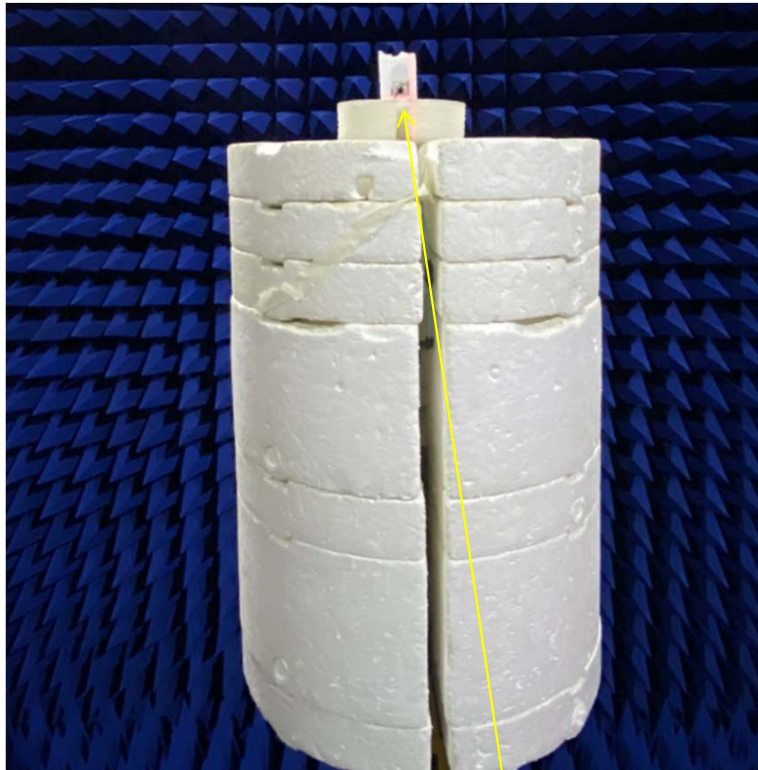


Antenna Study

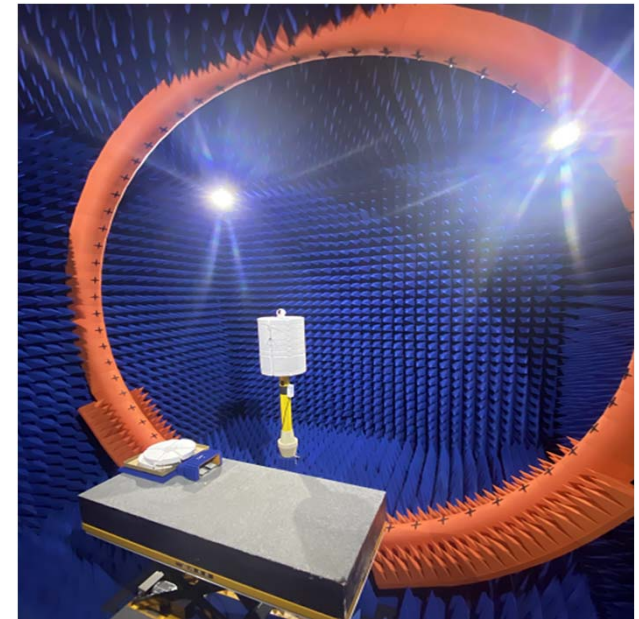
- **Client Name: MClimate Jsc**
- **Project Name : MClimate Vicki LoRaWAN**
- **Debugging frequency band: 900-920HMz**
- **Valuation date: 2024.06.25**
- **Linkman contacts: gao shang 18925546490**

