



好天线 · 优比造

东莞市优比电子有限公司

Dongguan UB Electronics Co., Ltd

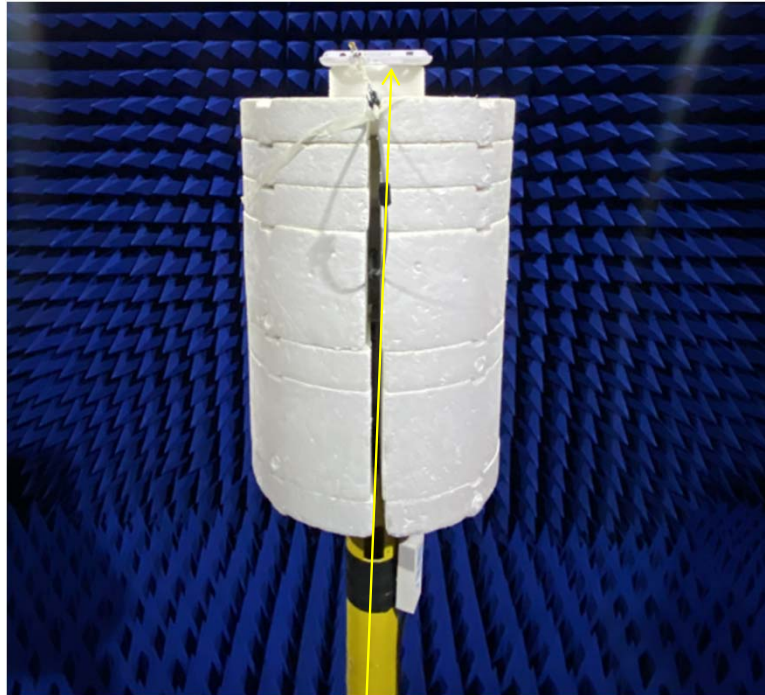
Room 101, Building 2, No. 9 Xinfu Road, Lincun, Tangxia Town, Dongguan City,
Guangdong Province, China

Antenna Study

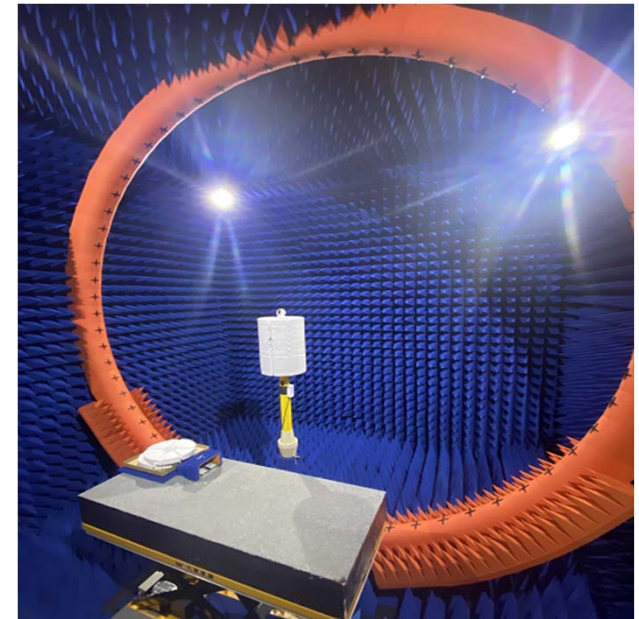
- **Client Name: 34ED LLC, DBA Centegix**
- **Project Name: Hub**
- **Debugging frequency band: 2.4G/BT+WIFI**
- **Valuation date: 2023.07.25**

