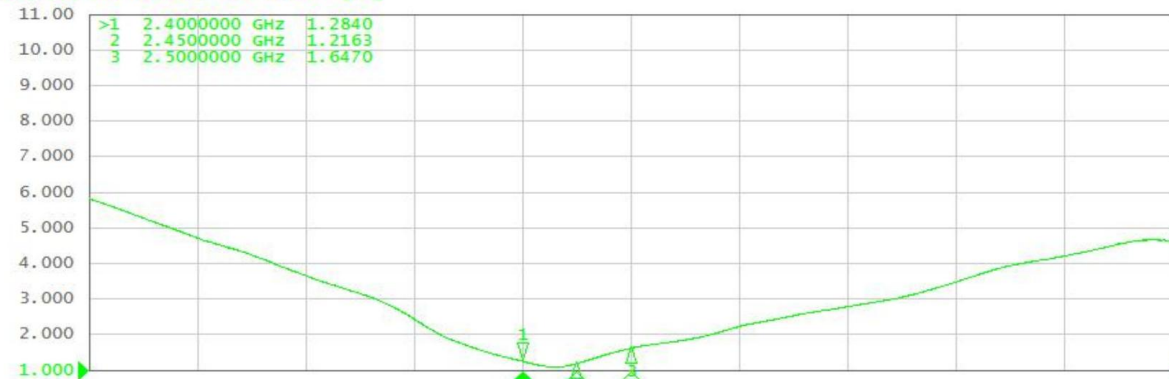


Tr2 S22 Smith (R+jX) Scale 1.000 U [F1]

>1	2.400000	GHZ	61.947	Ω	7.1947	Ω	477.11	pH
2	2.450000	GHZ	43.963	Ω	-6.9341	Ω	9.3684	pF
3	2.500000	GHZ	30.415	Ω	-1.7286	Ω	36.828	pF



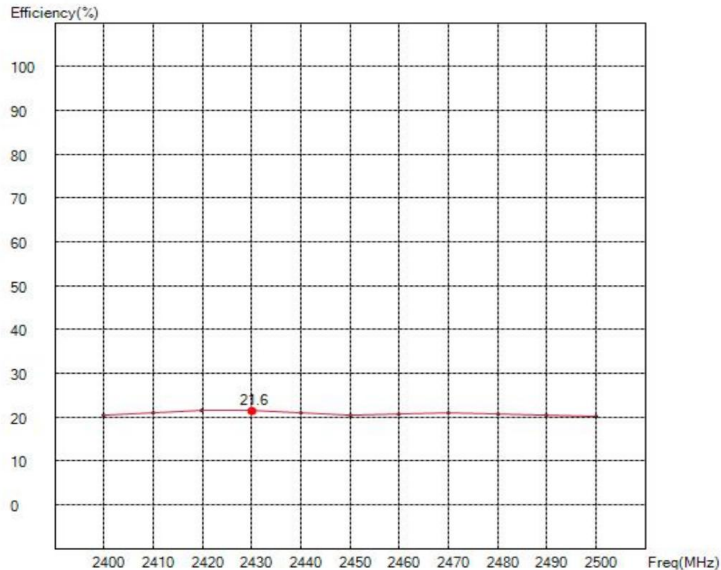
Tr3 S22 SwR 1.000 / Ref 1.000 [F1]



