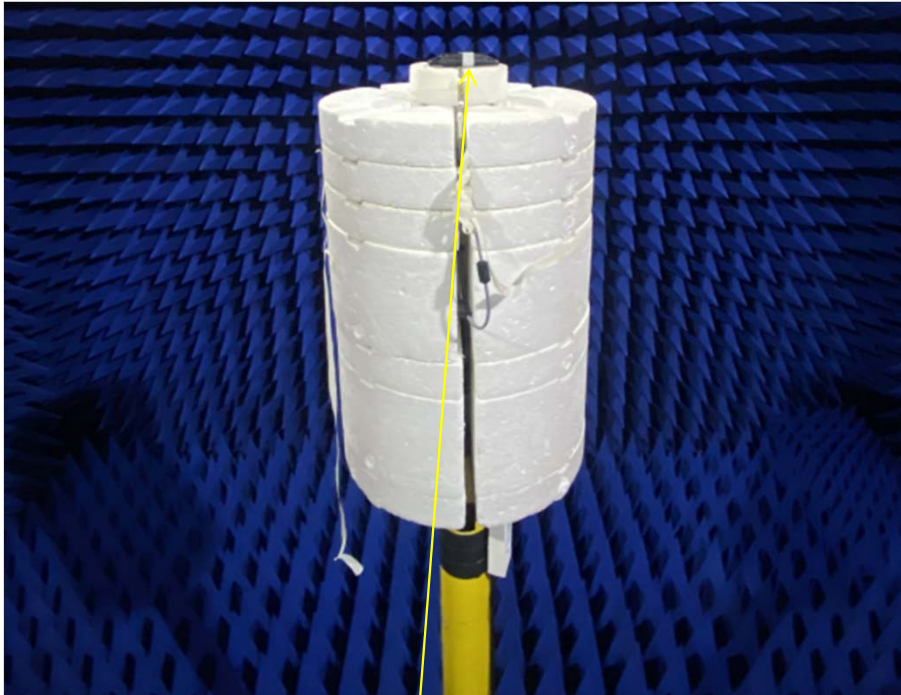


Antenna Study

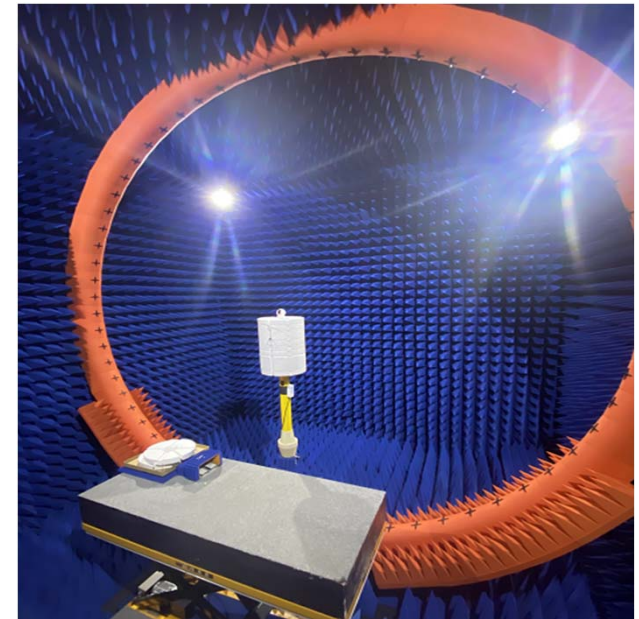
- **Client Name:TIMEBIBIG-1A1-BLA**
- **Project Name:BIGBIRD**
- **Debugging frequency band: 2400-2500MHz**
- **Valuation date: 2023.11.09**

