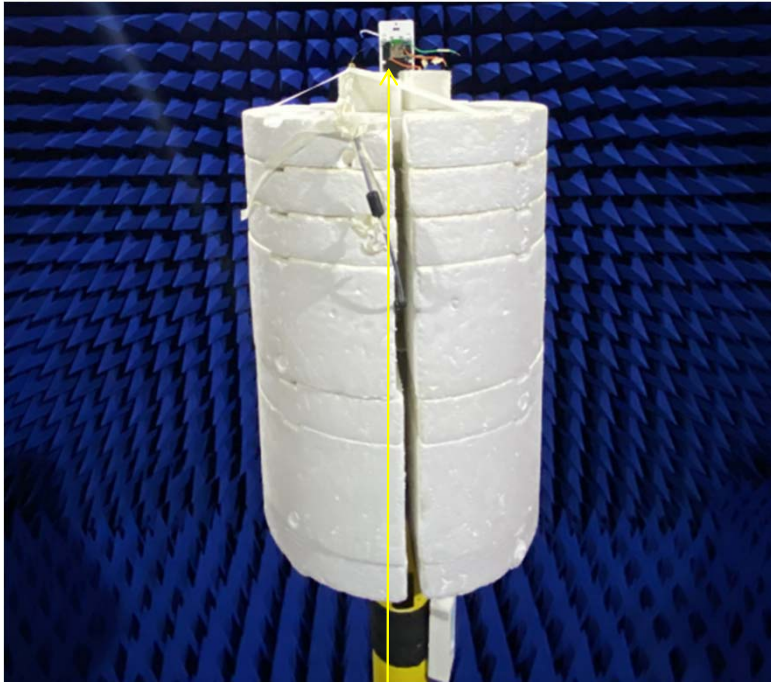


## Antenna Study

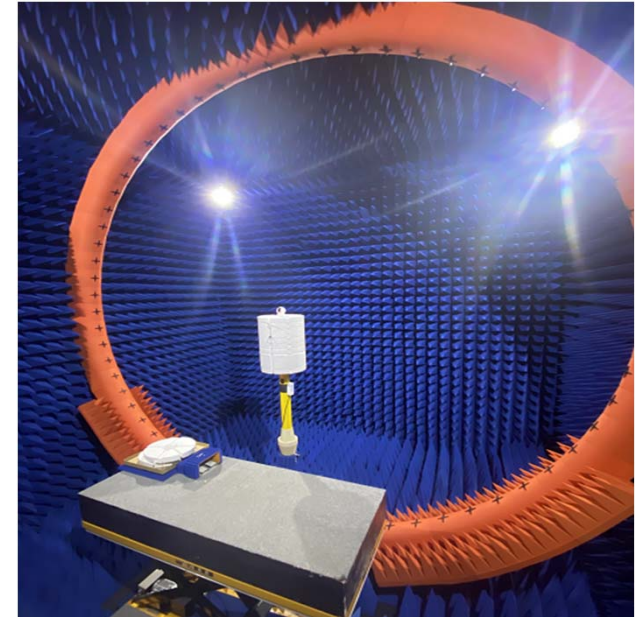
- **Client Name:U-tec Group Inc.**
- **Project Name : Smart Switch**
- **Debugging frequency band: 2400-2500HMz**
- **Valuation date: 2023.10.24**