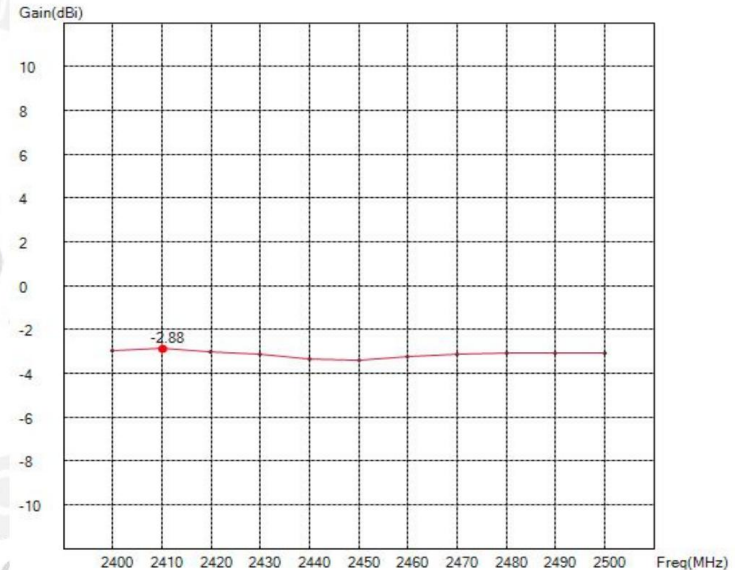
2. Antenna Characteristics

Free Space

2.2 Antenna Efficiency and Peak Gain



Maximum Efficiency at 2430MHz : 21.6%

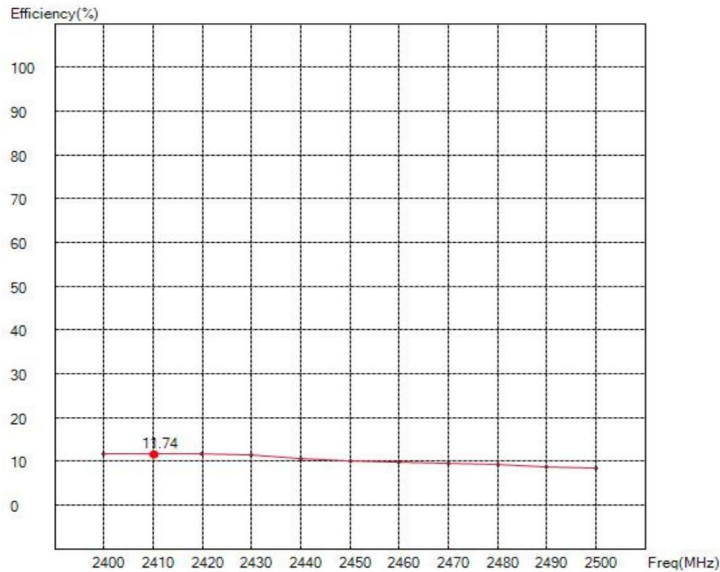


Maximum Peak Gain at 2410MHz :-2.88 dBi

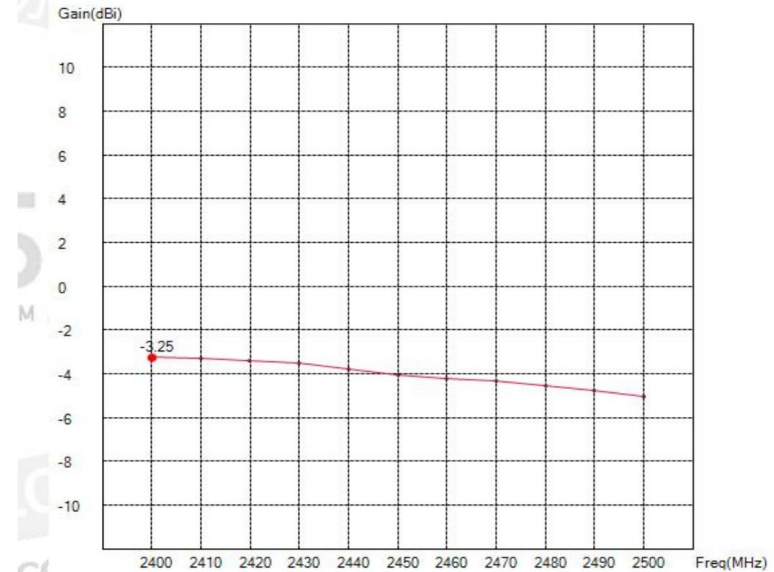
2. Antenna Characteristics

Hand Model

2.2 Antenna Efficiency and Peak Gain



Maximum Efficiency at 2410MHz : 11.74%



Maximum Peak Gain at 2400MHz : -3.86 dBi

2. Antenna Characteristics

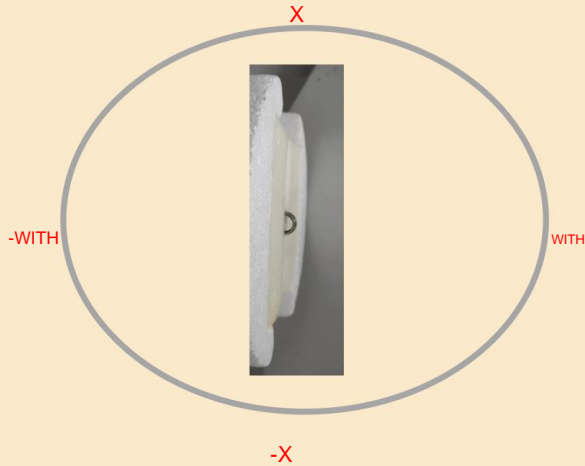