PCB Antenna

Dongguan UB Electronics Co., Ltd



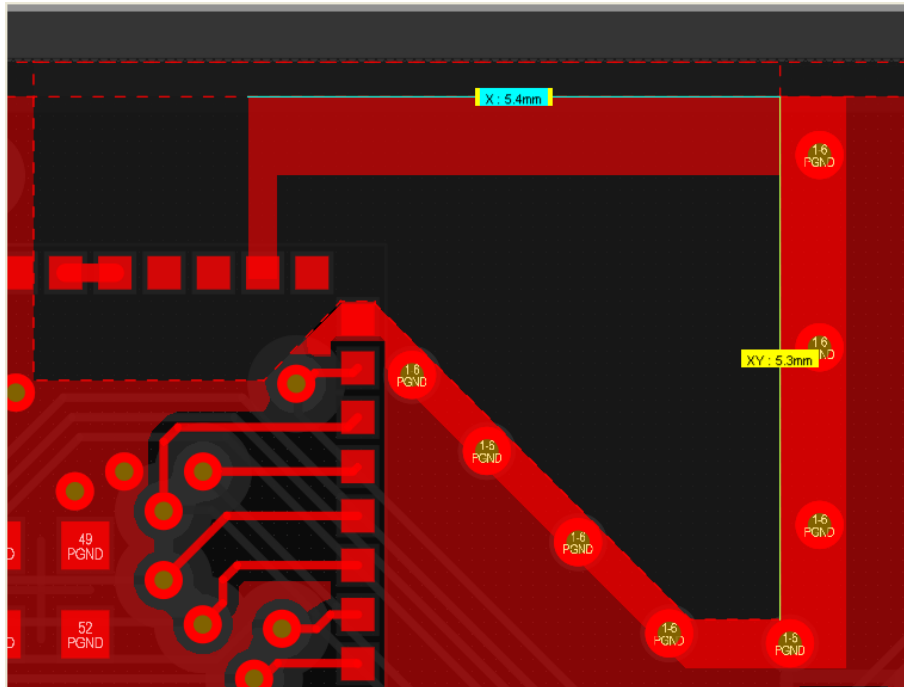
Testing environment



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

