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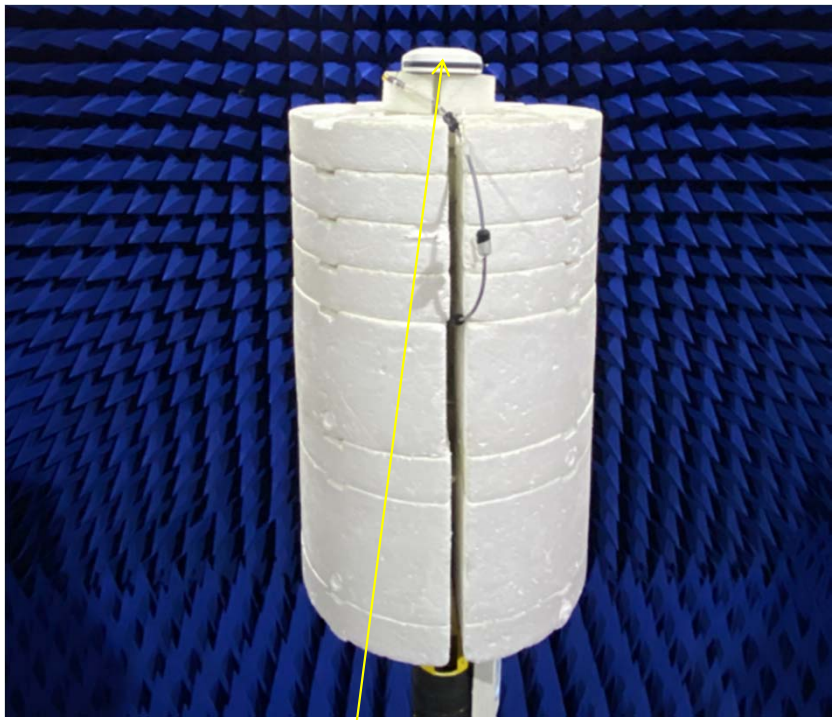
东莞市优比电子有限公司
Dongguan UB Electronics Co.,Ltd

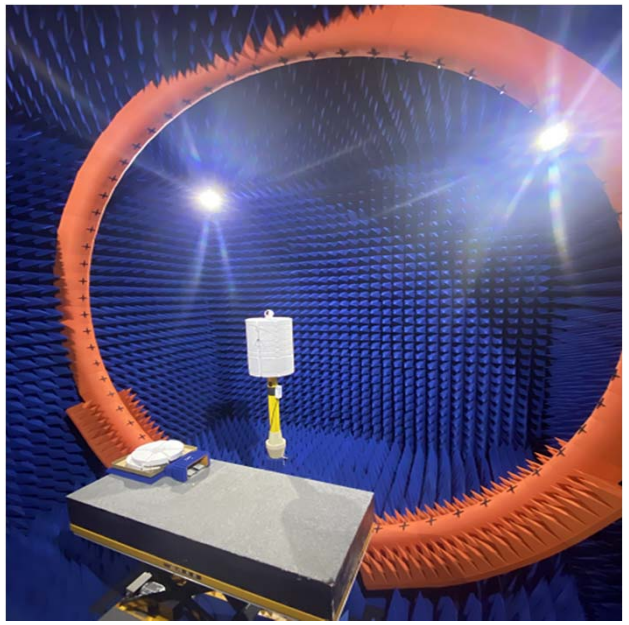
Antenna Study

- **Client Name:Nexelec**
- **Project Name:KARE+**
- **Debugging frequency band: 915MHz**
- **Valuation date： 2024.04.14**