PCB Antenna & Internal Antenna

Dongguan UB Electronics Co., Ltd



Testing environment



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

PCB Antenna & Internal Antenna

Dongguan UB Electronics Co., Ltd

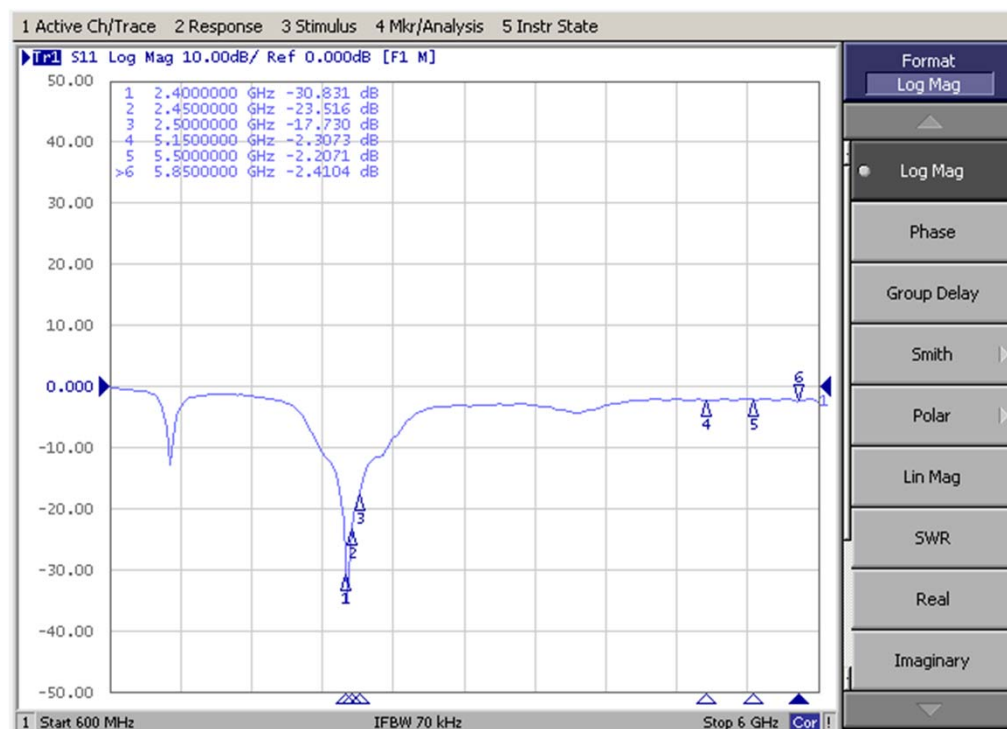
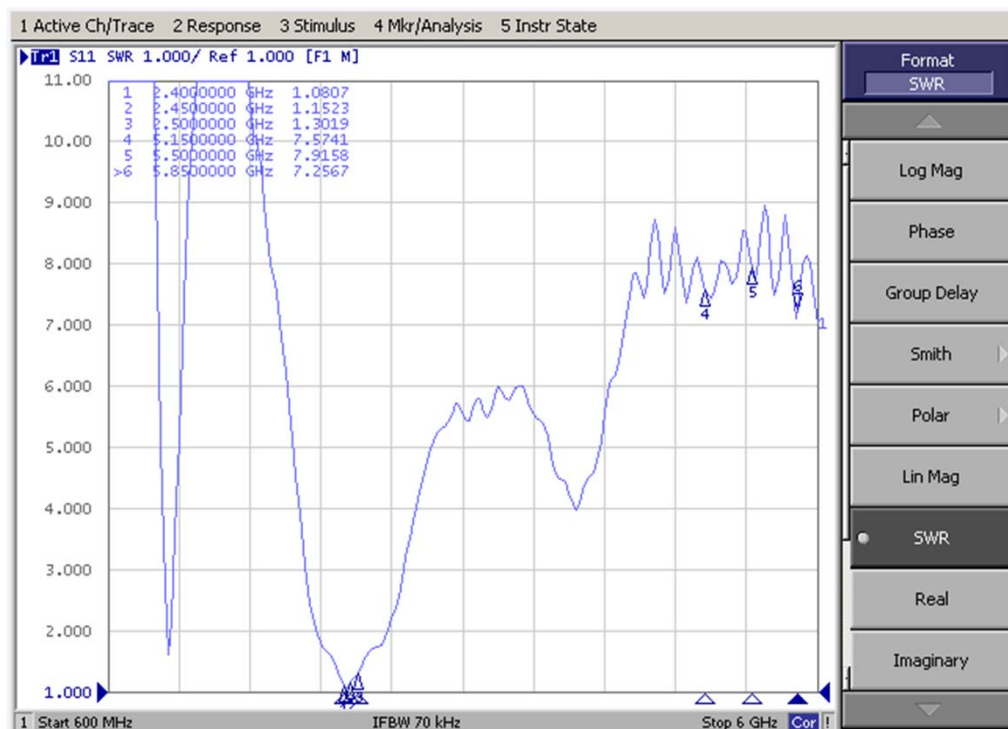