PCB Antenna

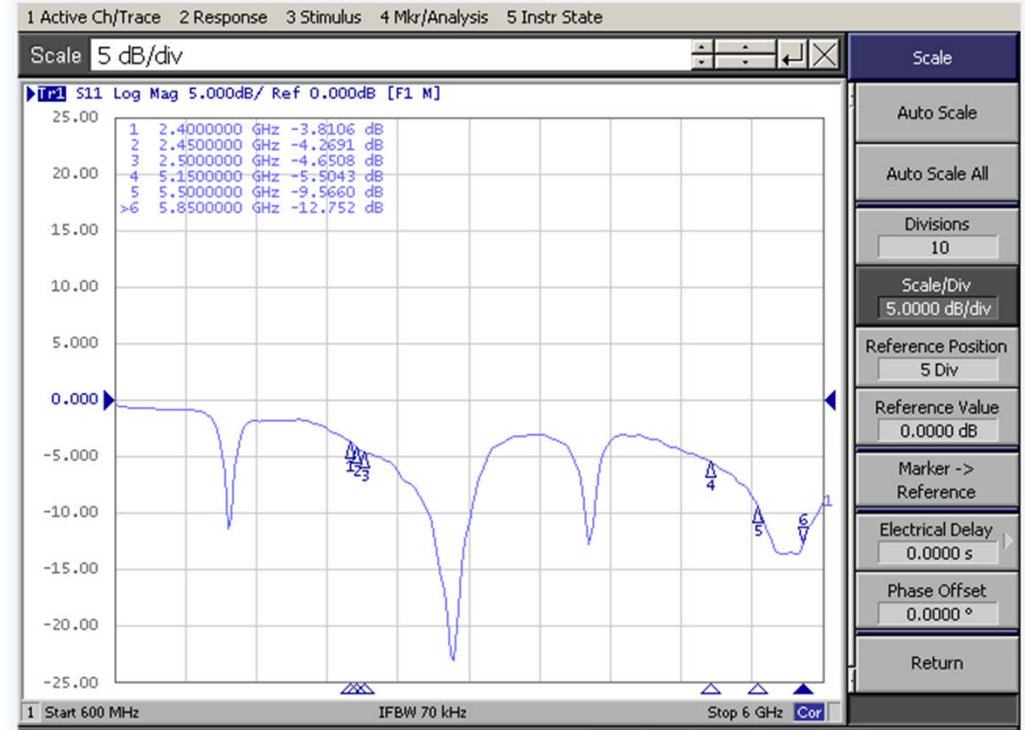
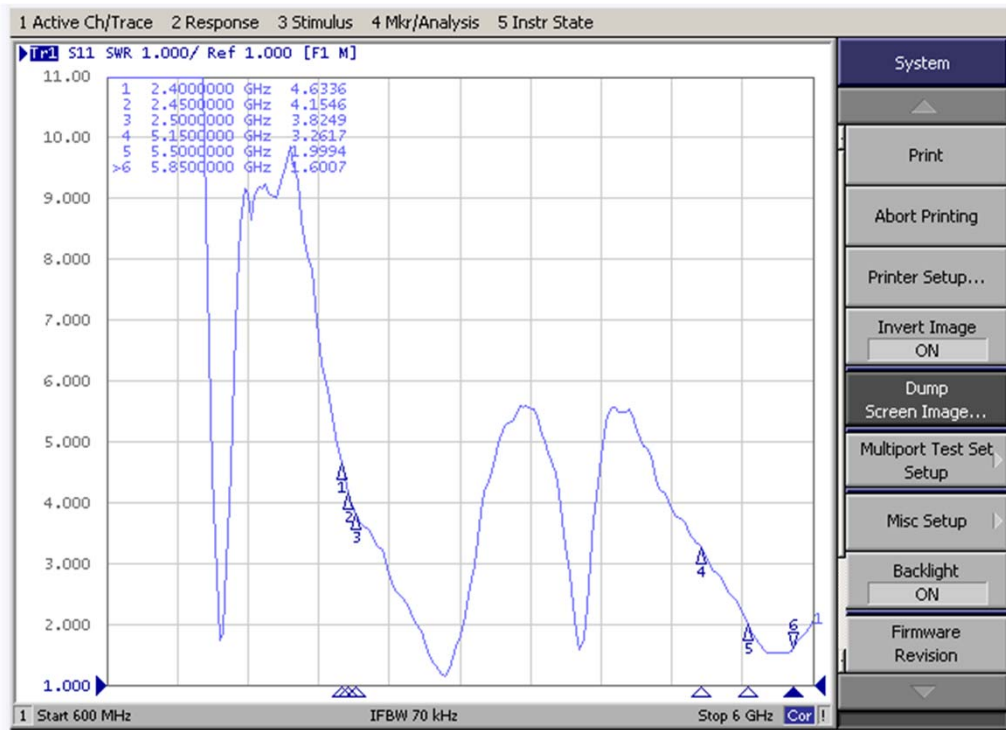
Dongguan UB Electronics Co., Ltd



