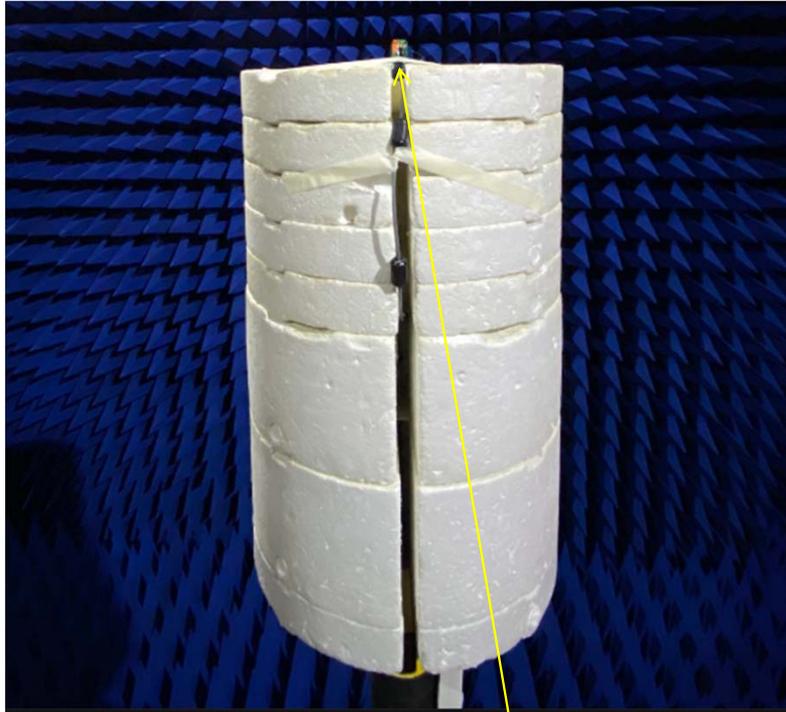


Antenna Study

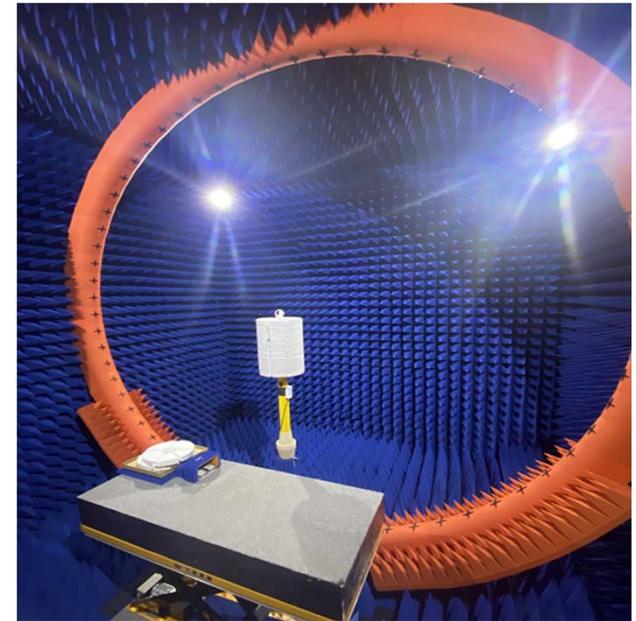
- **Client Name: JM Zengge Co., Ltd**
- **Project Name : ZJ-YBCL-SPI-VC-1K-IR**
- **Debugging frequency band: 2400-2500HMz**
- **Valuation date: 2024.10.28**

PCB Antenna

Dongguan UB Electronics Co., Ltd



Testing environment



Testing 3D microwave darkroom(6m*6m*6m)