Antenna

- Antenna name: 2.4G
- Covers : 2.4G

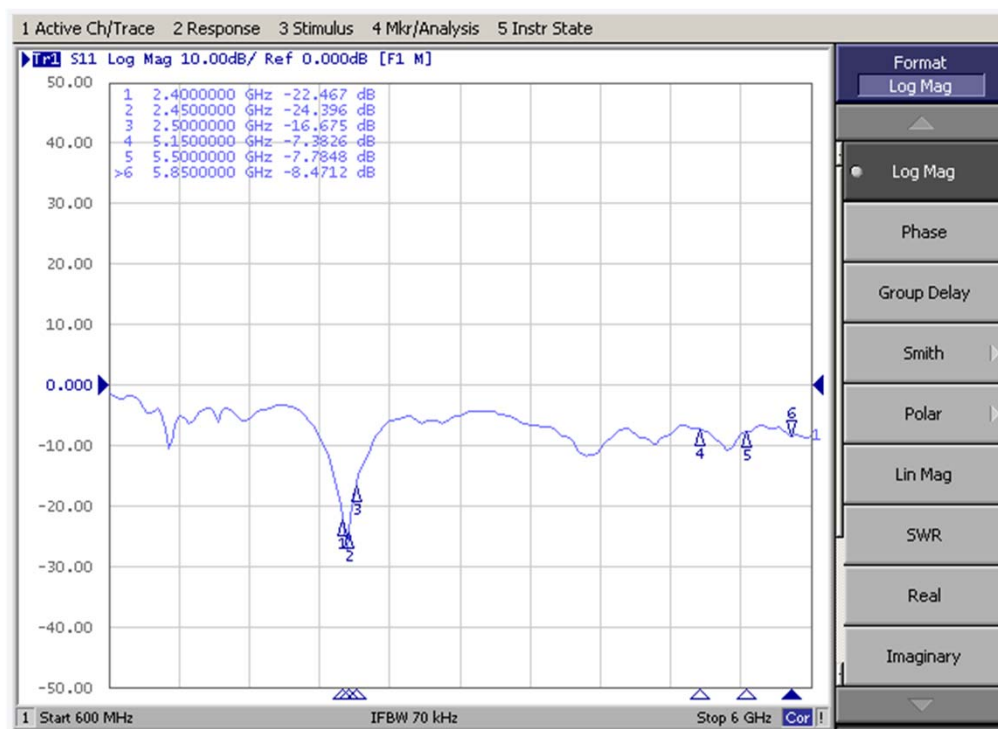
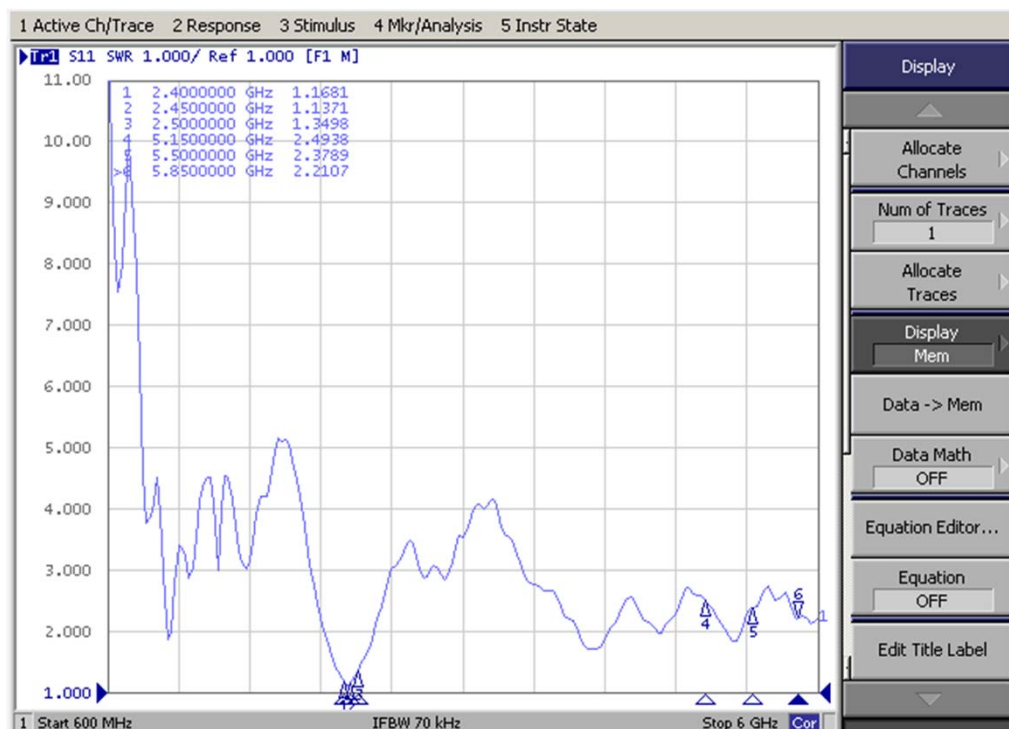
S Parameter_Return Loss&VSW (BT)