PCB Antenna

Dongguan UB Electronics Co., Ltd



Testing environment



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

PCB Antenna

Dongguan UB Electronics Co., Ltd

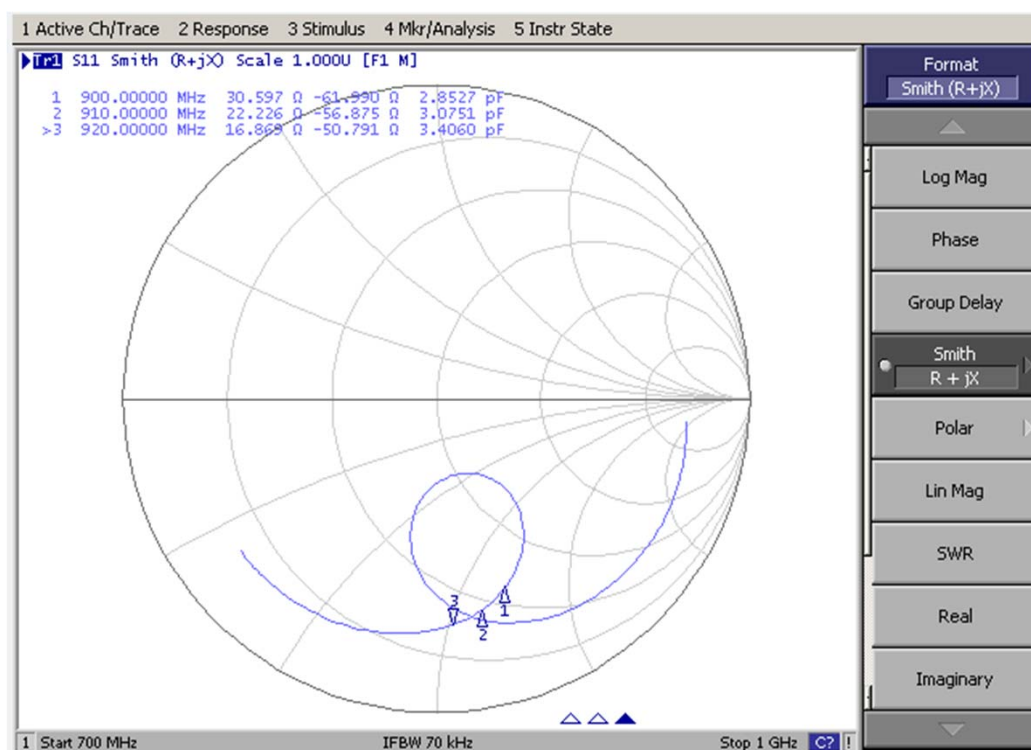
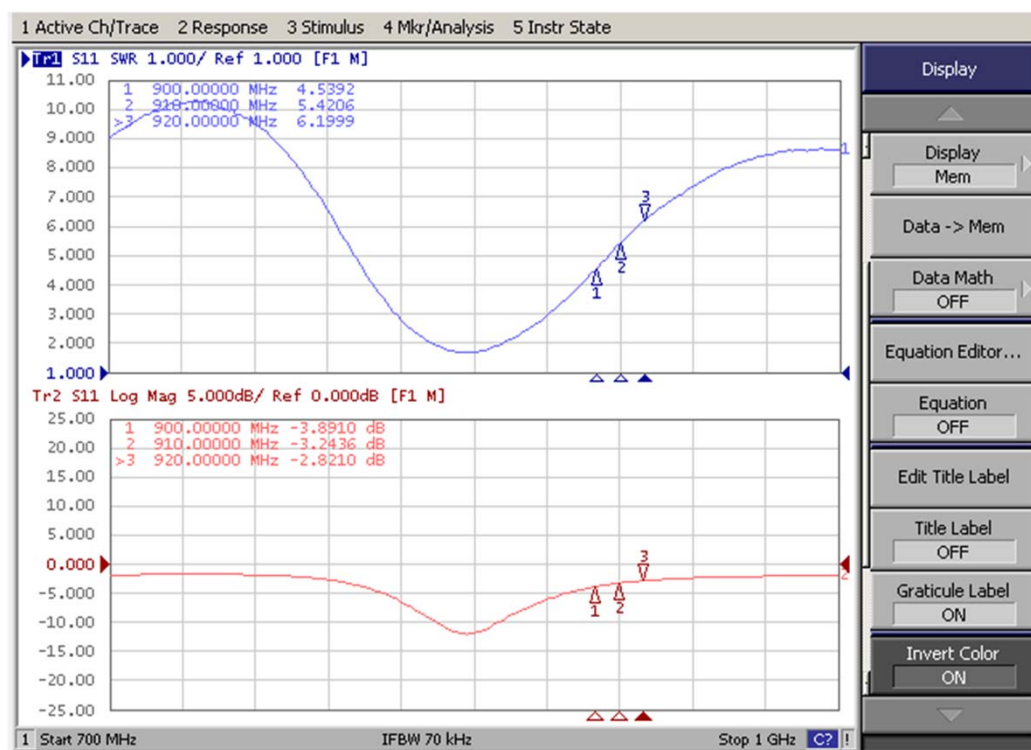