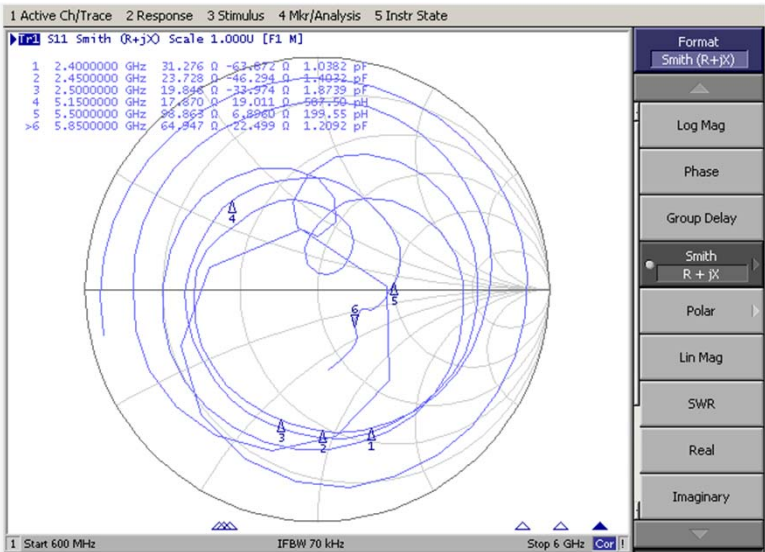
Antenna

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

S Parameter_Return Loss&VSWR

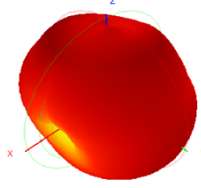


Efficiency and Gain-Smith

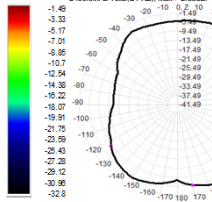
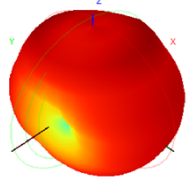


Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	-1.49	-1.54	-1.30	-1.28	-1.05	-1.16	-0.88	-0.67	-0.47	-0.66	-0.26
Efficiency (%)	32.12	32.51	32.57	31.88	34.04	33.91	34.72	34.12	36.53	34.03	36.08

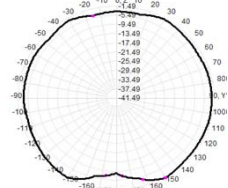
2400.0MHz HV, Ef: 32.1%



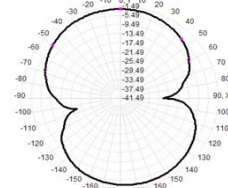
Back View



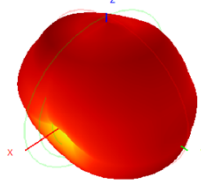
2400.0MHz Total(E+YZ), Max=-1.49dBi



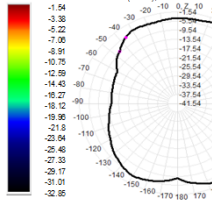
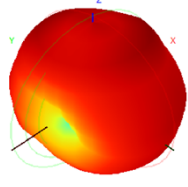
Total(H+XY), Max=-2.80dBi, C/D=21.38



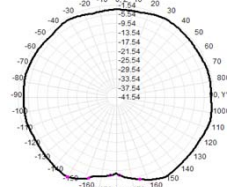
2410.0MHz HV, Ef: 32.5%



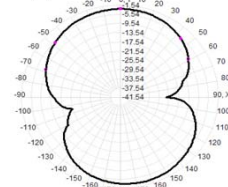
Back View



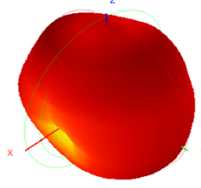
2410.0MHz Total(E+YZ), Max=-1.54dBi



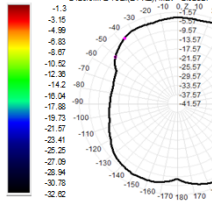
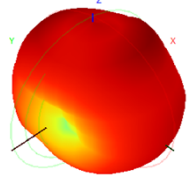
Total(H+XY), Max=-3.19dBi, C/D=19.60



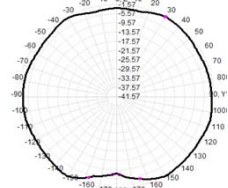
2420.0MHz HV, Ef: 32.6%



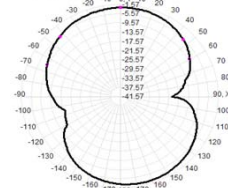
Back View



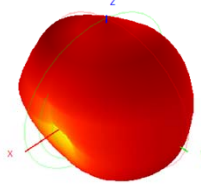
2420.0MHz Total(E+YZ), Max=-1.57dBi



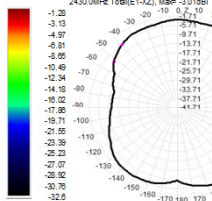
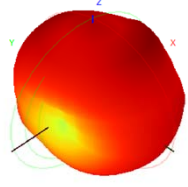
Total(H+XY), Max=-3.90dBi, C/D=17.65