PCB Antenna

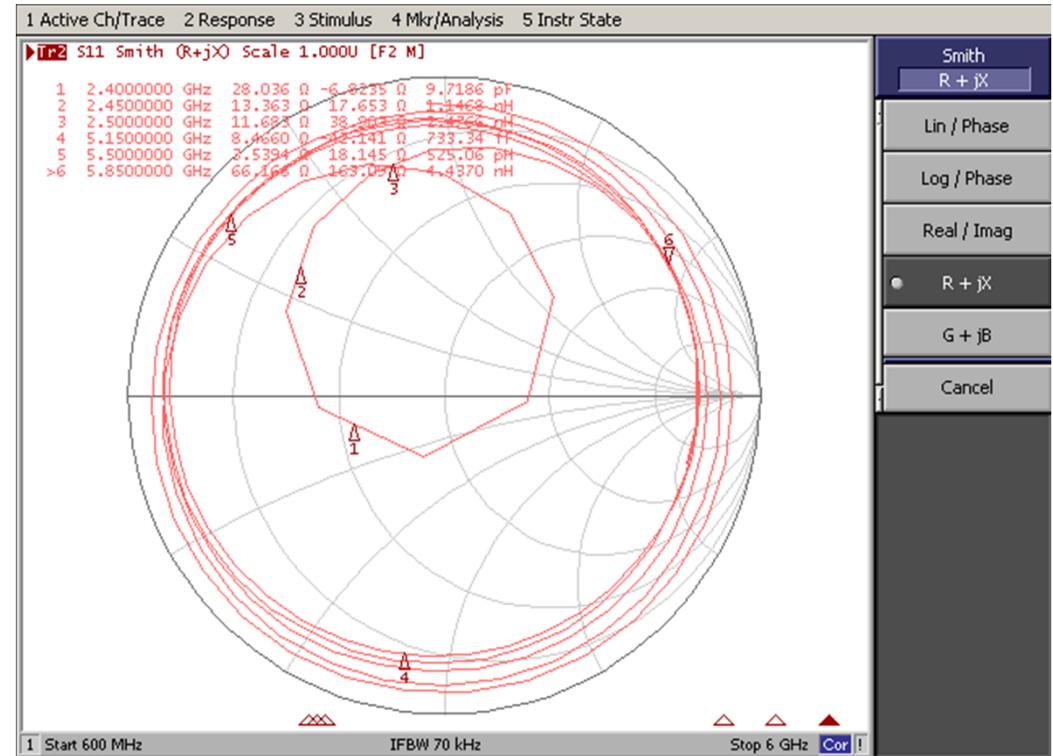
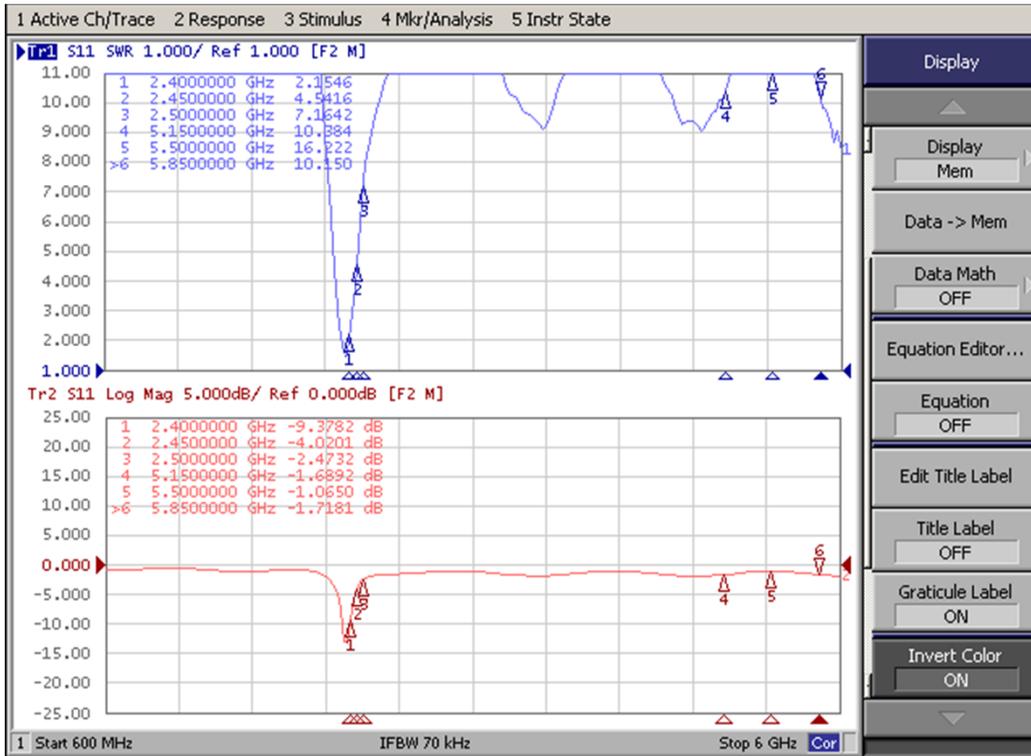
Dongguan UB Electronics Co., Ltd