Antenna

- Antenna name: LoRa
- Antenna Type: PCB
- Covers : 900/920MHz

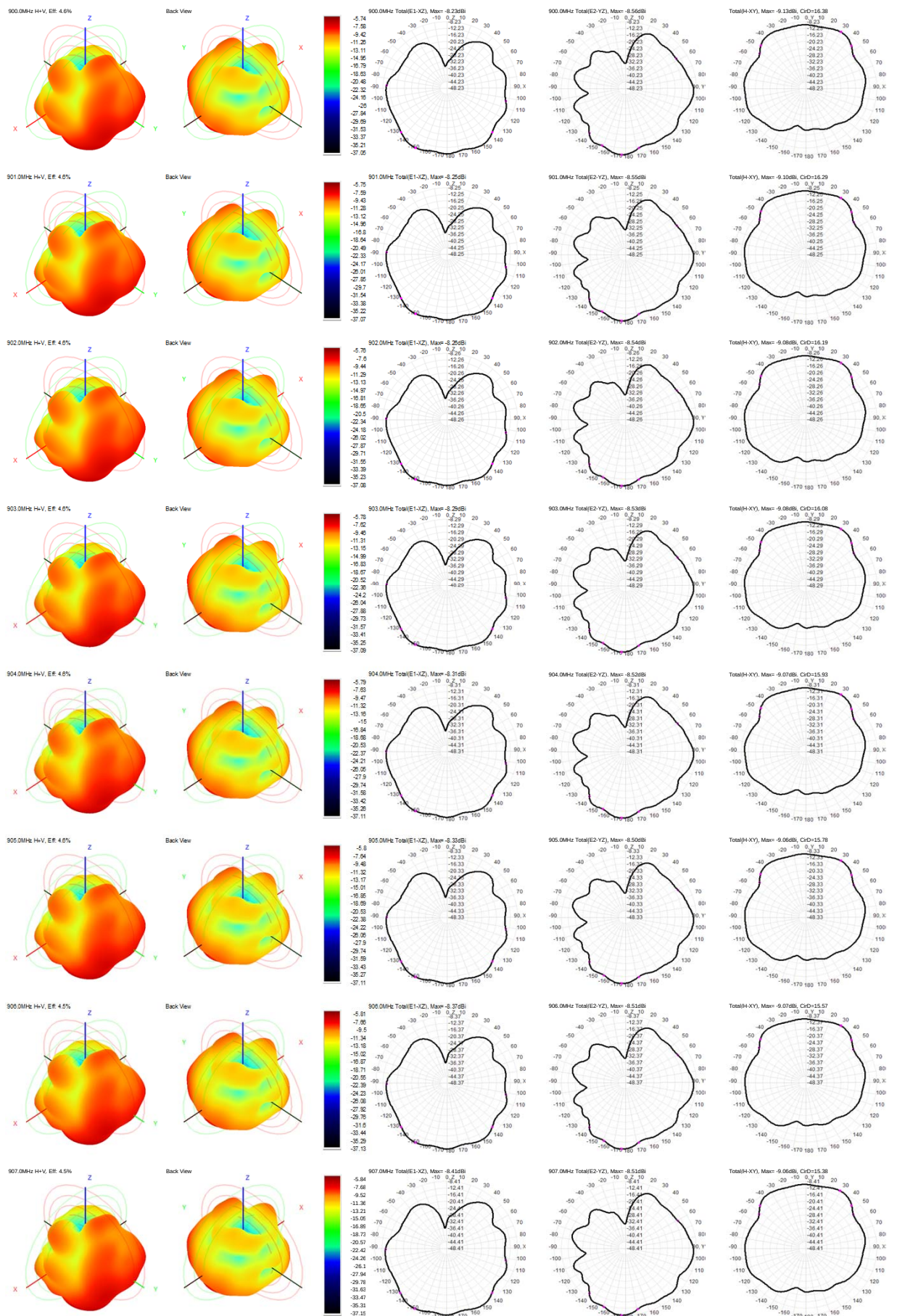
S Parameter_Return Loss&VSWR-Smith

Dongguan UB Electronics Co., Ltd

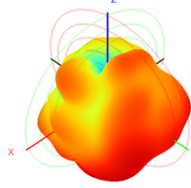


Efficiency and Gain

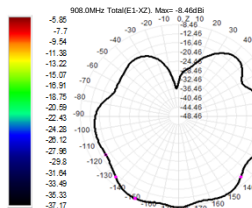
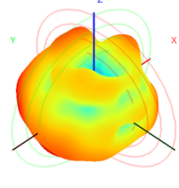
Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Frequency (MHz)	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920
Gain (dBi)	-5.74	-5.75	-5.76	-5.78	-5.79	-5.80	-5.81	-5.84	-5.85	-5.88	-5.91	-5.90	-5.90	-5.91	-5.92	-5.92	-5.94	-5.96	-5.97	-5.96	-5.94
Efficiency (%)	4.62	4.61	4.60	4.59	4.57	4.55	4.53	4.50	4.47	4.43	4.40	4.38	4.36	4.33	4.30	4.28	4.25	4.22	4.20	4.19	4.18



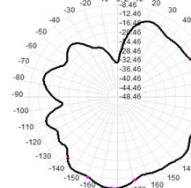
908.0MHz H+V, EF: 4.5%



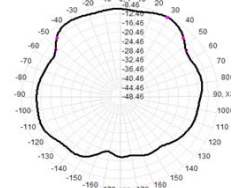
Back View