PCB Antenna

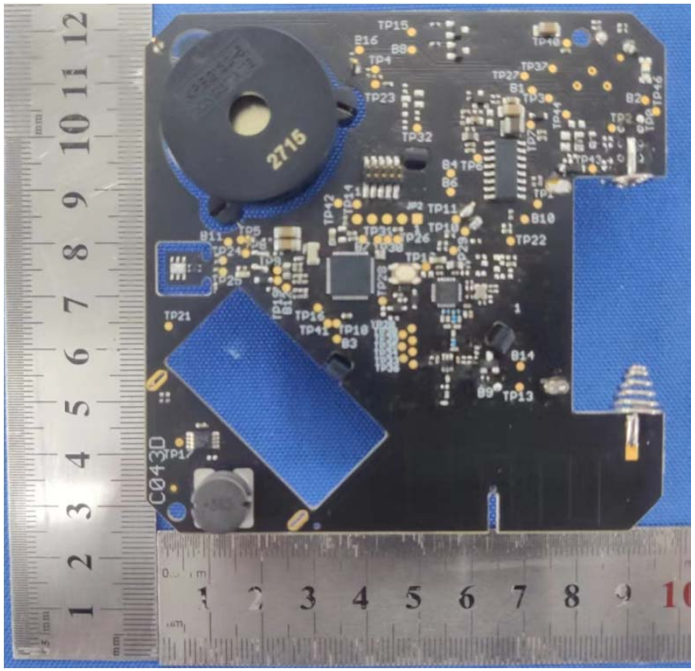


Testing environment



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

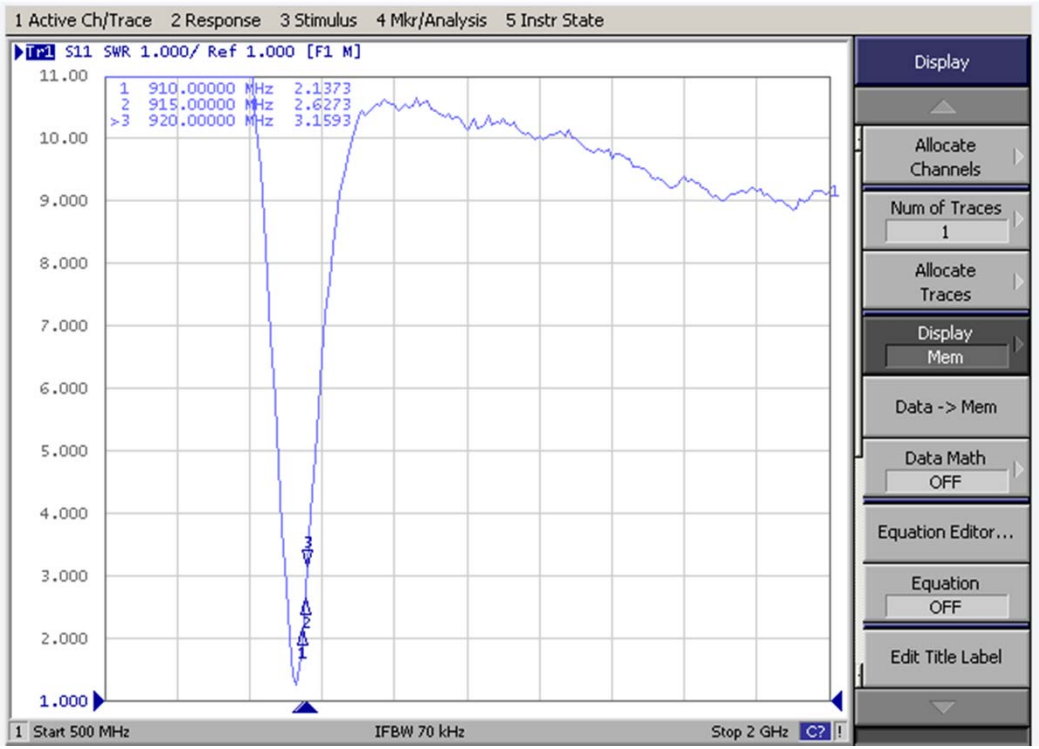
PCB Antenna

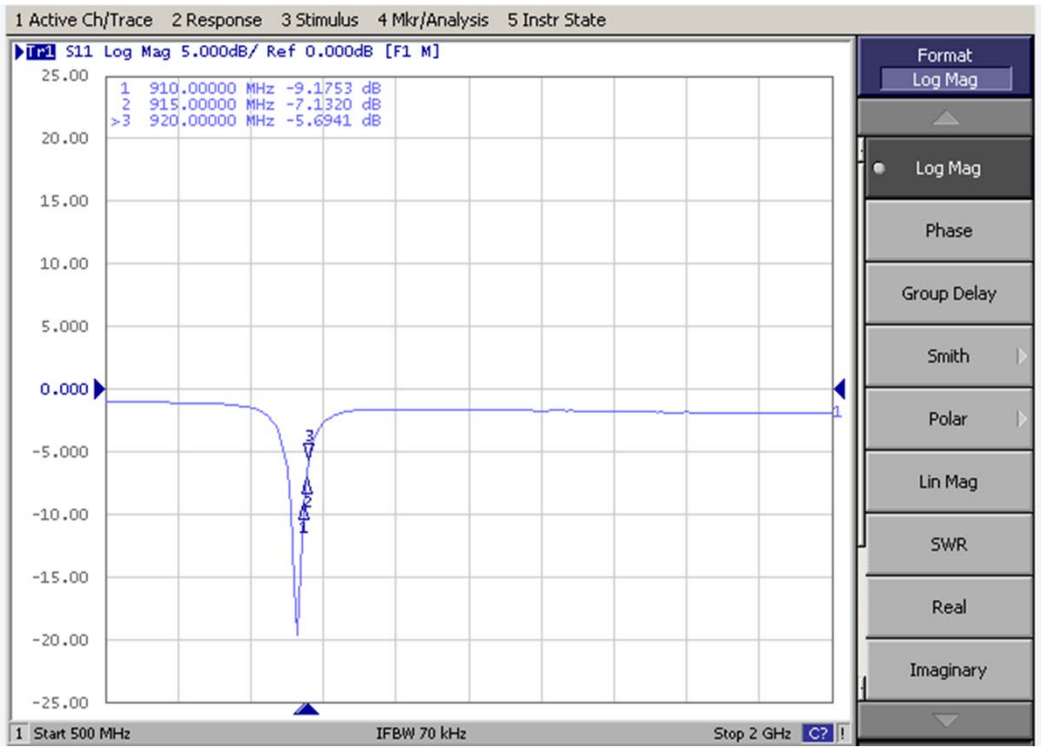


Antenna

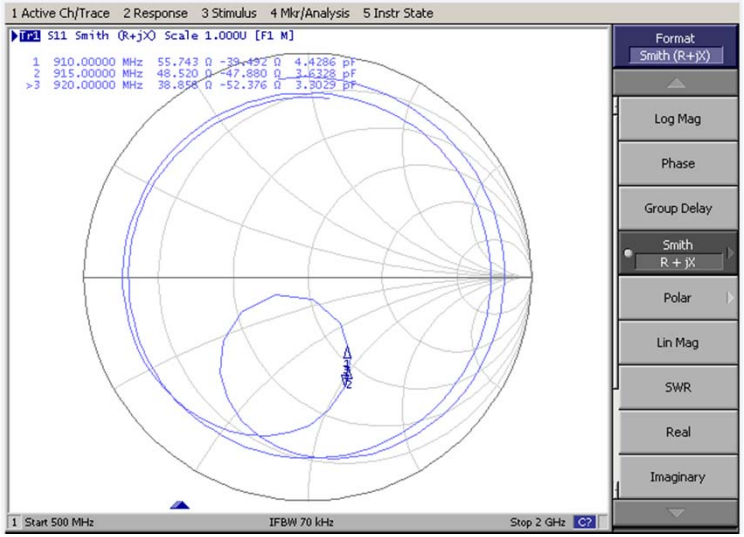
- Antenna name: LoRa
- Antenna Type： PCB Antenna
- Covers ： 915MHz

S Parameter_Return Loss&VSWR（LoRa）



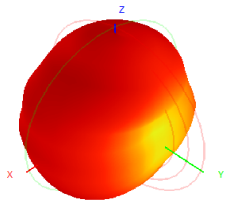


Efficiency and Gain-Smith（LoRa）

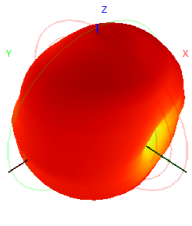


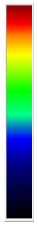
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	910.0	911.0	912.0	913.0	914.0	915.0	916.0	917.0	918.0	919.0	920.0
Gain (dBi)	-0.67	-0.65	-0.62	-0.58	-0.55	-0.51	-0.45	-0.41	-0.37	-0.34	-0.32
Efficiency (%)	26.21	26.02	25.87	25.80	25.72	25.58	25.56	25.44	25.25	25.01	24.74

910.0MHz H+V, Eff: 26.2%



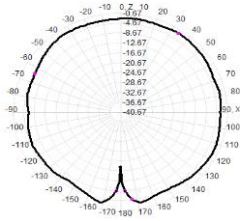
Back View



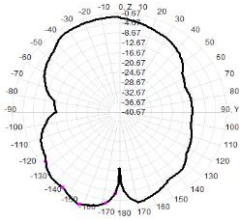


910.0MHz Total(E1-XZ), Max= -2.18dBi

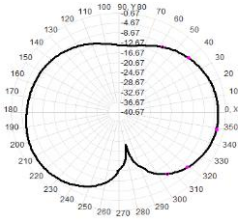
-0.67
-2.51
-4.35
-6.19
-8.03
-9.88
-11.72
-13.56