- Antenna name: 2.4G
- Antenna Type: PCB
- Covers : 2400/2500MHz

Antenna

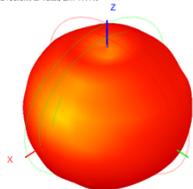
S Parameter_Return Loss&VSWR-Smith



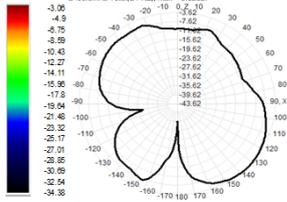
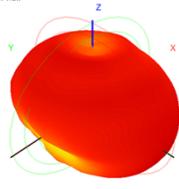
Efficiency and Gain

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	-3.06	-3.84	-4.63	-5.25	-5.45	-5.72	-6.35	-6.59	-2.63	-2.44	-6.39
Efficiency (%)	17.13	15.69	12.86	10.75	9.64	9.11	8.44	7.58	6.51	5.63	5.03

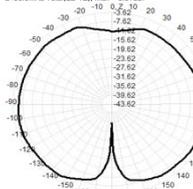
2400.0MHz Total, Eff: 17.1%



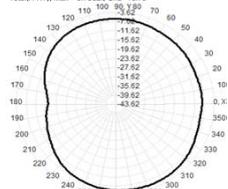
Back View



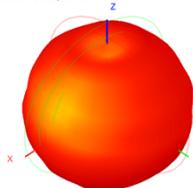
2400.0MHz Total(E2-YZ), Max=-5.51dB



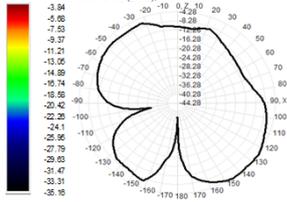
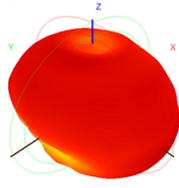
Total(H-XY), Max=-5.79dB, C/D=10.78



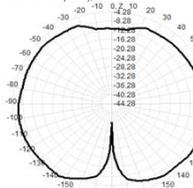
2410.0MHz Total, Eff: 15.7%



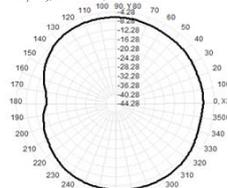
Back View



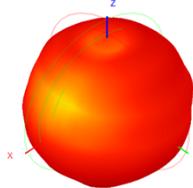
2410.0MHz Total(E2-YZ), Max=-5.60dB



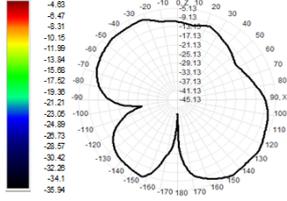
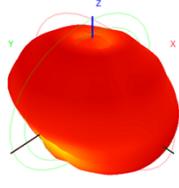
Total(H-XY), Max=-6.41dB, C/D=10.16