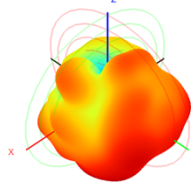
908.0MHz Total(E1-YZ), Max: -8.45dB



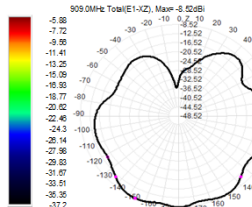
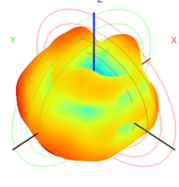
Total(H+V), Max: -9.05dB, CRD:15.20



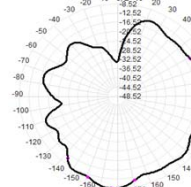
909.0MHz H+V, EF: 4.4%



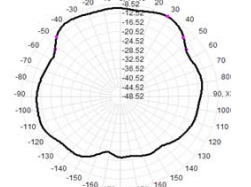
Back View



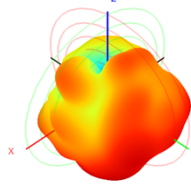
909.0MHz Total(E1-YZ), Max: -8.52dB



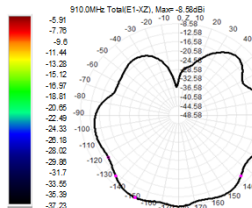
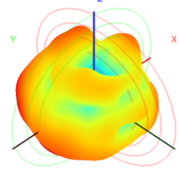
Total(H+V), Max: -9.04dB, CRD:14.95



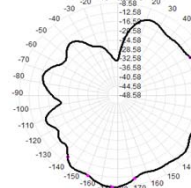
910.0MHz H+V, EF: 4.4%



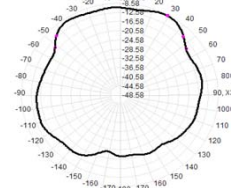
Back View



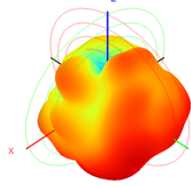
910.0MHz Total(E1-YZ), Max: -8.58dB



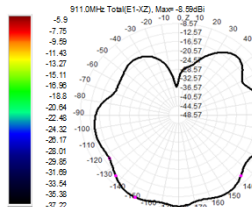
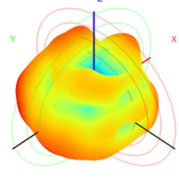
Total(H+V), Max: -9.04dB, CRD:14.70