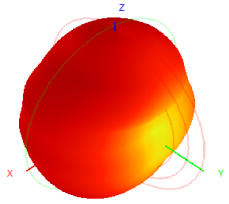
910.0MHz Total(E2-YZ), Max= -0.67dBi



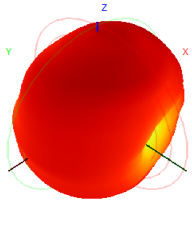
Total(H-XY), Max= -3.60dBi, CirD=23.75

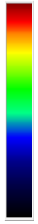


911.0MHz H+V, Eff: 26.0%



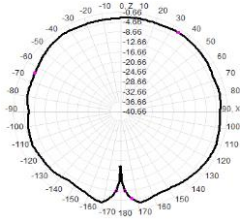
Back View



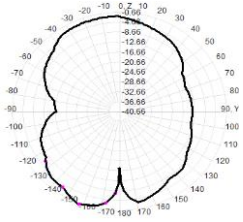


911.0MHz Total(E1-XZ), Max= -2.23dBi

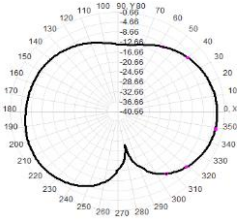
-0.65
-2.49
-4.33
-6.17
-8.01
-9.86
-11.7
-13.54



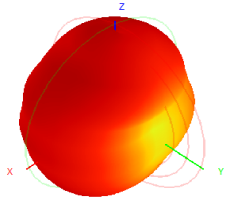
911.0MHz Total(E2-YZ), Max= -0.66dBi



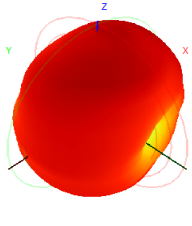
Total(H-XY), Max= -3.63dBi, CirD=23.52

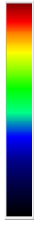


912.0MHz H+V, Eff: 25.9%



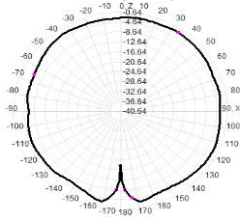
Back View



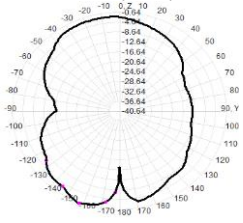


912.0MHz Total(E1-XZ), Max= -2.27dBi

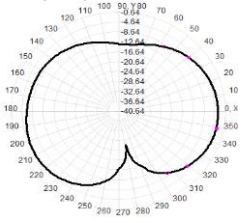
-0.62
-2.47
-4.31
-6.15
-7.99
-9.83
-11.68
-13.52



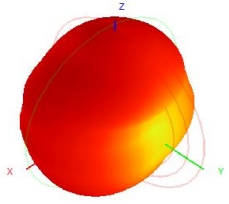
912.0MHz Total(E2-YZ), Max= -0.64dBi



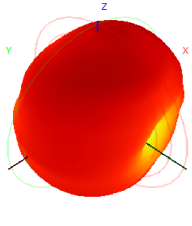
Total(H-XY), Max= -3.66dBi, CirD=23.14

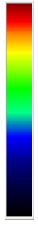


913.0MHz H+V, Eff: 25.8%



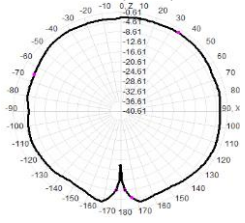
Back View



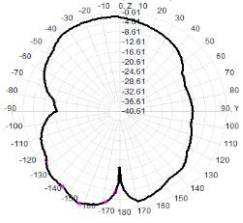


913.0MHz Total(E1-XZ), Max= -2.29dBi

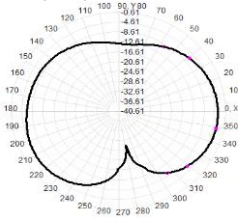
-0.58
-2.43
-4.27
-6.11
-7.95
-9.79
-11.64
-13.48