Dongguan UB Electronics Co., Ltd



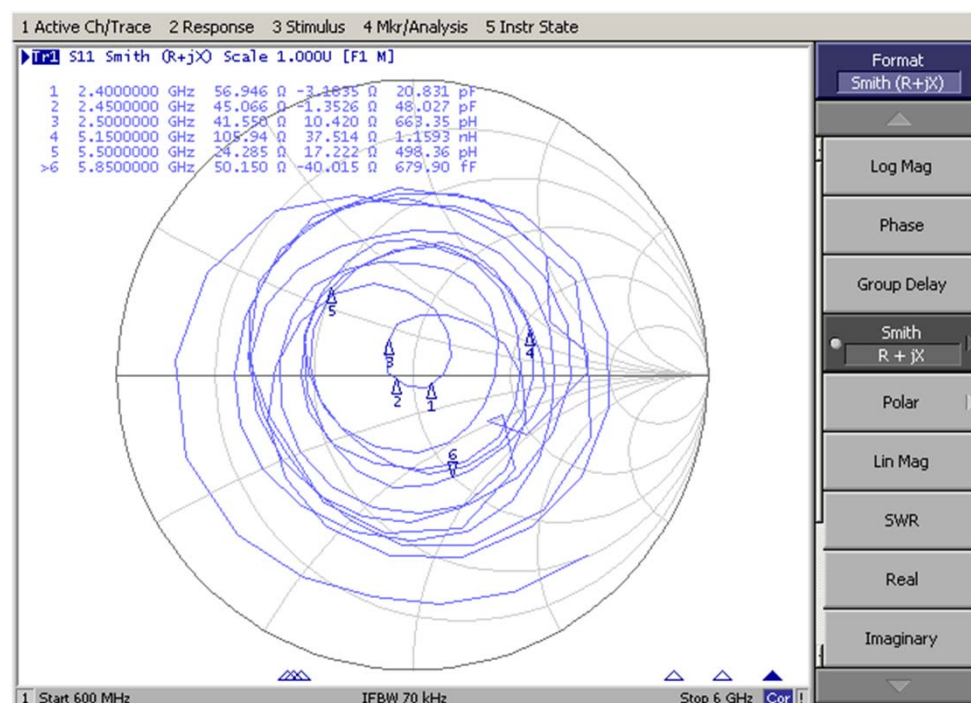
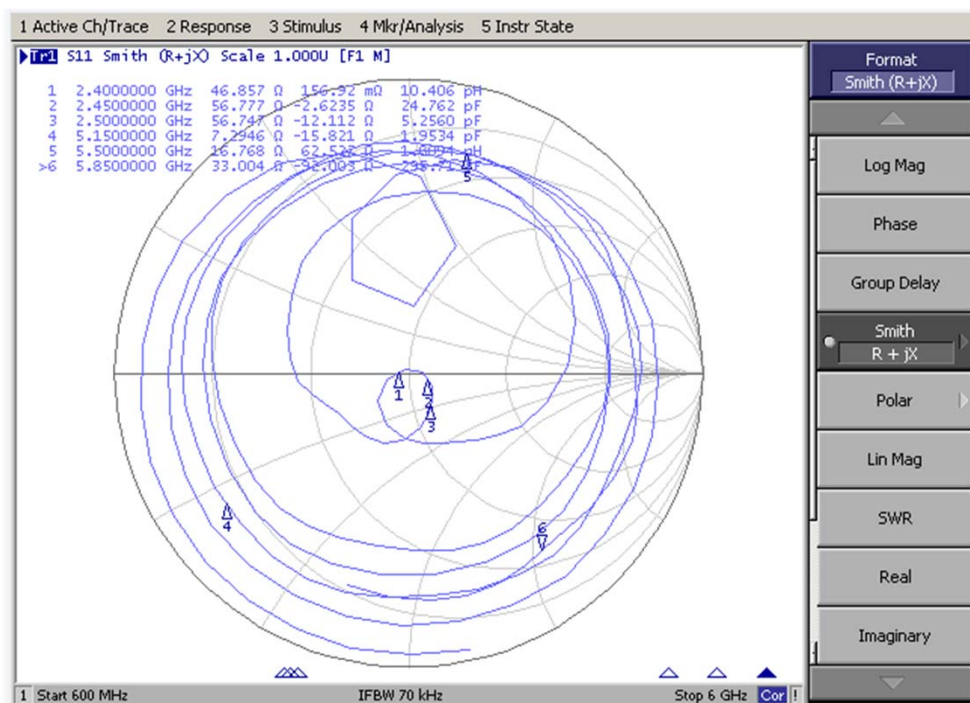
S Parameter_Return Loss&VSW (WIFI)

