



Antenna SPC

Project Name: Beacon-BT

Project Type: Wireless RF Tag

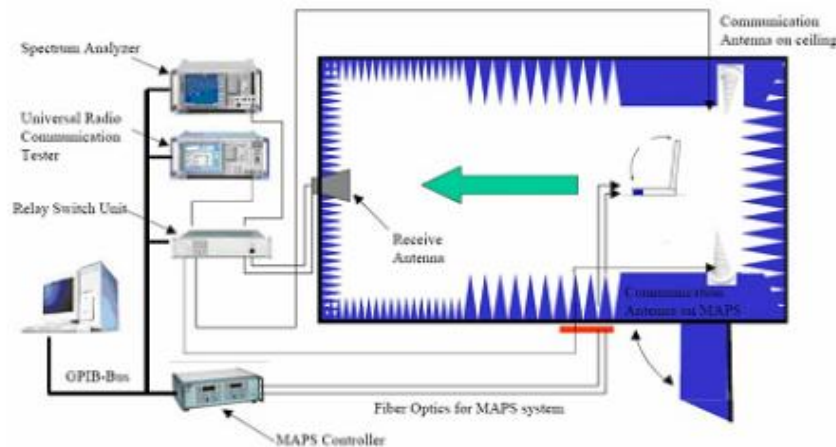
Data:2025.03.20

Version: V2

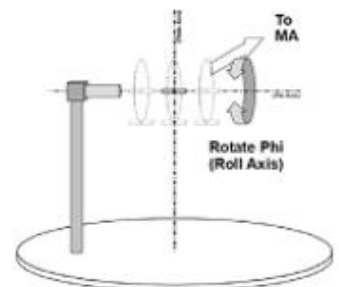
Test Equipment List

1	Agilent 5071B/5062A Network Analyzer: Frequency range 300K to 8G, tests Return Loss, VSWR (Voltage Standing Wave Ratio), and Smith chart.
2	2 Agilent 8960 Communication Test Set: Tests 2G (CDMA/GSM), 3G (EVDO/WCDMA/TD) TRP /TIS .
3	Starpoint SP6010 Communication Test Set: Tests GSM/TD TRP/TIS and CMMB (China Multimedia Mobile Broadcasting).
4	Starpoint SP8011Communication Test Set: test 4G LTE TRP/TIS
5	GPS-101: test GPS conduction
6	Two 7X4X3(m)、one 6X3X3(m) 3D Microwave Anechoic Chambers

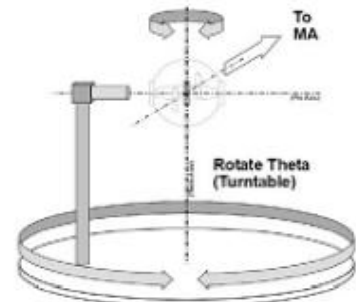
Test Setup



(Testing by 3D anechoic chamber)