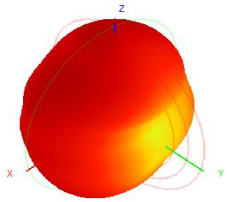
913.0MHz Total(E2-YZ), Max= -0.61dBi



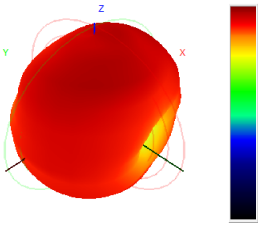
Total(H-XY), Max= -3.68dBi, CirD=22.84



914.0MHz H+V, Eff: 25.7%

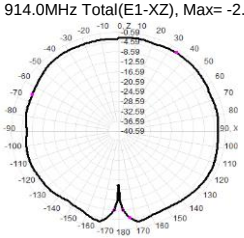


Back View

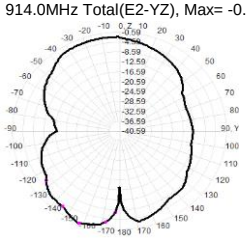


914.0MHz Total(E1-XZ), Max= -2.32dBi

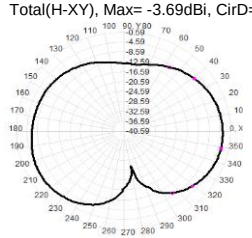
-0.55
-2.39
-4.23
-6.07
-7.92
-9.76
-11.6
-13.44



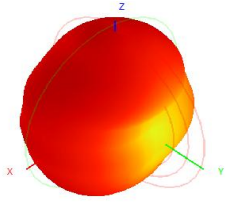
914.0MHz Total(E2-YZ), Max= -0.59dBi



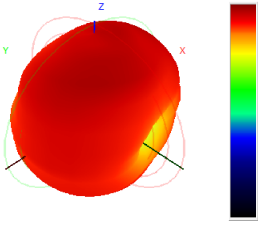
Total(H-XY), Max= -3.69dBi, CirD=22.45



915.0MHz H+V, Eff: 25.6%

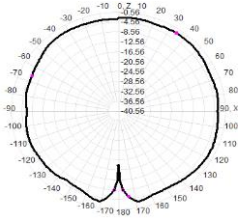


Back View

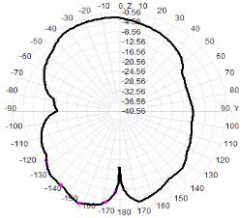


915.0MHz Total(E1-XZ), Max= -2.36dBi

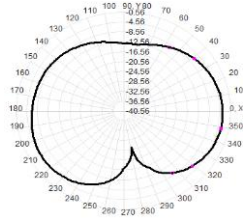
-0.51
-2.35
-4.19
-6.03
-7.87
-9.72
-11.56
-13.4



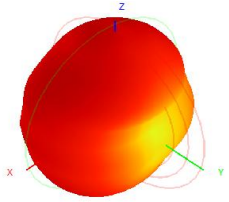
915.0MHz Total(E2-YZ), Max= -0.56dBi



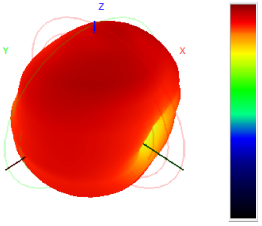
Total(H-XY), Max= -3.71dBi, CirD=22.10



916.0MHz H+V, Eff: 25.6%

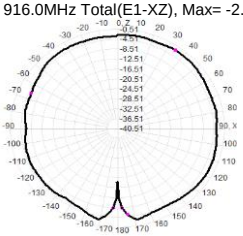


Back View

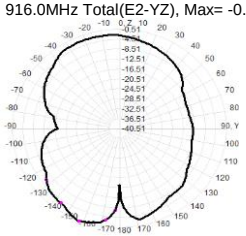


916.0MHz Total(E1-XZ), Max= -2.35dBi

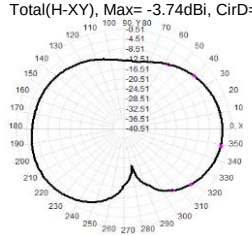
-0.45
-2.29
-4.13
-5.98
-7.82
-9.66
-11.5
-13.34