# PCB Antenna

Dongguan UB Electronics Co., Ltd



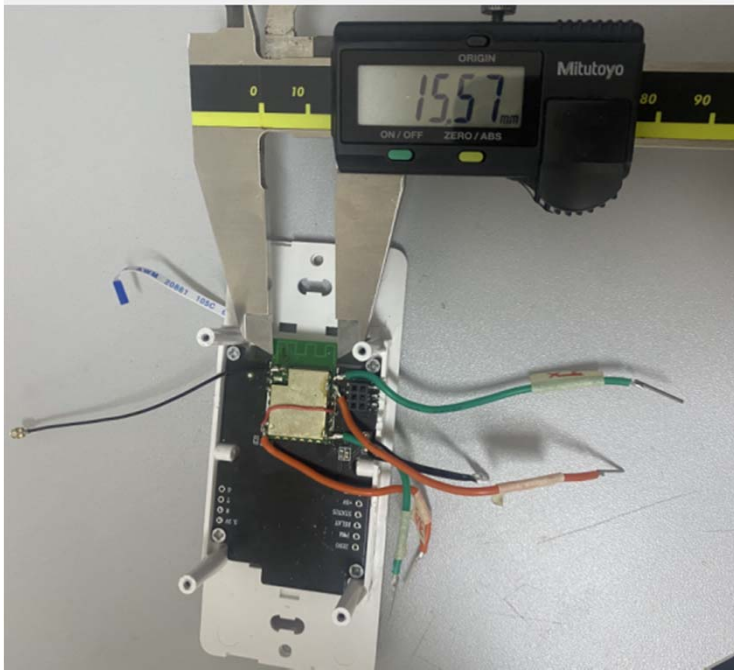
Testing environment



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

# PCB Antenna

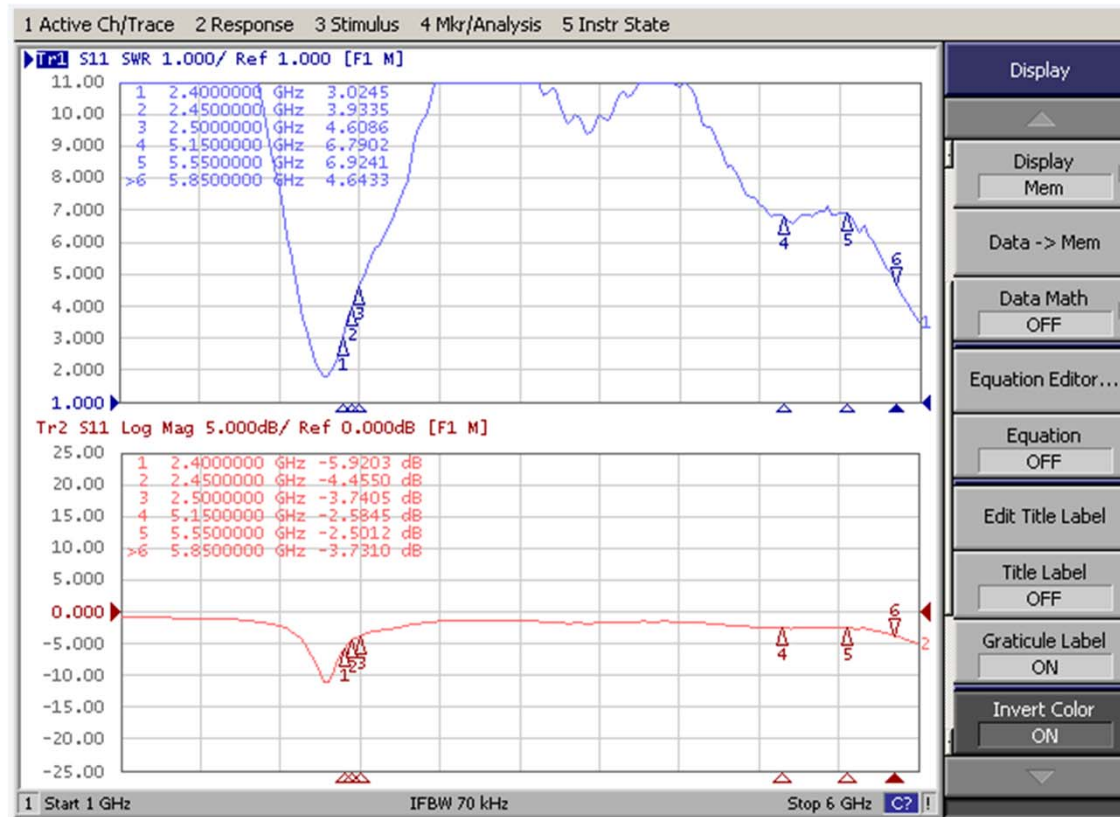
Dongguan UB Electronics Co., Ltd



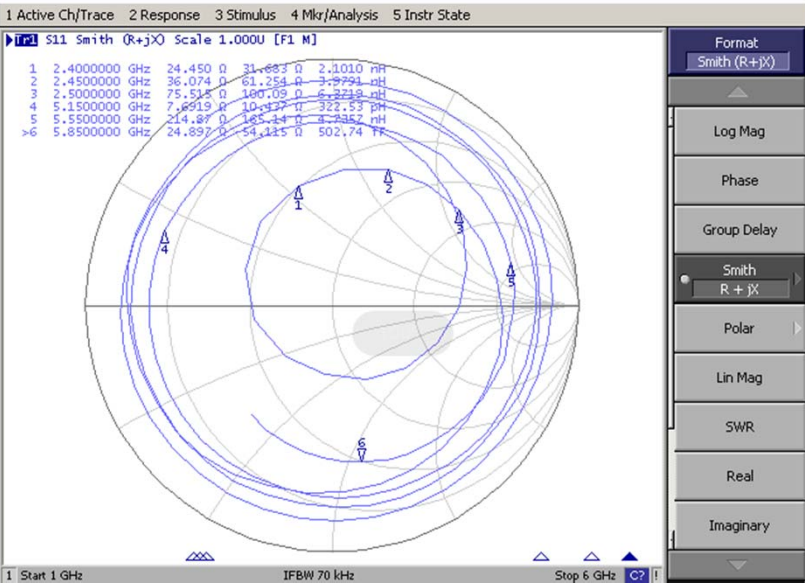
- Antenna name: 2.4G
- Antenna Type: PCB
- Covers : 2.4G