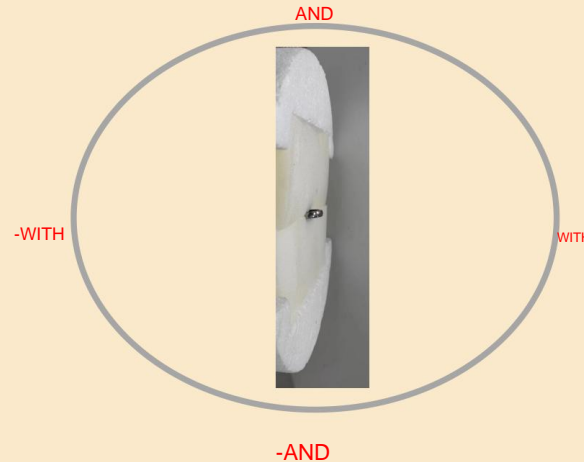
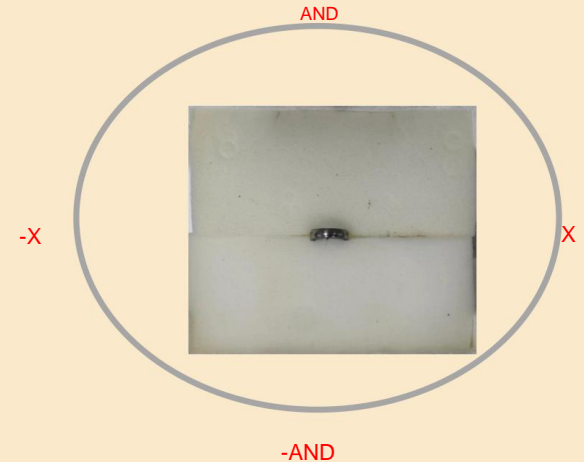
2.2 Antenna Efficiency and Peak Gain

	ANT(Free Space)		ANT(Hand Model)	
Frequency (GHz)	Efficiency (%)	Peak gain (dBi)	Efficiency (%)	Peak gain (dBi)
2.4	20.44	-3.60	11.71	-3.86
2.45	20.46	-3.43	10.06	-4.53
2.5	20.25	-3.10	8.41	-5.29

2. Antenna Characteristics

Free Space

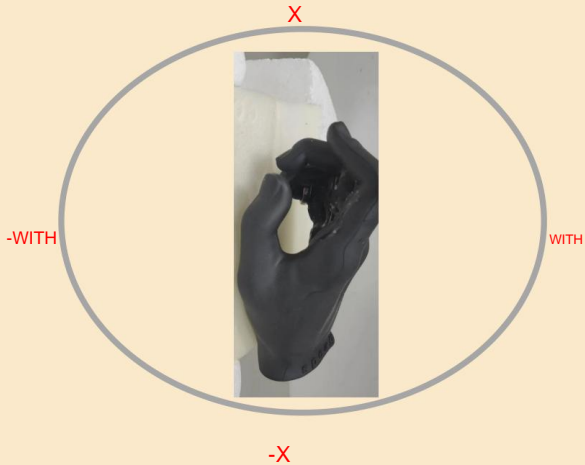
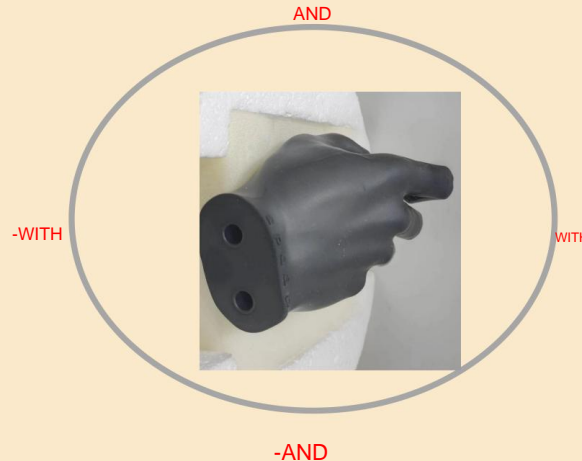
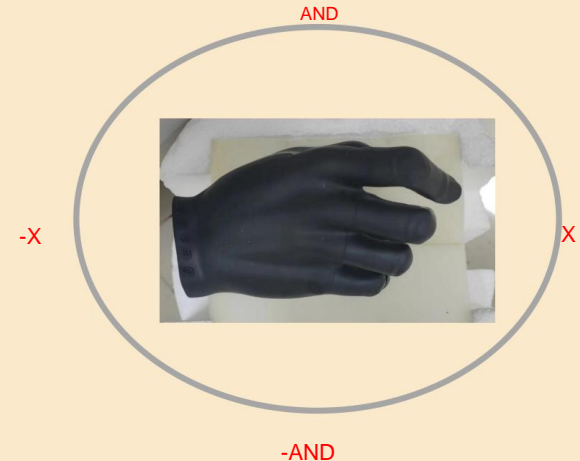
2.3 3 views of antenna