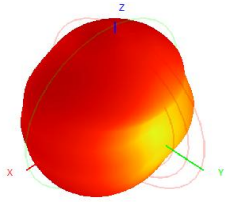
916.0MHz Total(E2-YZ), Max= -0.51dBi



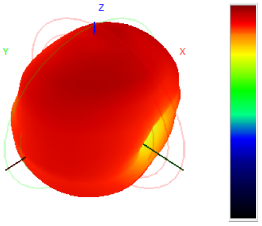
Total(H-XY), Max= -3.74dBi, CirD=21.74



917.0MHz H+V, Eff: 25.4%

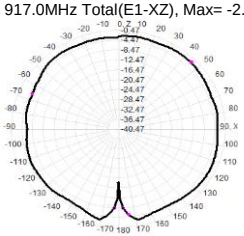


Back View

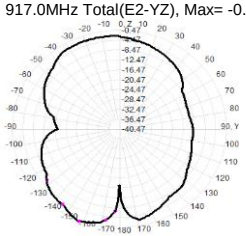


917.0MHz Total(E1-XZ), Max= -2.37dBi

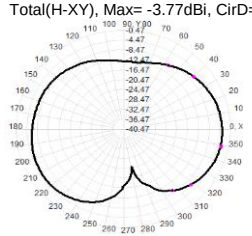
-0.41
-2.25
-4.09
-5.93
-7.78
-9.62
-11.46
-13.3



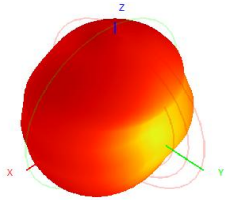
917.0MHz Total(E2-YZ), Max= -0.47dBi



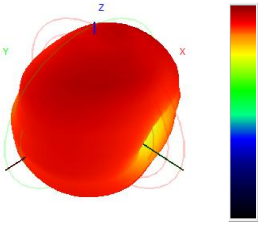
Total(H-XY), Max= -3.77dBi, CirD=21.35



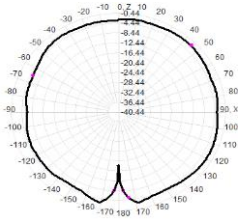
918.0MHz H+V, Eff: 25.3%



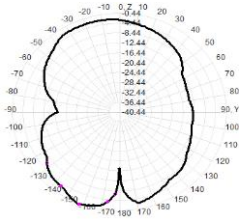
Back View



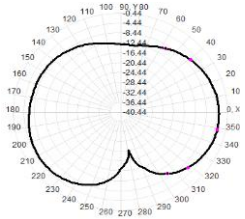
918.0MHz Total(E1-XZ), Max= -2.38dBi



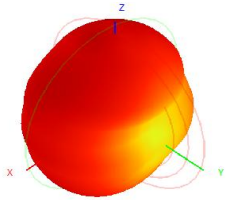
918.0MHz Total(E2-YZ), Max= -0.44dBi



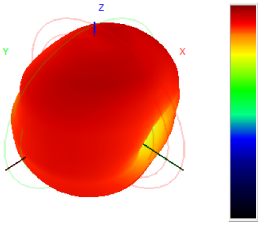
Total(H-XY), Max= -3.80dBi, CirD=20.97



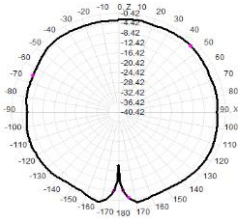
919.0MHz H+V, Eff: 25.0%



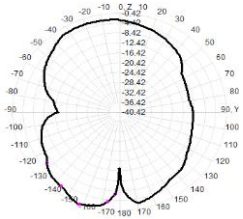
Back View



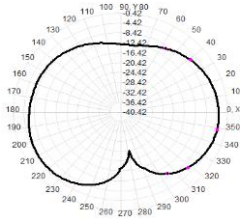
919.0MHz Total(E1-XZ), Max= -2.43dBi



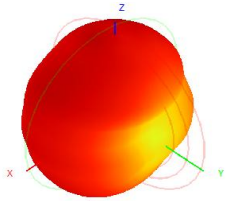
919.0MHz Total(E2-YZ), Max= -0.42dBi



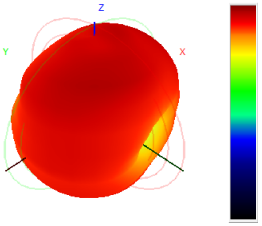
Total(H-XY), Max= -3.82dBi, CirD=20.61



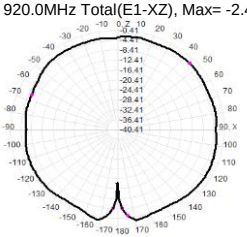
920.0MHz H+V, Eff: 24.7%



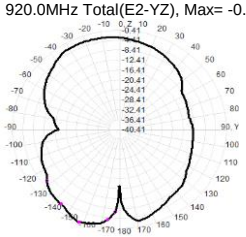
Back View



920.0MHz Total(E1-XZ), Max= -2.49dBi



920.0MHz Total(E2-YZ), Max= -0.41dBi



Total(H-XY), Max= -3.85dBi, CirD=20.21