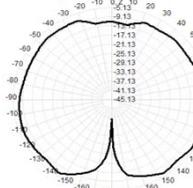
2420.0MHz Total, Eff: 12.5%



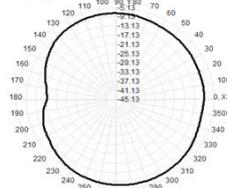
Back View



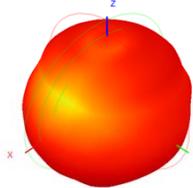
2420.0MHz Total(E2-YZ), Max=-6.44dB



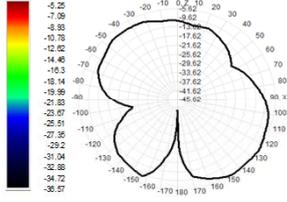
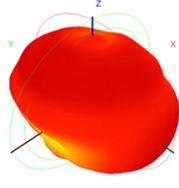
Total(H-XY), Max=-7.53dB, C/D=10.15



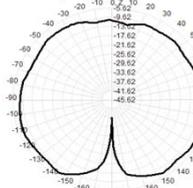
2430.0MHz Total, Eff: 10.7%



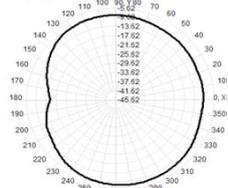
Back View



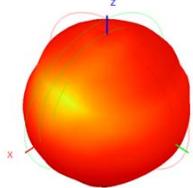
2430.0MHz Total(E2-YZ), Max=-7.38dB



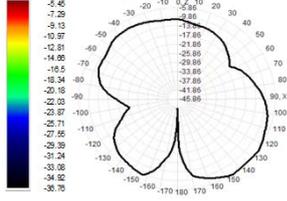
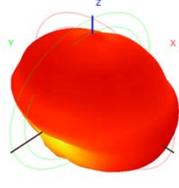
Total(H-XY), Max=-8.17dB, C/D=11.23



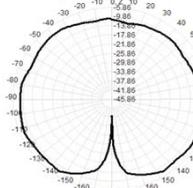
2440.0MHz Total, Eff: 9.8%



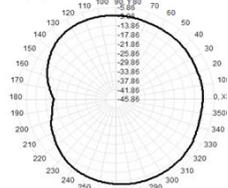
Back View



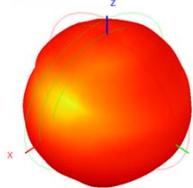
2440.0MHz Total(E2-YZ), Max=-7.77dB



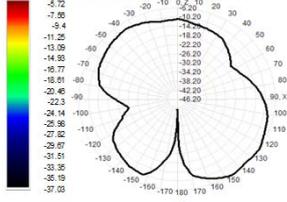
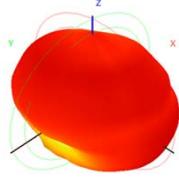
Total(H-XY), Max=-8.44dB, C/D=12.60



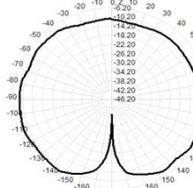
2450.0MHz Total, Eff: 9.1%



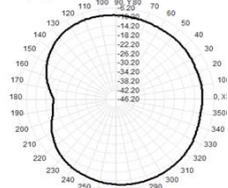
Back View



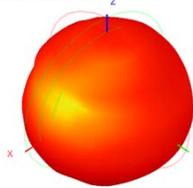
2450.0MHz Total(E2-YZ), Max=-7.90dB



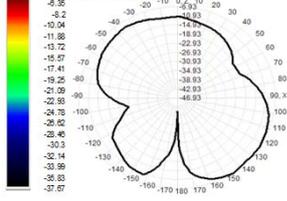
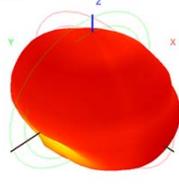
Total(H-XY), Max=-8.51dB, C/D=12.81



