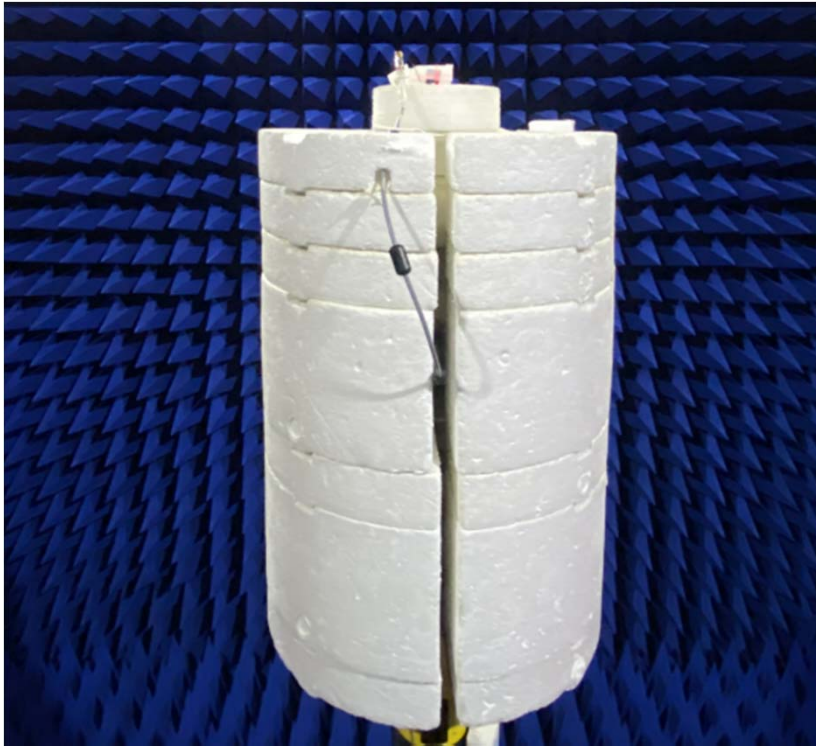


Antenna Study

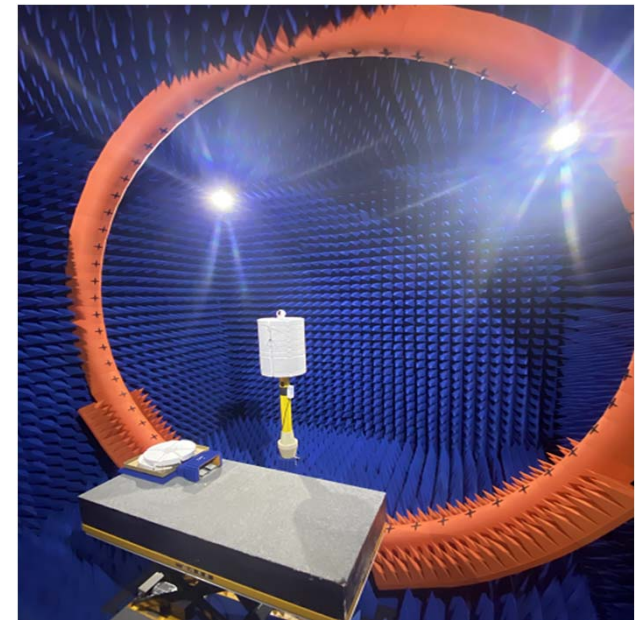
- **Client Name: Shinwa industries(China) Ltd.**
- **Project Name : BT-MN10-1**
- **Debugging frequency band: 2400-2500HMz**
- **Valuation date: 2024.3.8**