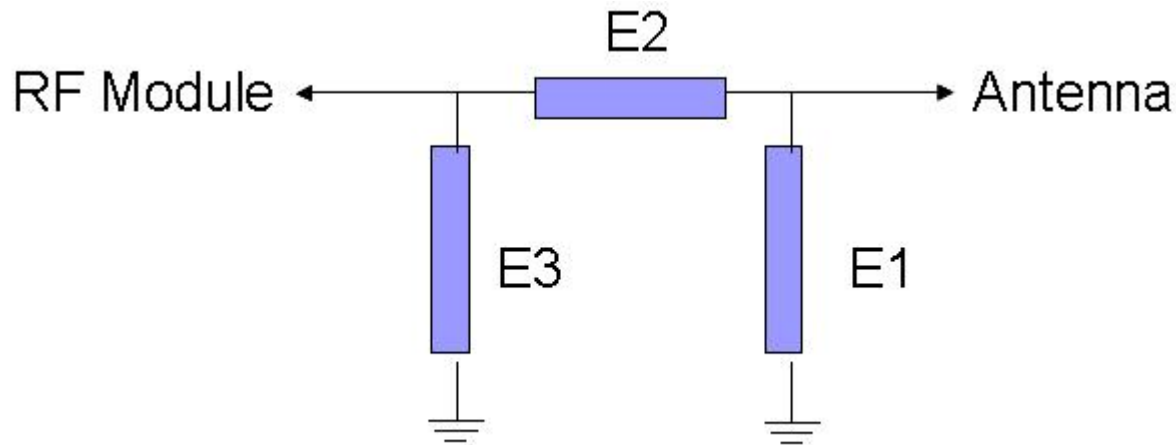


Phi axis test



Theta axis test

Matching Circuit