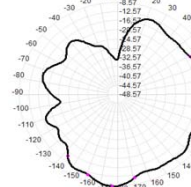
911.0MHz H+V, EF: 4.4%



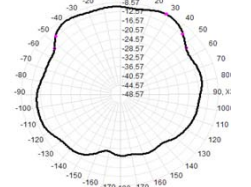
Back View



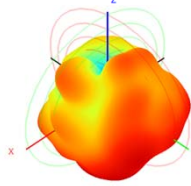
911.0MHz Total(E1-YZ), Max: -8.59dB



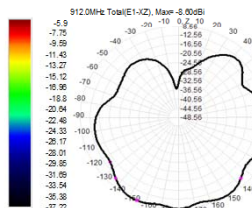
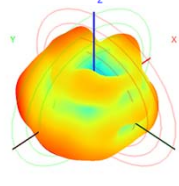
Total(H+V), Max: -9.03dB, CRD:14.41



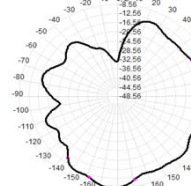
912.0MHz H+V, EF: 4.4%



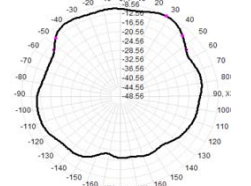
Back View



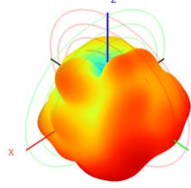
912.0MHz Total(E1-YZ), Max: -8.60dB



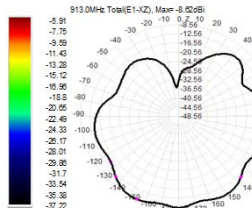
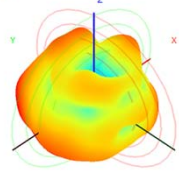
Total(H+V), Max: -9.03dB, CRD:14.16



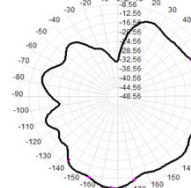
913.0MHz H+V, EF: 4.3%



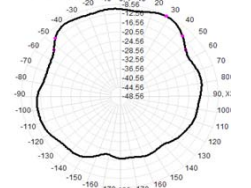
Back View



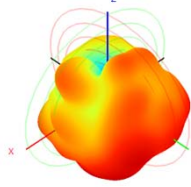
913.0MHz Total(E1-YZ), Max: -8.62dB



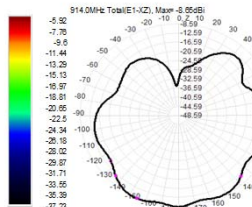
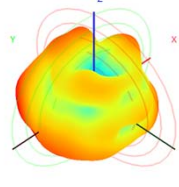
Total(H+V), Max: -9.01dB, CRD:13.89



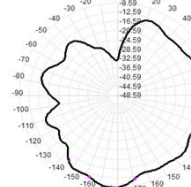
914.0MHz H+V, EF: 4.3%



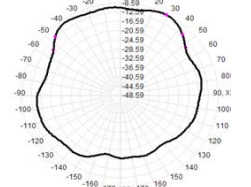
Back View



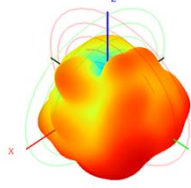
914.0MHz Total(E1-YZ), Max: -8.63dB



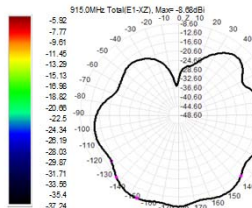
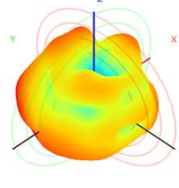
Total(H+V), Max: -9.02dB, CRD:13.61