X-Z plane**Y-Z plane****X-Y plane**

2. Antenna Characteristics

Hand Model

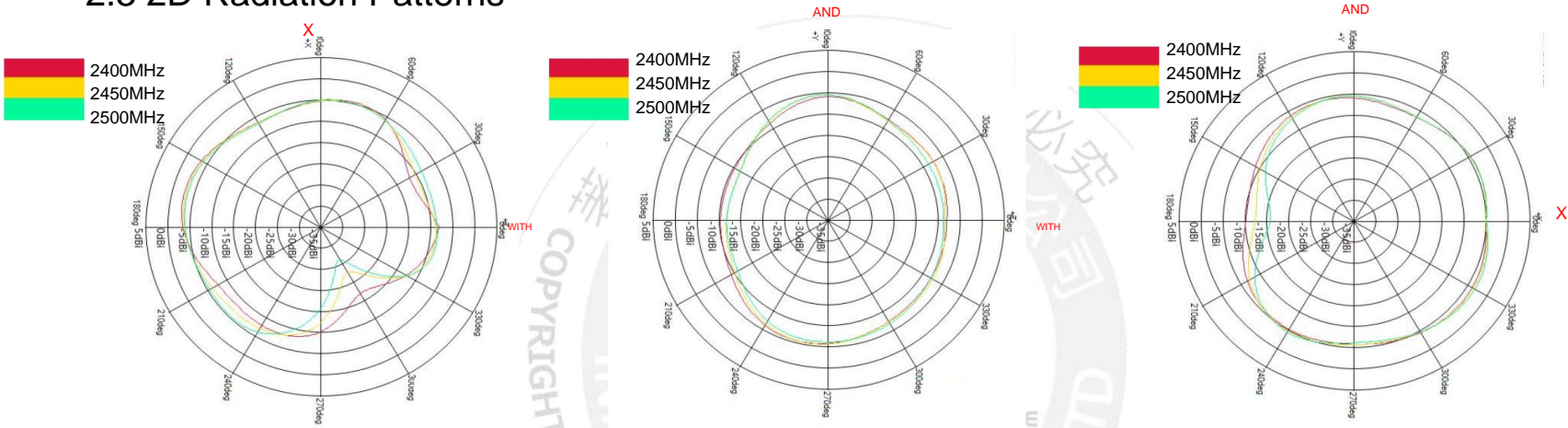
2.3 3 views of antenna

X-Z plane**Y-Z plane****X-Y plane**

2. Antenna Characteristics

2.3 2D Radiation Patterns

Free Space

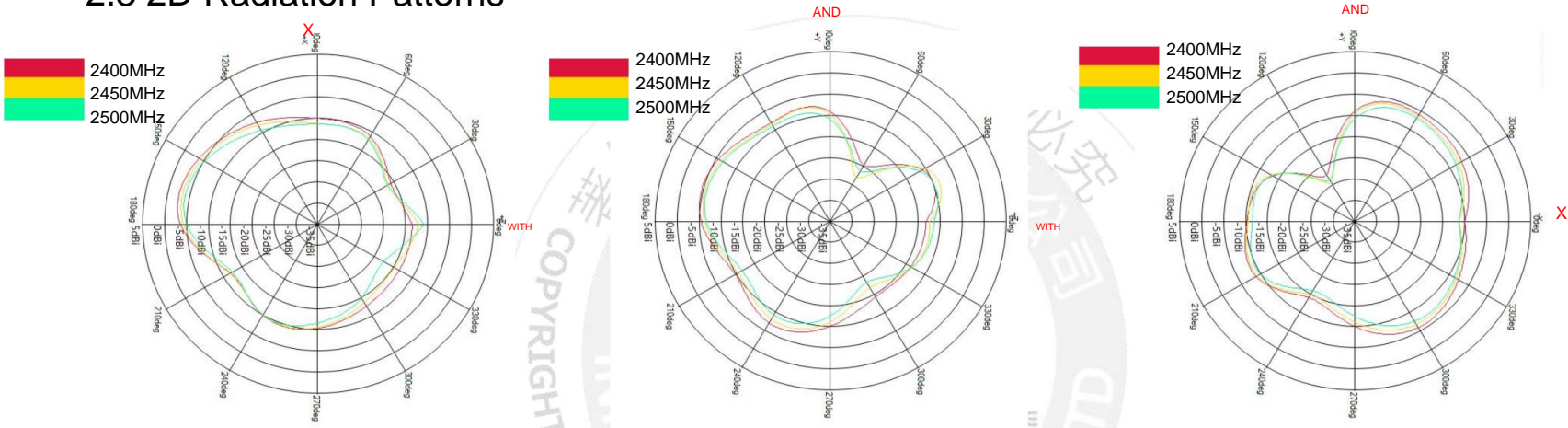


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
2400	-3.60	-8.14	-5.79	-7.34	-3.85	-5.86
2450	-3.89	-8.09	-5.32	-7.39	-3.43	-5.88
2500	-4.11	-7.83	-5.39	-7.65	-3.10	-6.00