Dongguan UB Electronics Co., Ltd



S Parameter_Return Loss&VSW (BT+WIFI)

Dongguan UB Electronics Co., Ltd



Efficiency and Gain-Smith (BT+WIFI)

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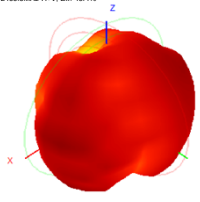
(BT)

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)	1.70	1.45	1.45	1.58	1.33	1.46	1.89	1.99	1.76	1.42	1.31
Efficiency (%)	49.45	50.27	50.52	50.78	50.29	51.09	52.22	51.99	50.42	49.80	49.29

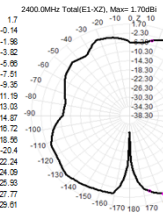
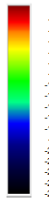
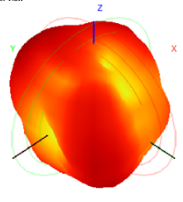
(WIFI)

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)	4.21	4.48	4.67	4.44	3.88	3.58	3.59	3.53	3.34	2.92	2.59
Efficiency (%)	60.86	60.27	60.74	61.30	60.46	60.76	61.96	62.19	60.63	59.66	59.04

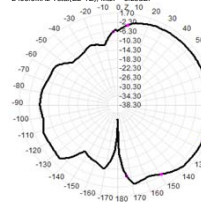
2400.0MHz H+V, E# 49.4%



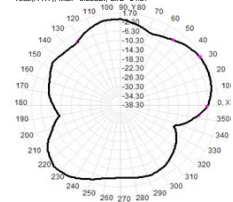
Back View



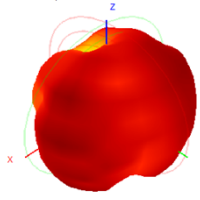
2400.0MHz Total(E2-YZ), Max= -0.29dB



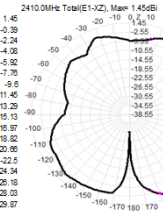
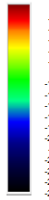
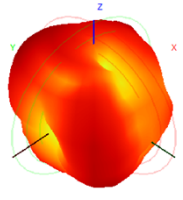
Total(H+V), Max= 0.23dB, CrD=14.87



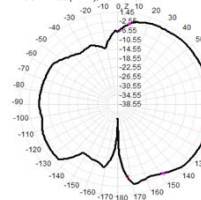
2410.0MHz H+V, E# 50.3%



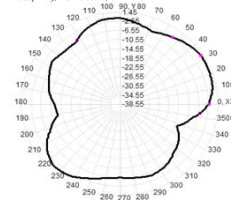
Back View



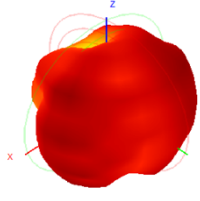
2410.0MHz Total(E2-YZ), Max= -0.19dB



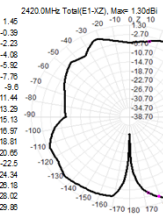
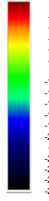
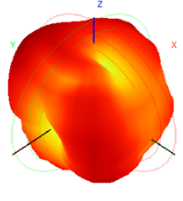
Total(H+V), Max= 0.39dB, CrD=14.02



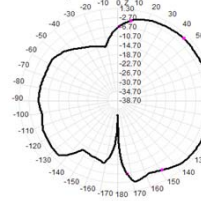
2420.0MHz H+V, E# 50.5%



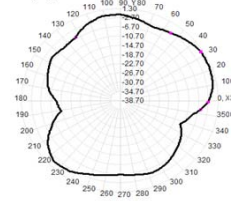
Back View



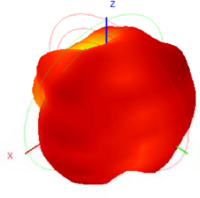
2420.0MHz Total(E2-YZ), Max= -0.34dB



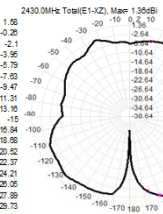
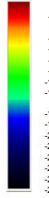
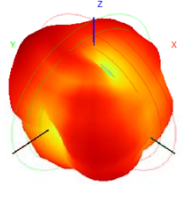
Total(H+V), Max= 0.23dB, CrD=14.68