Antenna

# S Parameter\_Return Loss&VSWR

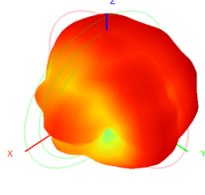


# Efficiency and Gain-Smith

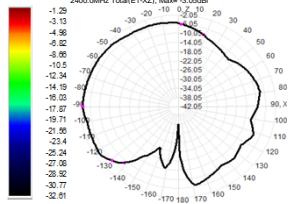
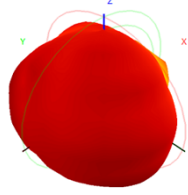


Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Gain (dBi)	-1.29	-1.34	-1.92	-2.51	-2.95	-3.28	-3.13	-3.50	-4.29	-4.36	-4.65
Efficiency (%)	26.06	24.87	23.32	22.10	20.82	18.94	18.59	17.27	15.57	15.88	15.21

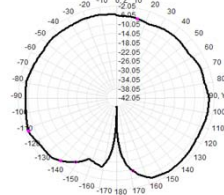
2400.0MHz H+V, E# 26.1%



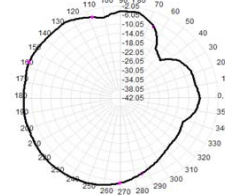
Back View



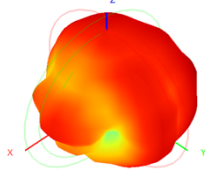
2400.0MHz Total(E+YZ), Max=-3.55dBi



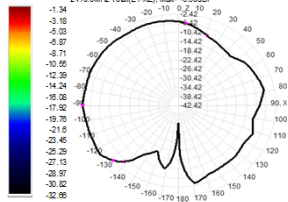
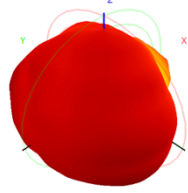
Total(H+Y), Max=-2.05dBi, C/D=17.01



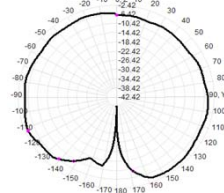
2410.0MHz H+V, E# 24.9%



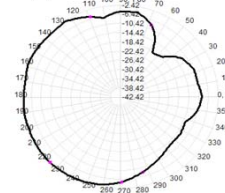
Back View



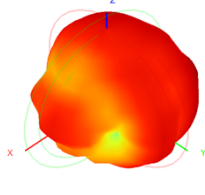
2410.0MHz Total(E+YZ), Max=-3.65dBi



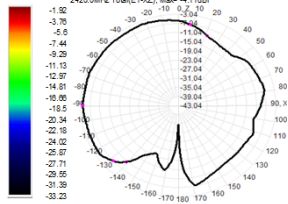
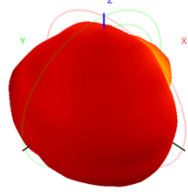
Total(H+Y), Max=-2.42dBi, C/D=16.74



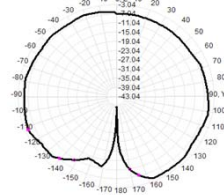
2420.0MHz H+V, E# 23.3%



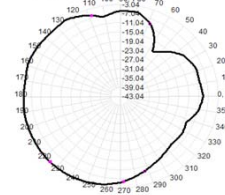
Back View



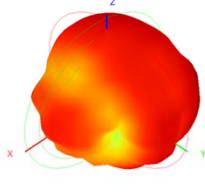
2420.0MHz Total(E+YZ), Max=-4.47dBi



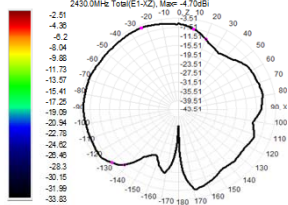
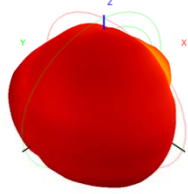
Total(H+Y), Max=-3.04dBi, C/D=16.44