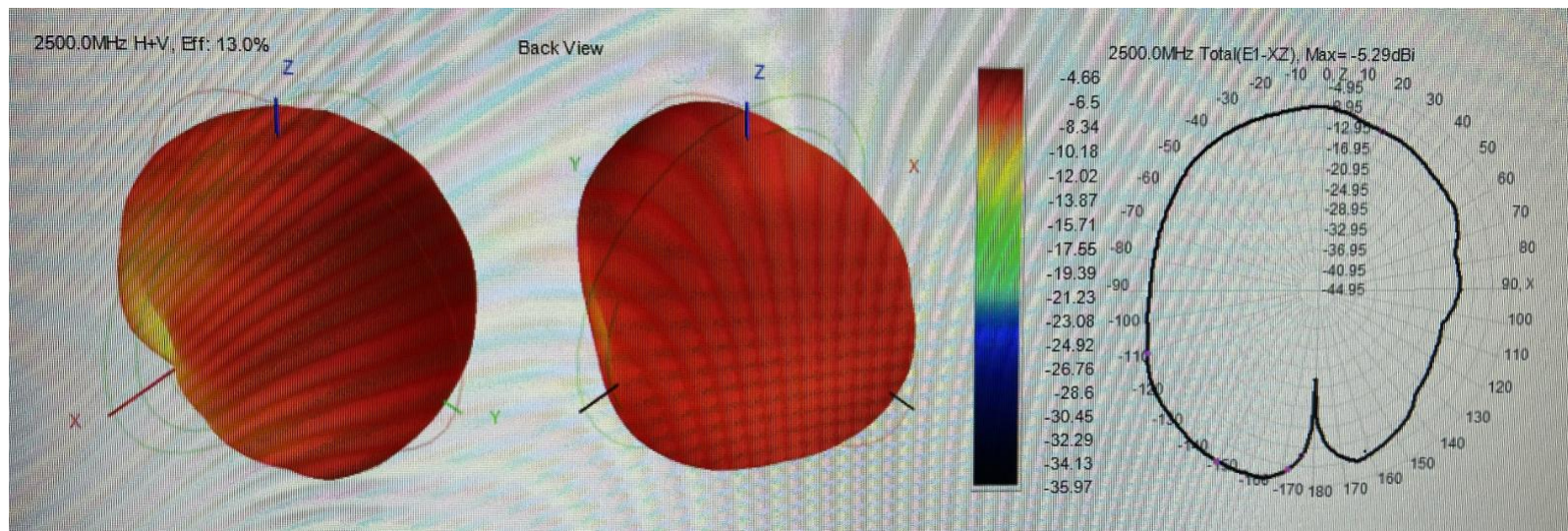
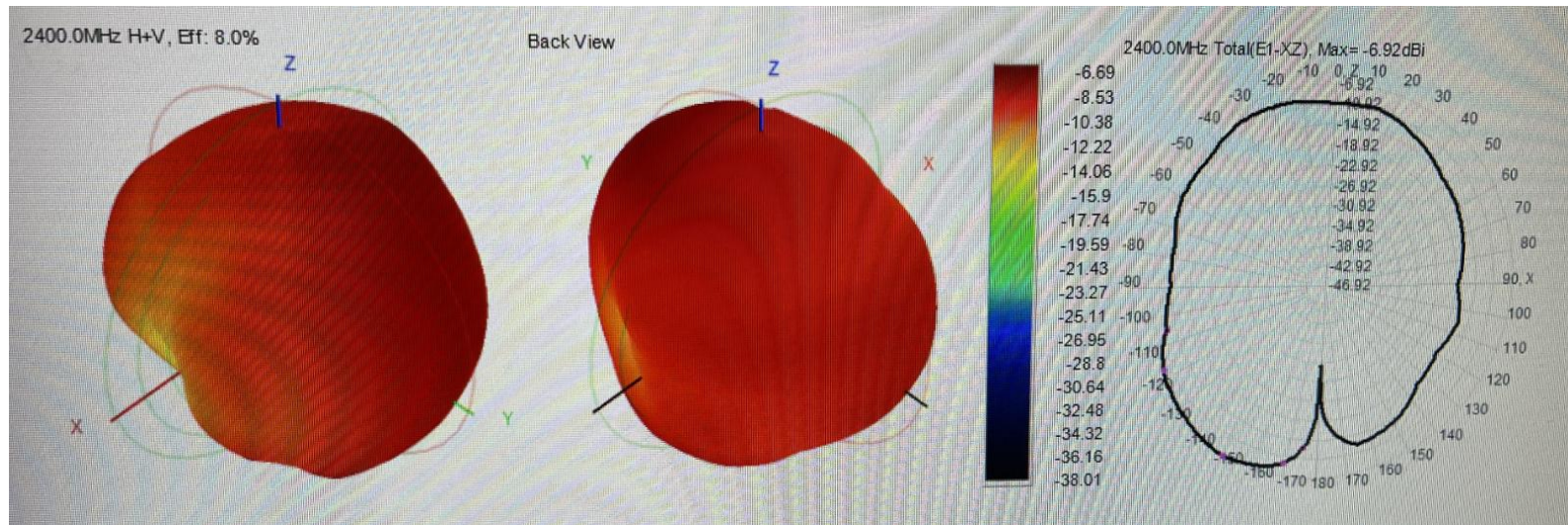