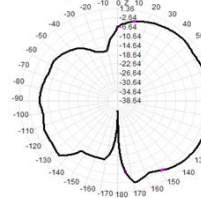
2430.0MHz H+V, E# 50.8%



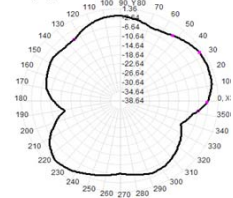
Back View



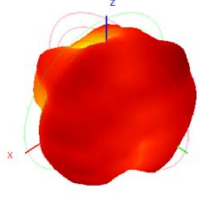
2430.0MHz Total(E2-YZ), Max= -0.47dB



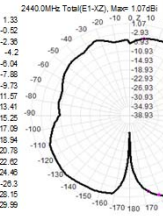
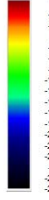
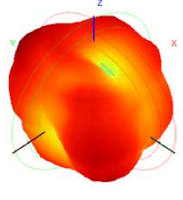
Total(H+V), Max= 0.27dB, CrD=15.80



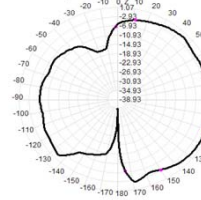
2440.0MHz H+V, E# 50.3%



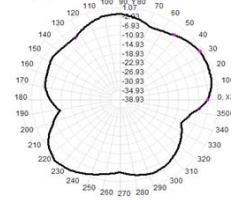
Back View



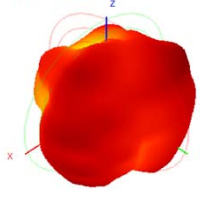
2440.0MHz Total(E2-YZ), Max= -0.59dB



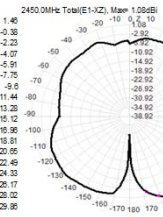
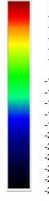
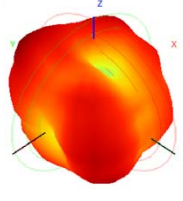
Total(H+V), Max= -0.45dB, CrD=13.70



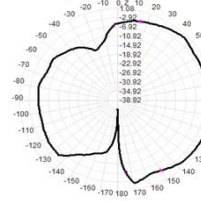
2450.0MHz H+V, E# 51.1%



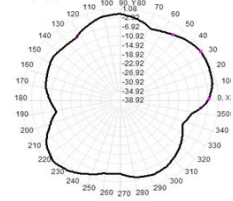
Back View



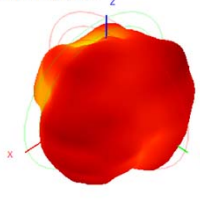
2450.0MHz Total(E2-YZ), Max= -0.39dB



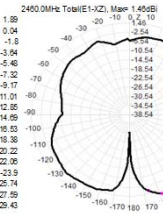
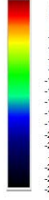
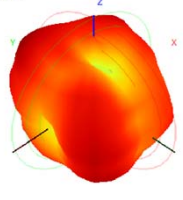
Total(H+V), Max= -0.01dB, CrD=12.71



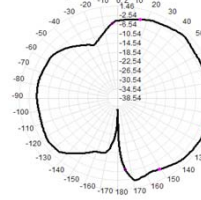
2460.0MHz H+V, E# 52.2%



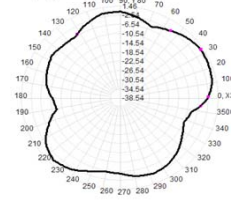
Back View



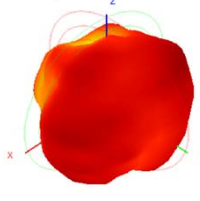
2460.0MHz Total(E2-YZ), Max= -0.13dB



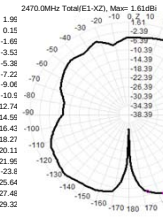
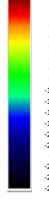
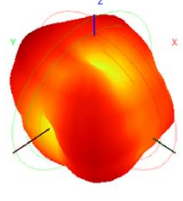
Total(H+V), Max= 0.29dB, CrD=12.80



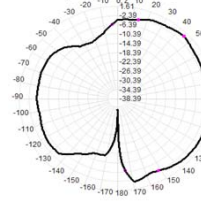
2470.0MHz H+V, E# 52.0%



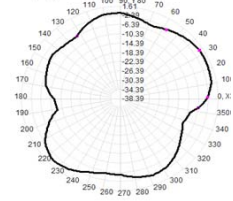
Back View



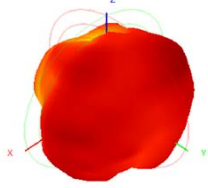
2470.0MHz Total(E2-YZ), Max= -0.06dB



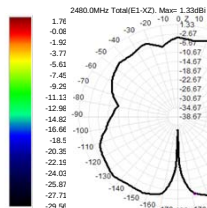
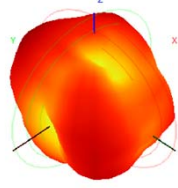
Total(H+V), Max= 0.01dB, CrD=12.63