PCB Antenna

Dongguan UB Electronics Co., Ltd



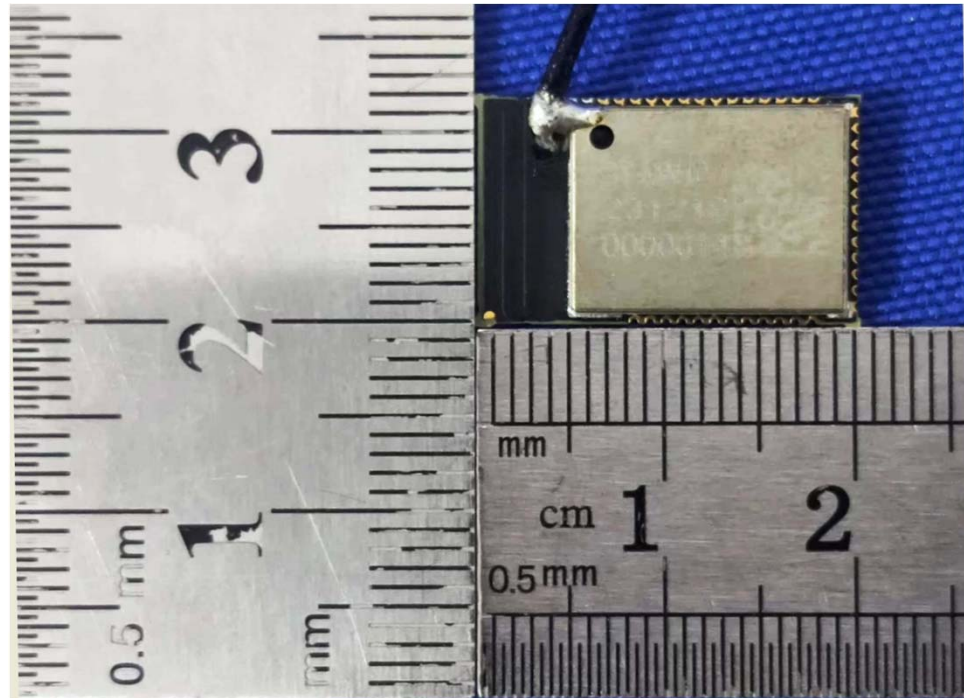
Testing environment



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

PCB Antenna

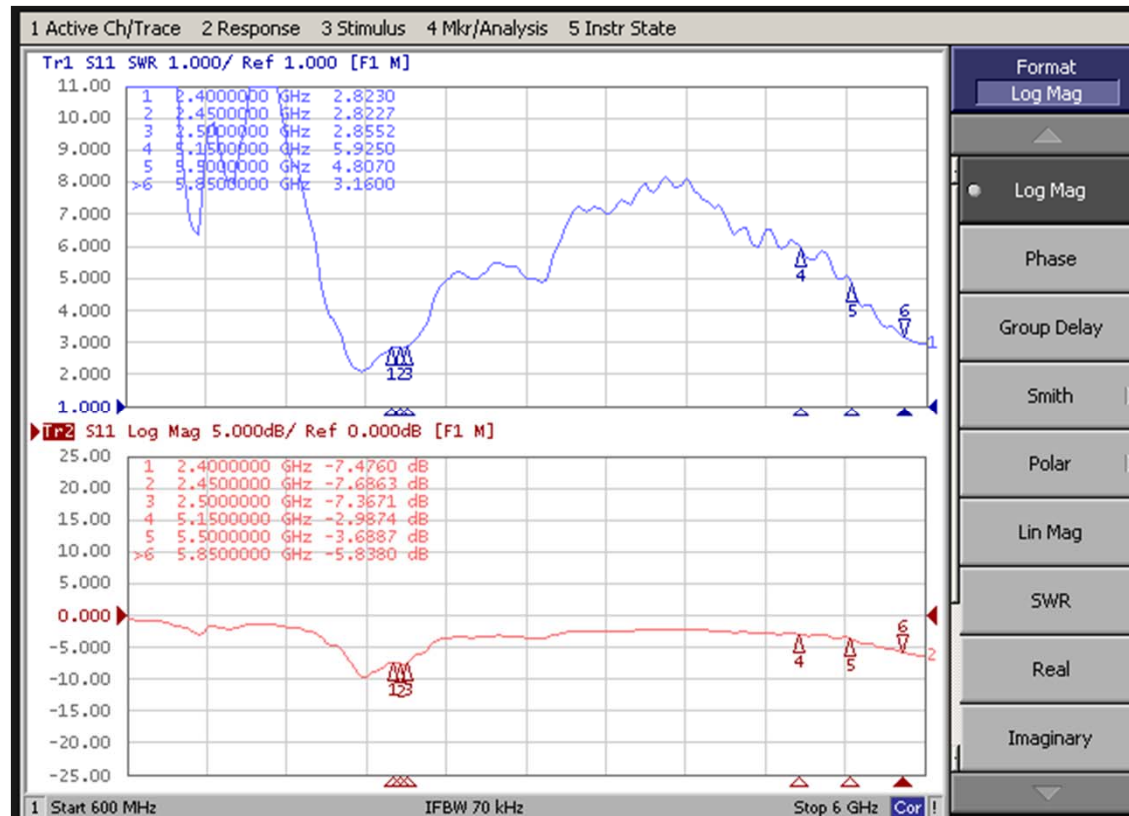
Dongguan UB Electronics Co., Ltd



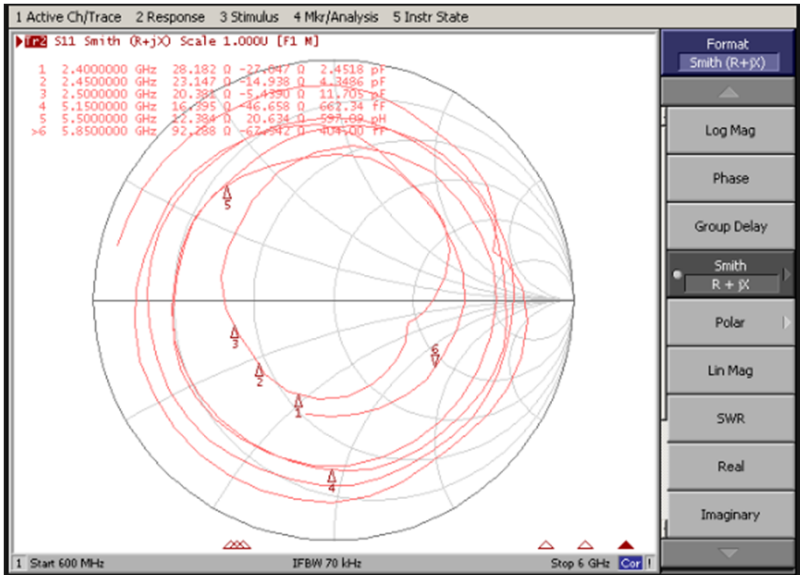
- Antenna name: 2.4G
- Antenna Type: PCB
- Covers : 2.4G

Antenna

S Parameter_Return Loss&VSWR

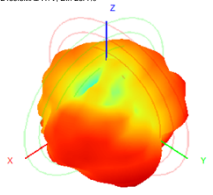


Efficiency and Gain-Smith

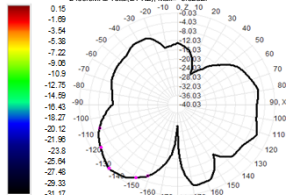
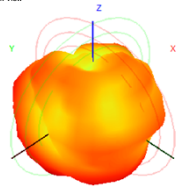


Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	0.15	0.25	0.23	-0.10	-0.37	-0.20	-0.08	-0.06	-0.07	-0.44	-0.57
Efficiency (%)	20.36	19.73	19.33	18.78	18.50	18.86	19.04	19.02	18.25	16.99	16.75

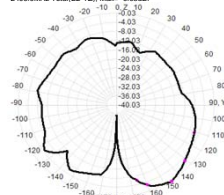
2400.0MHz H+V, Ef: 20.4%



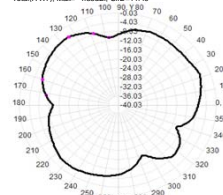
Back View



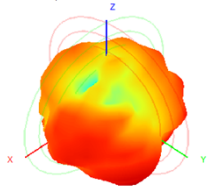
2400.0MHz Total(E+YZ), Max=-0.03dB



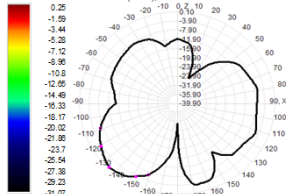
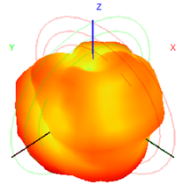
Total(H+Y), Max=-4.38dB, C/D=11.49