2. Antenna Characteristics

2.3 2D Radiation Patterns

Hand Model

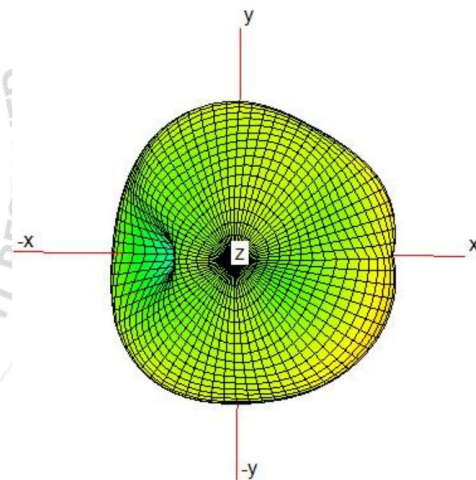
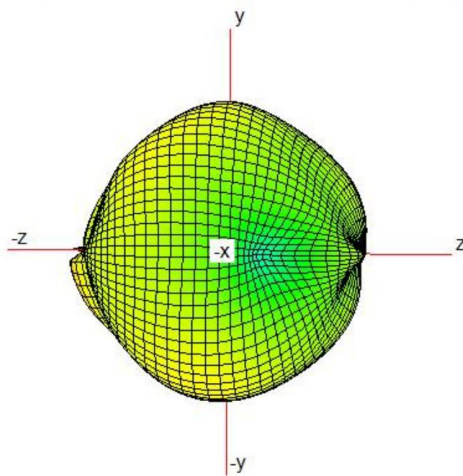
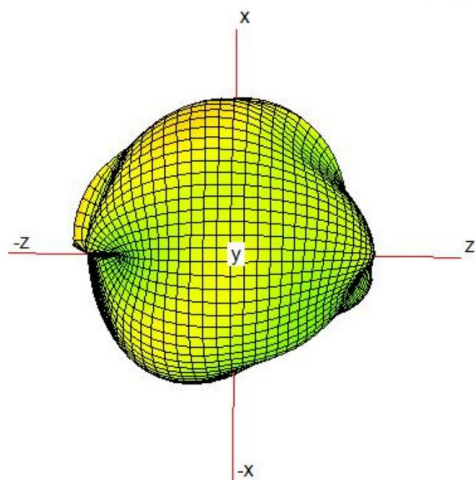
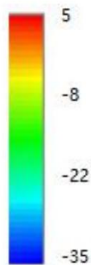


	ZX plane		ZY plane		XY plane	
Frequency [MHz]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]	Max Value [dBi]	Average [dBi]
2400	-3.86	-11.21	-5.65	-10.70	-5.75	-8.95
2450	-4.53	-11.51	-6.41	-11.14	-6.32	-9.63
2500	-5.29	-11.85	-6.86	-11.78	-6.75	-10.32