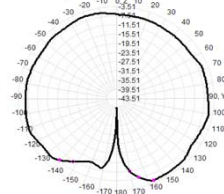
2430.0MHz H+V, E# 22.1%



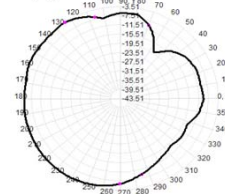
Back View



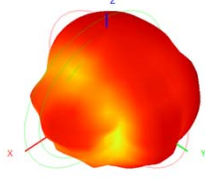
2430.0MHz Total(E+YZ), Max=-5.05dBi



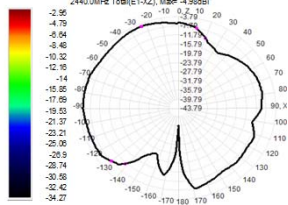
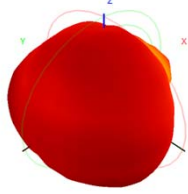
Total(H+Y), Max=-3.51dBi, C/D=16.63



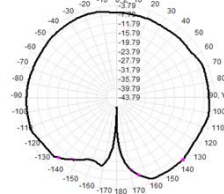
2440.0MHz H+V, E# 20.8%



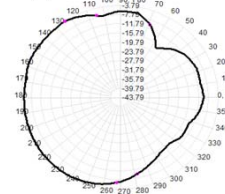
Back View



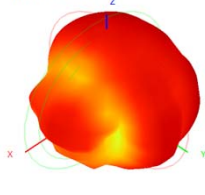
2440.0MHz Total(E+YZ), Max=-5.61dBi



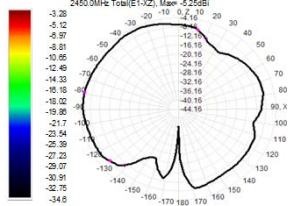
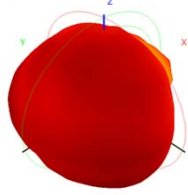
Total(H+Y), Max=-3.79dBi, C/D=14.00



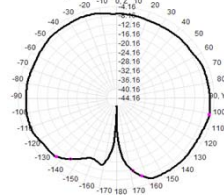
2450.0MHz H+V, E# 18.9%



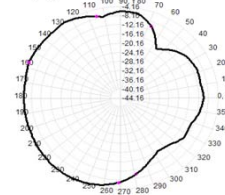
Back View



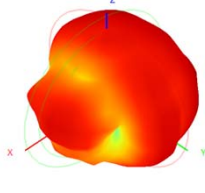
2450.0MHz Total(E+YZ), Max=-5.70dBi



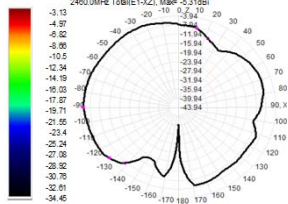
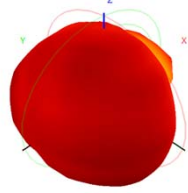
Total(H+Y), Max=-4.16dBi, C/D=13.84



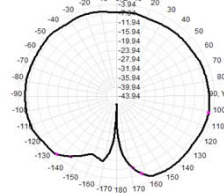
2460.0MHz H+V, E# 16.6%



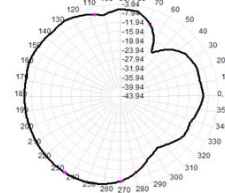
Back View



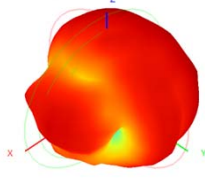
2460.0MHz Total(E+YZ), Max=-5.72dBi



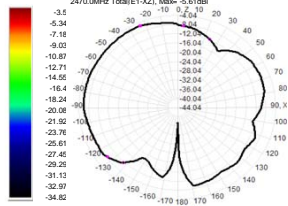
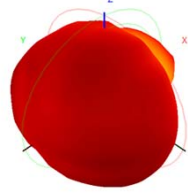
Total(H+Y), Max=-3.94dBi, C/D=17.14



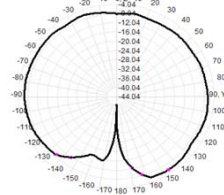
2470.0MHz H+V, E# 17.3%



Back View



2470.0MHz Total(E+YZ), Max=-6.05dBi



Total(H+Y), Max=-4.04dBi, C/D=21.90