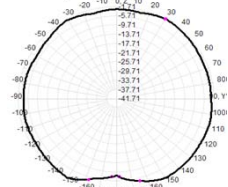
2430.0MHz HV, Ef: 31.9%



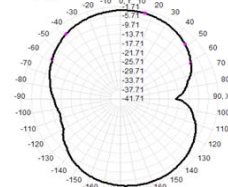
Back View



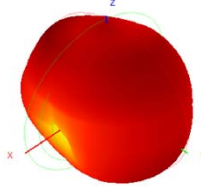
2430.0MHz Total(E+YZ), Max=-1.71dBi



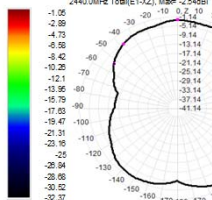
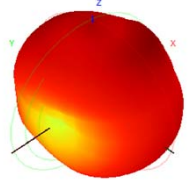
Total(H+XY), Max=-3.24dBi, C/D=16.89



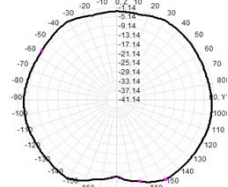
2440.0MHz HV, Ef: 34.0%



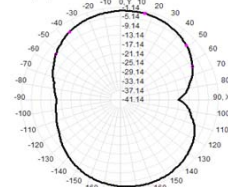
Back View



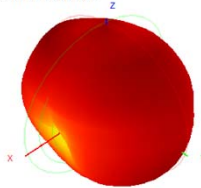
2440.0MHz Total(E+YZ), Max=-1.14dBi



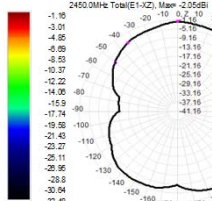
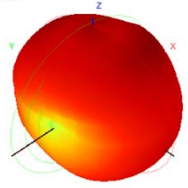
Total(H+XY), Max=-2.43dBi, C/D=15.22



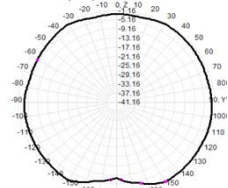
2450.0MHz HV, Ef: 33.9%



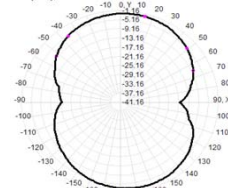
Back View



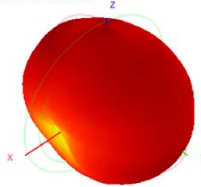
2450.0MHz Total(E+YZ), Max=-1.16dBi



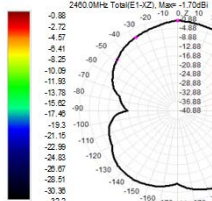
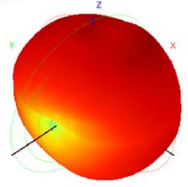
Total(H+XY), Max=-2.37dBi, C/D=15.24



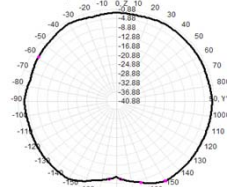
2460.0MHz HV, Ef: 34.7%



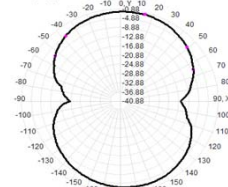
Back View



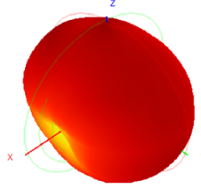
2460.0MHz Total(E+YZ), Max=-0.99dBi



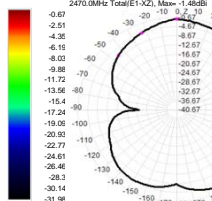
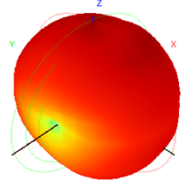
Total(H+XY), Max=-2.00dBi, C/D=16.75