The matching circuit is modified as follows:
original matching, unchanged.

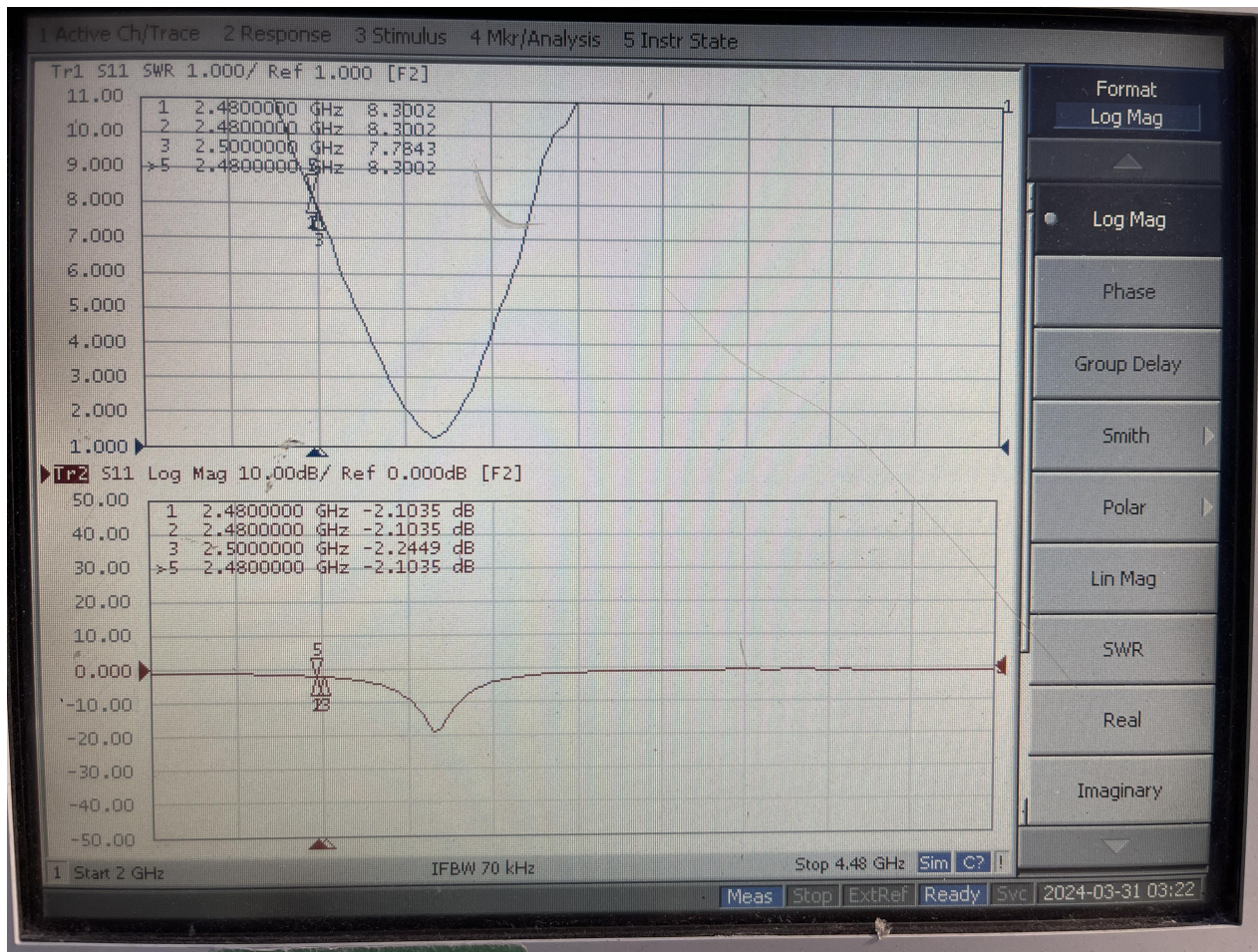
Wifi Gain & Efficiency

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Efficiency (dBi)	-10.94	-10.62	-10.47	-10.21	-9.80	-9.99	-9.48	-9.55	-9.02	-9.30	-8.85
Gain (dBi)	-6.69	-6.26	-6.04	-5.68	-5.28	-5.48	-4.91	-5.11	-4.87	-5.29	-4.66
Efficiency (%)	8.05	8.67	8.97	9.52	10.46	10.01	11.28	11.09	12.53	11.75	13.04
Directivity (dB)	4.25	4.37	4.43	4.53	4.52	4.52	4.57	4.44	4.16	4.01	4.19
Peak Gain Position (Theta)	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Peak Gain Position (Phi)	135.00	135.00	135.00	135.00	135.00	180.00	180.00	180.00	135.00	135.00	75.00
Efficiency ThetaPol (%)	2.16	2.34	2.44	2.61	2.86	2.73	3.03	2.95	3.31	3.10	3.43
Efficiency PhiPol (%)	5.89	6.33	6.54	6.91	7.59	7.28	8.25	8.15	9.21	8.65	9.61
Upper Hem. Efficiency (%)	3.90	4.22	4.36	4.55	4.94	4.67	5.23	5.07	5.67	5.28	5.87
Lower Hem. Efficiency (%)	4.15	4.44	4.61	4.97	5.52	5.34	6.06	6.02	6.86	6.48	7.17

Wifi 2D/3D



Wifi S11&SWR&Smith



Antenna Layout Diagram

ANT-BT



Antenna shape

ANT-BT