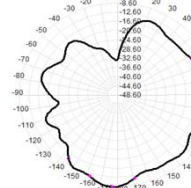
915.0MHz H+V, EF: 4.3%



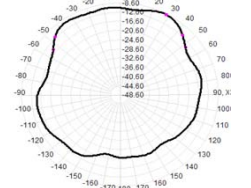
Back View



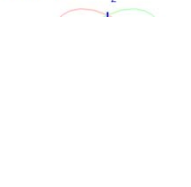
915.0MHz Total(E1-YZ), Max: -8.64dB



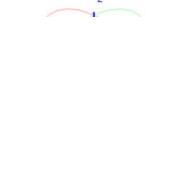
Total(H+V), Max: -9.01dB, CRD:13.38



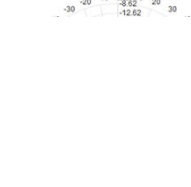
916.0MHz H+V, EF: 4.2%



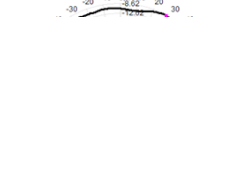
Back View

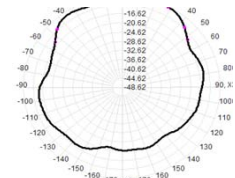
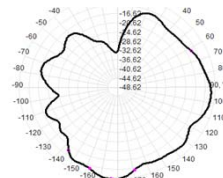
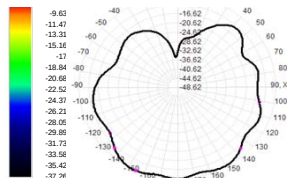
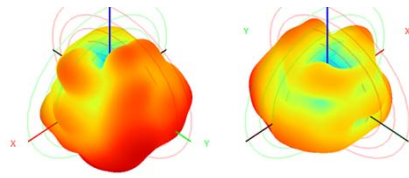


916.0MHz Total(E1-YZ), Max: -8.71dB



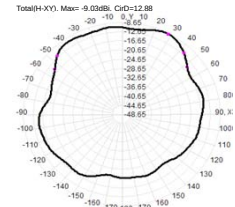
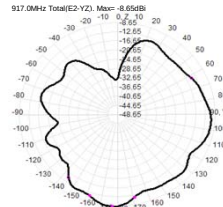
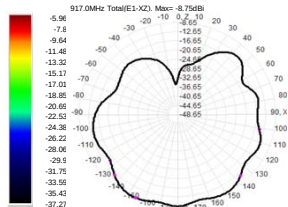
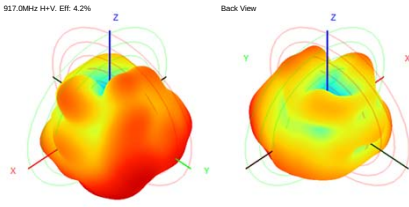
Total(H+V), Max: -9.03dB, CRD:13.12





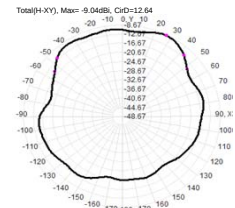
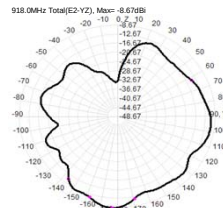
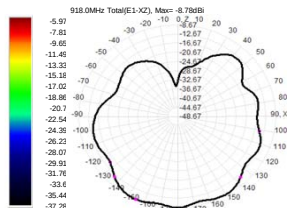
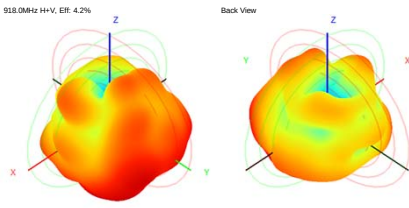
917.0MHz H+V, EIR: 4.2%

Back View



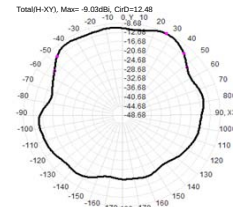
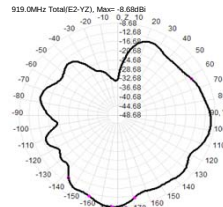
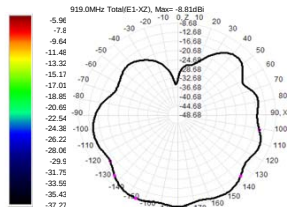
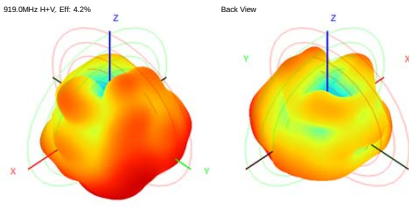
918.0MHz H+V, EIR: 4.2%

Back View



919.0MHz H+V, EIR: 4.2%

Back View



920.0MHz H+V, EIR: 4.2%

Back View