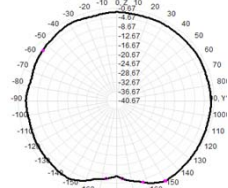
2470.0MHz HV, Ef: 34.1%



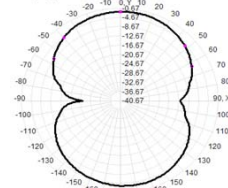
Back View



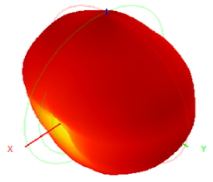
2470.0MHz Total(E+YZ), Max=-0.67dBi



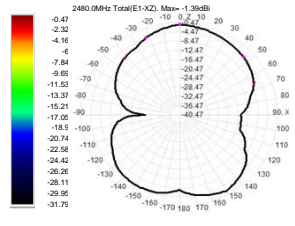
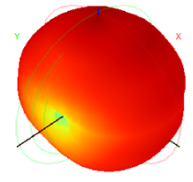
Total(H+XY), Max=-2.29dBi, C/D=23.42



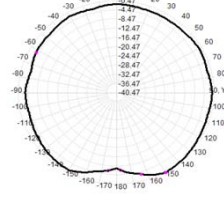
2480.0MHz H+V, Ef: 36.5%



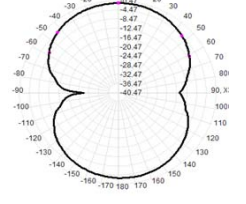
Back View



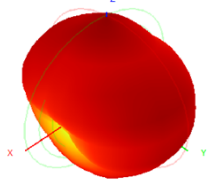
2480.0MHz Total(E2-YZ), Max=-0.47dB



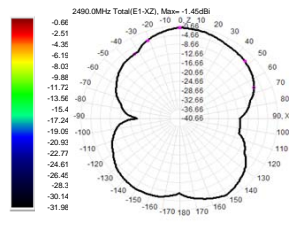
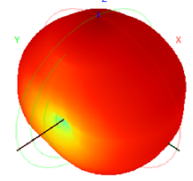
Total(H+V), Max=-1.58dB, C/D=25.18



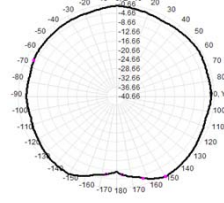
2490.0MHz H+V, Ef: 34.0%



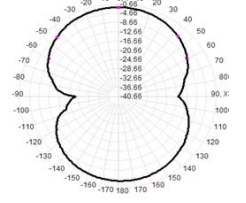
Back View



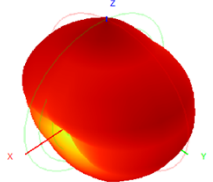
2490.0MHz Total(E2-YZ), Max=-0.66dB



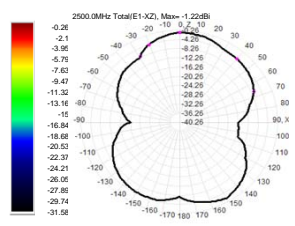
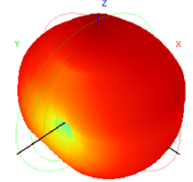
Total(H+V), Max=-2.13dB, C/D=21.50



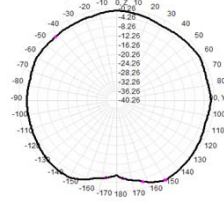
2500.0MHz H+V, Ef: 36.1%



Back View



2500.0MHz Total(E2-YZ), Max=-0.26dB



Total(H+V), Max=-1.90dB, C/D=19.40