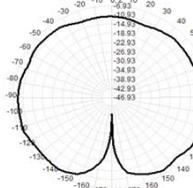
2460.0MHz Total, Eff: 8.4%



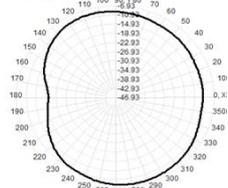
Back View



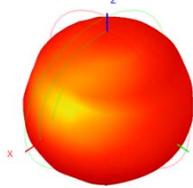
2460.0MHz Total(E2-YZ), Max=-8.29dB



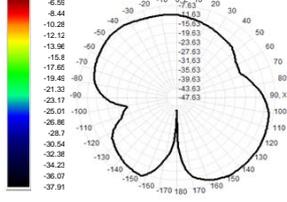
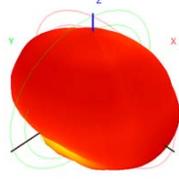
Total(H-XY), Max=-8.69dB, C/D=11.40



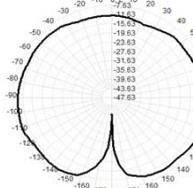
2470.0MHz Total, Eff: 7.6%



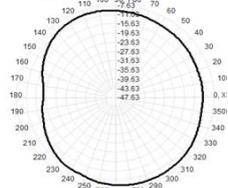
Back View



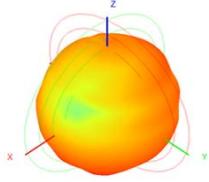
2470.0MHz Total(E2-YZ), Max=-8.79dB



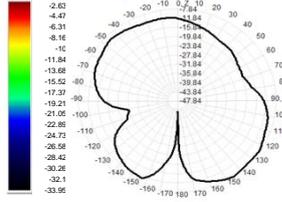
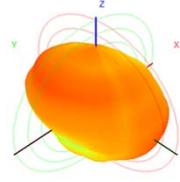
Total(H-XY), Max=-8.96dB, C/D=9.53



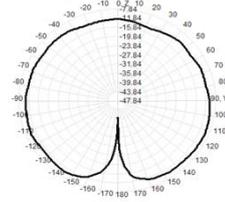
2480.0MHz Total Eff: 6.5%



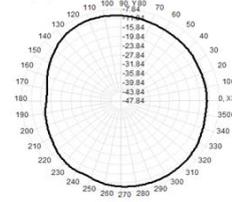
Back View



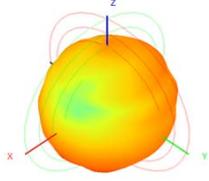
2480.0MHz Total(E2-YZ), Max=-9.76dBi



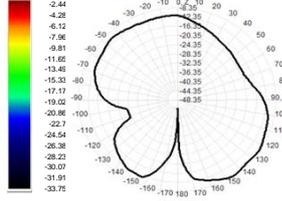
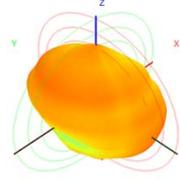
Total(H-XY), Max=-10.25dBi, CirD=7.86



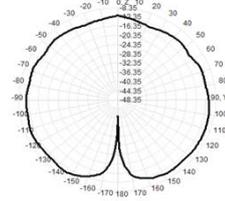
2490.0MHz Total Eff: 5.6%



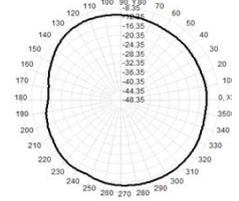
Back View



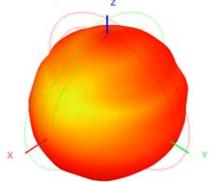
2490.0MHz Total(E2-YZ), Max=-10.61dBi



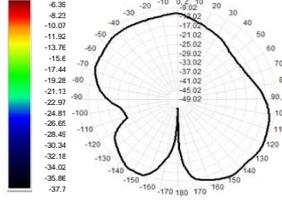
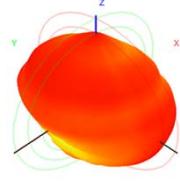
Total(H-XY), Max=-10.98dBi, CirD=8.31



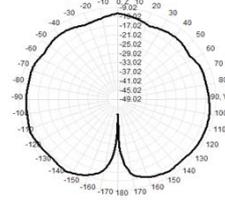
2500.0MHz Total Eff: 5.0%



Back View



2500.0MHz Total(E2-YZ), Max=-10.97dBi



Total(H-XY), Max=-11.57dBi, CirD=9.35