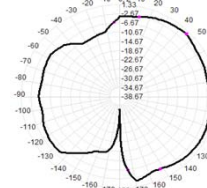
2480.0MHz H+V, EF: 50.4%



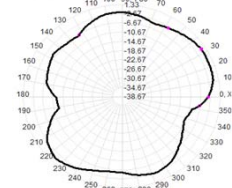
Back View



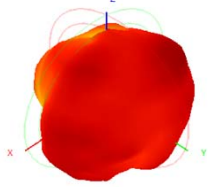
2480.0MHz Total(E2-YZ), Max: -0.18dB



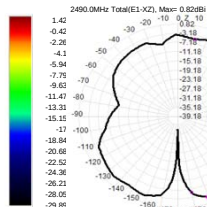
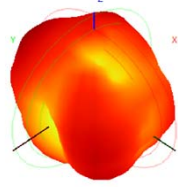
Total(H+V), Max: -0.54dB, C/D:12.19



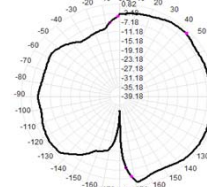
2490.0MHz H+V, EF: 49.9%



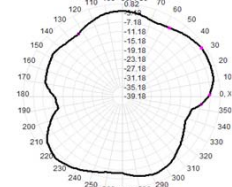
Back View



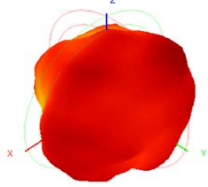
2490.0MHz Total(E2-YZ), Max: -0.74dB



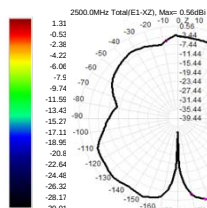
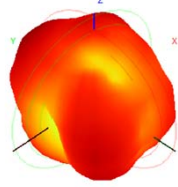
Total(H+V), Max: -0.85dB, C/D:12.07



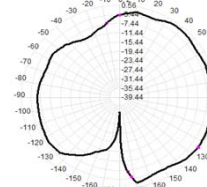
2500.0MHz H+V, EF: 49.3%



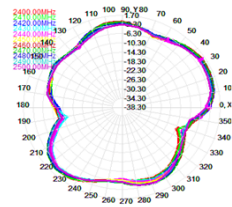
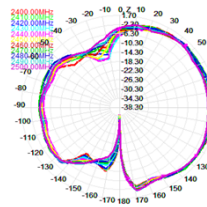
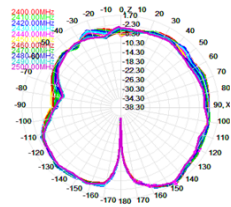
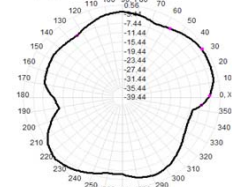
Back View