2. Antenna Characteristics

2.4 3D Radiation Patterns

2450MHz



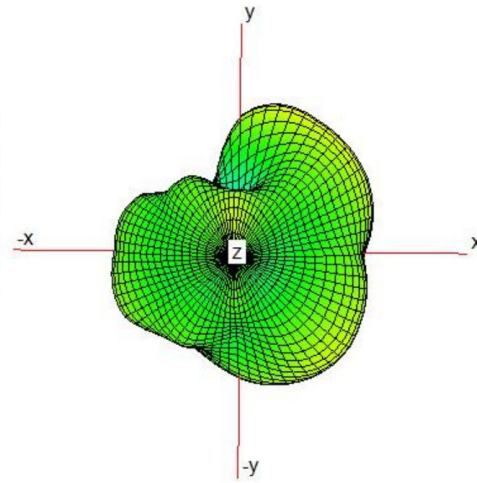
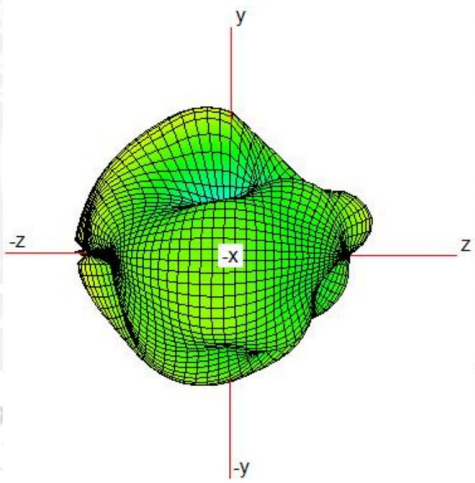
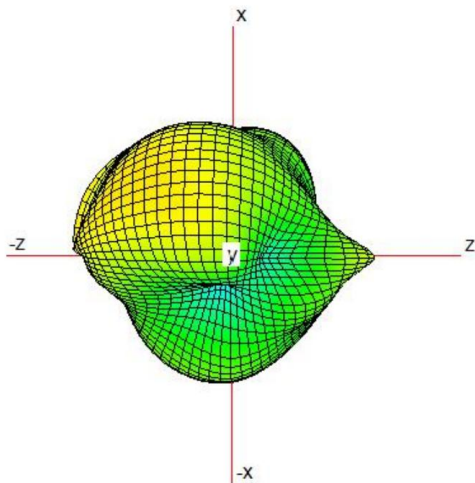
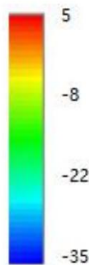
Free Space

2. Antenna Characteristics

Hand Model

2.4 3D Radiation Patterns

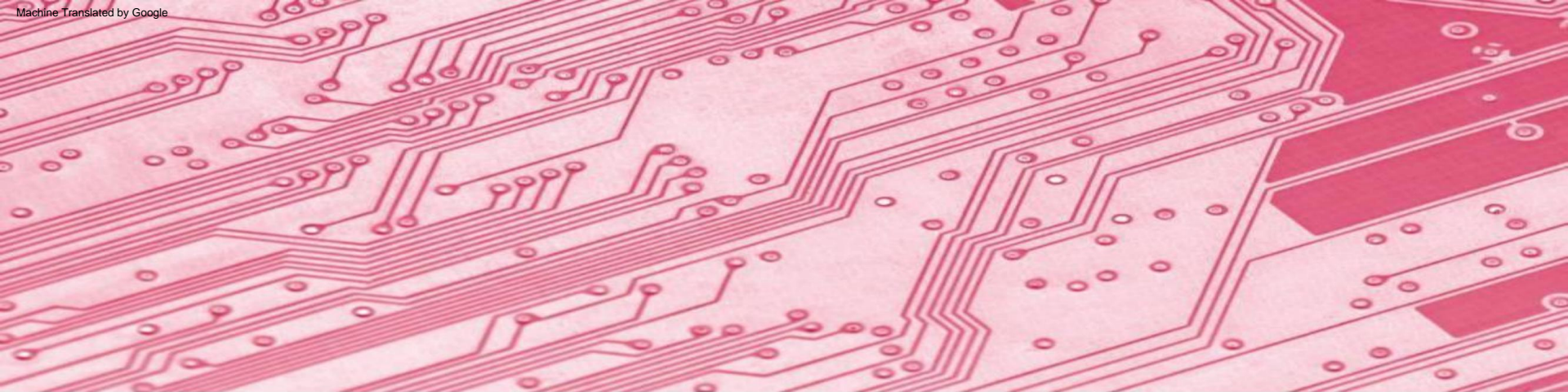
2450MHz



3. Summary

- The performance of antennas is shown in table

	ANT(free space)	ANT(hand model)
Maximum Efficiency (%)	21.6	11.74
Maximum Gain (dBi)	-2.88	-3.86



Title for Image (above image could be replaced)

Content Details

PASSIVE SYSTEM ALLIANCE
INPAQ TECHNOLOGY CO., LTD.

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