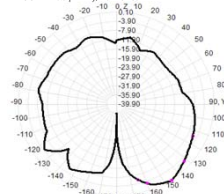
2410.0MHz H+V, Ef: 19.7%



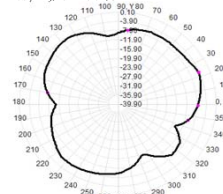
Back View



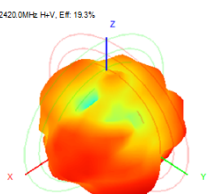
2410.0MHz Total(E+YZ), Max=0.10dB



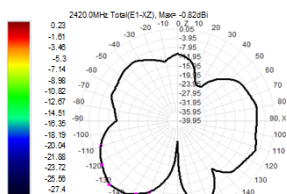
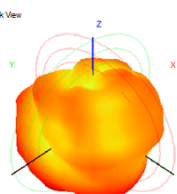
Total(H+Y), Max=-4.54dB, C/D=11.17



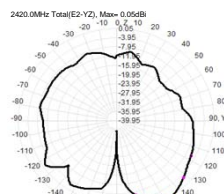
2420.0MHz H+V, Ef: 19.3%



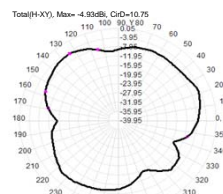
Back View



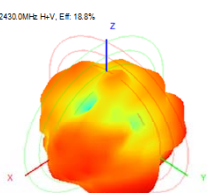
2420.0MHz Total(E+YZ), Max=0.05dB



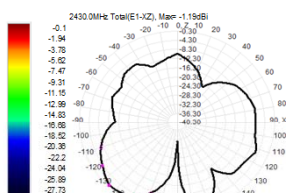
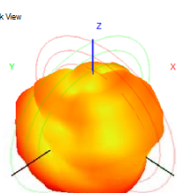
Total(H+Y), Max=-4.93dB, C/D=10.75



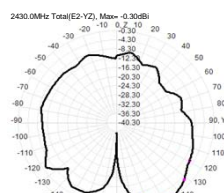
2430.0MHz H+V, Ef: 18.8%



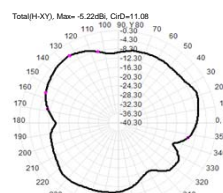
Back View



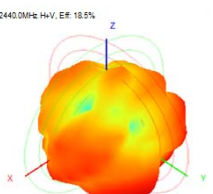
2430.0MHz Total(E+YZ), Max=-0.35dB



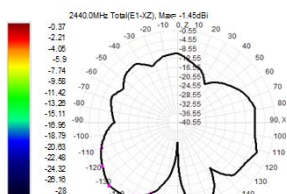
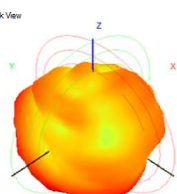
Total(H+Y), Max=-5.22dB, C/D=11.08



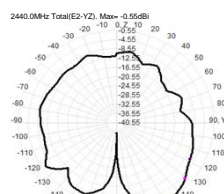
2440.0MHz H+V, Ef: 18.5%



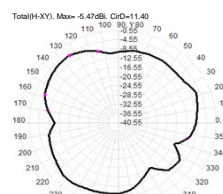
Back View



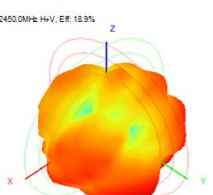
2440.0MHz Total(E+YZ), Max=-0.55dB



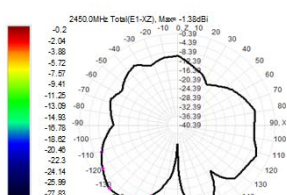
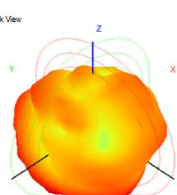
Total(H+Y), Max=-5.47dB, C/D=11.40



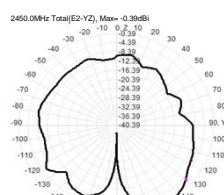
2450.0MHz H+V, Ef: 18.9%



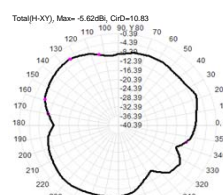
Back View



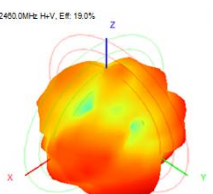
2450.0MHz Total(E+YZ), Max=-0.39dB



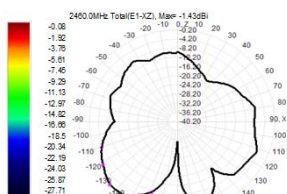
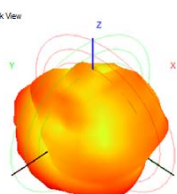
Total(H+Y), Max=-5.62dB, C/D=10.83