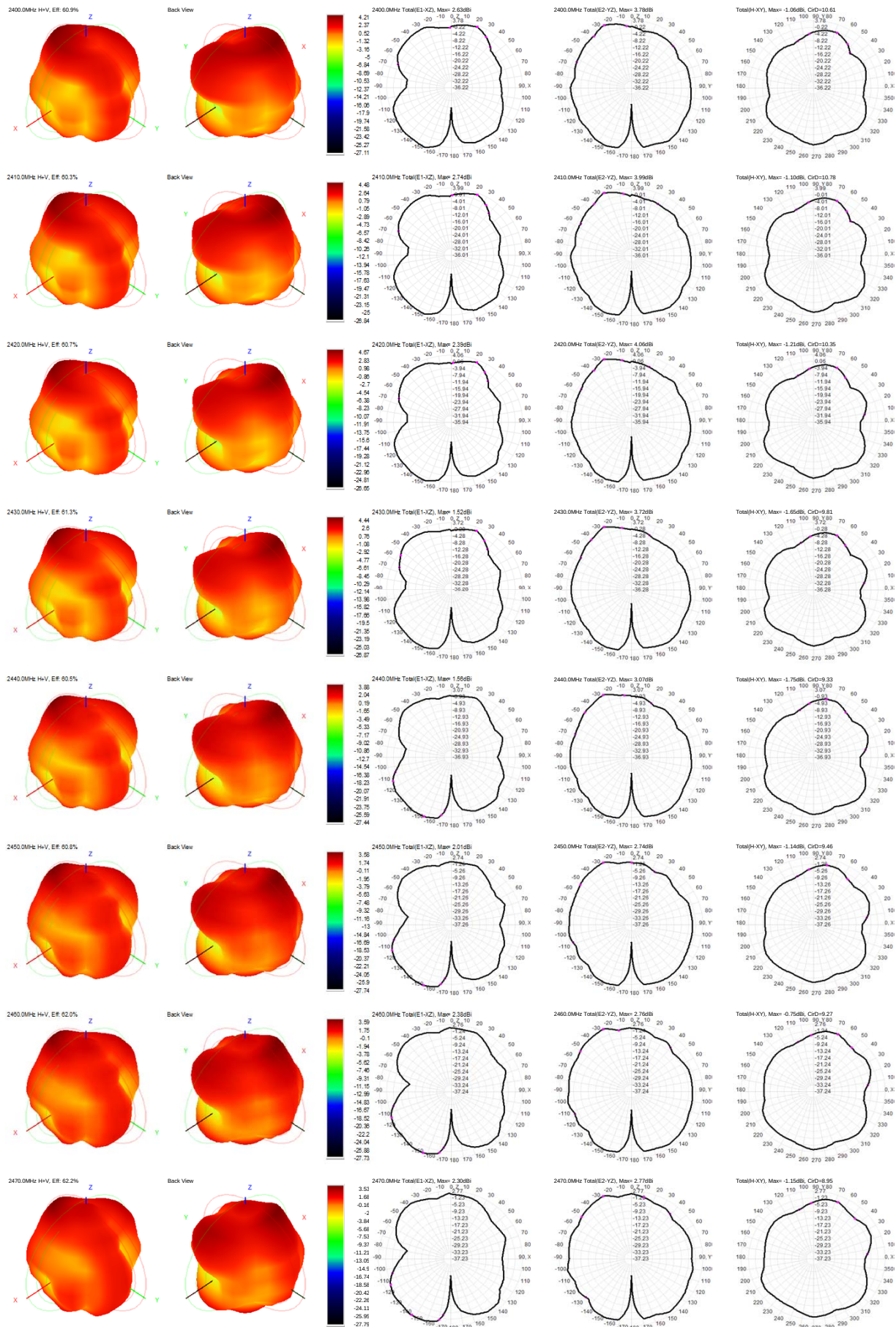


2500.0MHz Total(E2-YZ), Max: -0.77dB

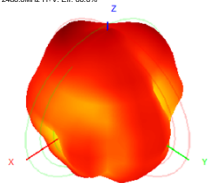


Total(H+V), Max: -1.00dB, C/D:12.56

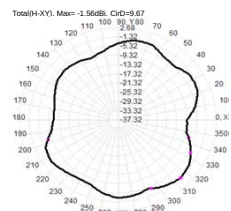
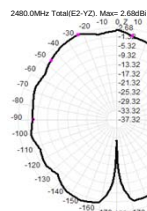
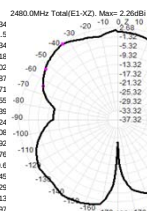
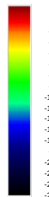
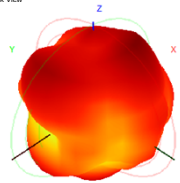




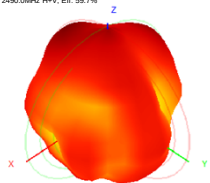
2480.0MHz H+V, Eff: 60.6%



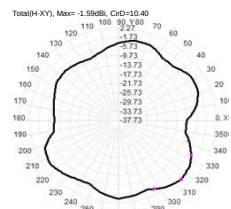
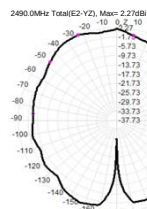
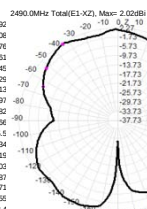
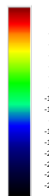
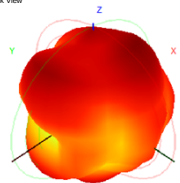
Back View



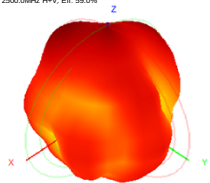
2490.0MHz H+V, Eff: 59.7%



Back View



2500.0MHz H+V, Eff: 59.0%



Back View