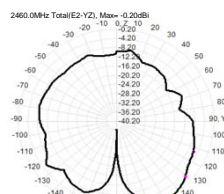
2460.0MHz H+V, Ef: 19.0%



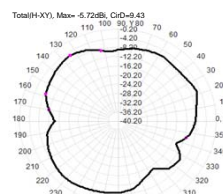
Back View



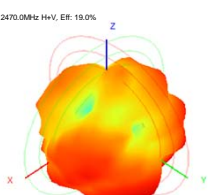
2460.0MHz Total(E+YZ), Max=-0.20dB



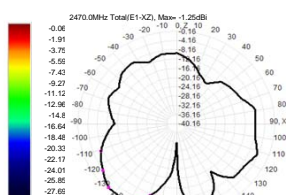
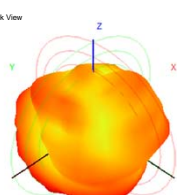
Total(H+Y), Max=-5.72dB, C/D=9.43



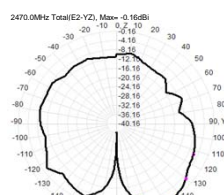
2470.0MHz H+V, Ef: 19.0%



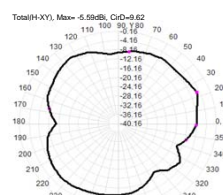
Back View



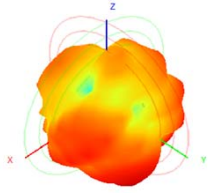
2470.0MHz Total(E+YZ), Max=-0.16dB



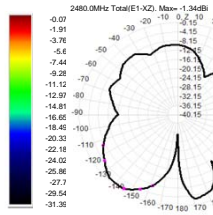
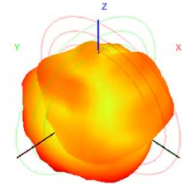
Total(H+Y), Max=-5.98dB, C/D=9.82



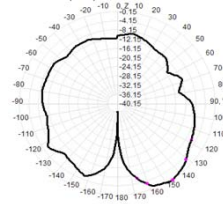
2480.0MHz H+V, Ef: 18.2%



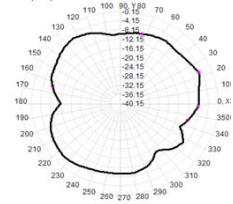
Back View



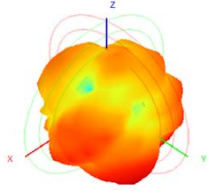
2480.0MHz Total(E2-YZ), Max=-0.15dBi



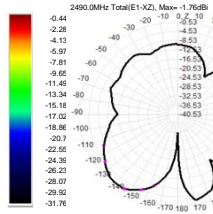
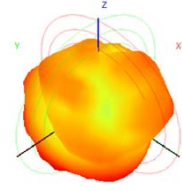
Total(H+V), Max=-6.65dBi, C/D=10.48



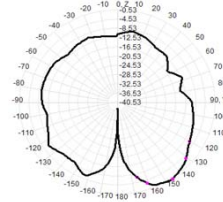
2490.0MHz H+V, Ef: 17.0%



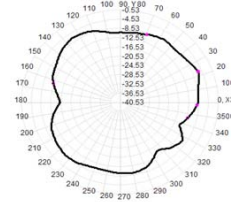
Back View



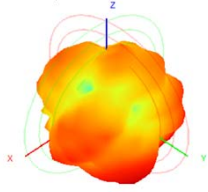
2490.0MHz Total(E2-YZ), Max=-0.53dBi



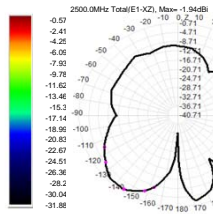
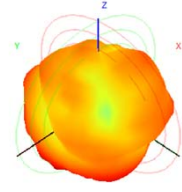
Total(H+V), Max=-6.26dBi, C/D=10.03



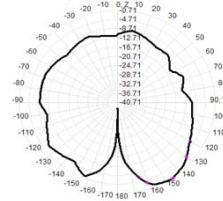
2500.0MHz H+V, Ef: 16.7%



Back View



2500.0MHz Total(E2-YZ), Max=-0.71dBi



Total(H+V), Max=-6.37dBi, C/D=9.77

