



SRF20 (98Q900C) Passive Data

Shenzhen Hanyang Antenna Design

Test Condition

1. Test Condition

* SRF20 Chip Antenna

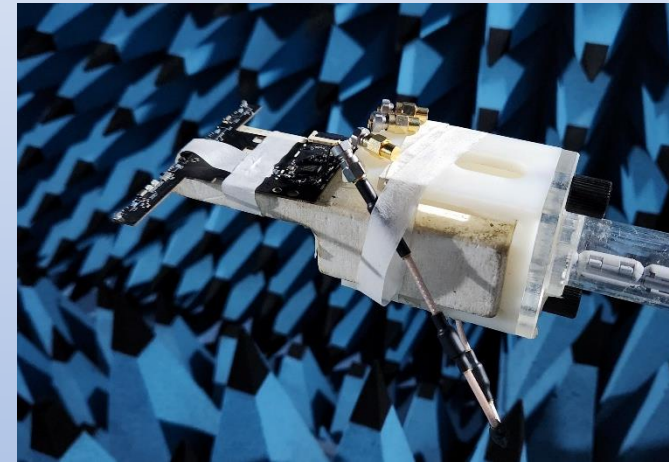
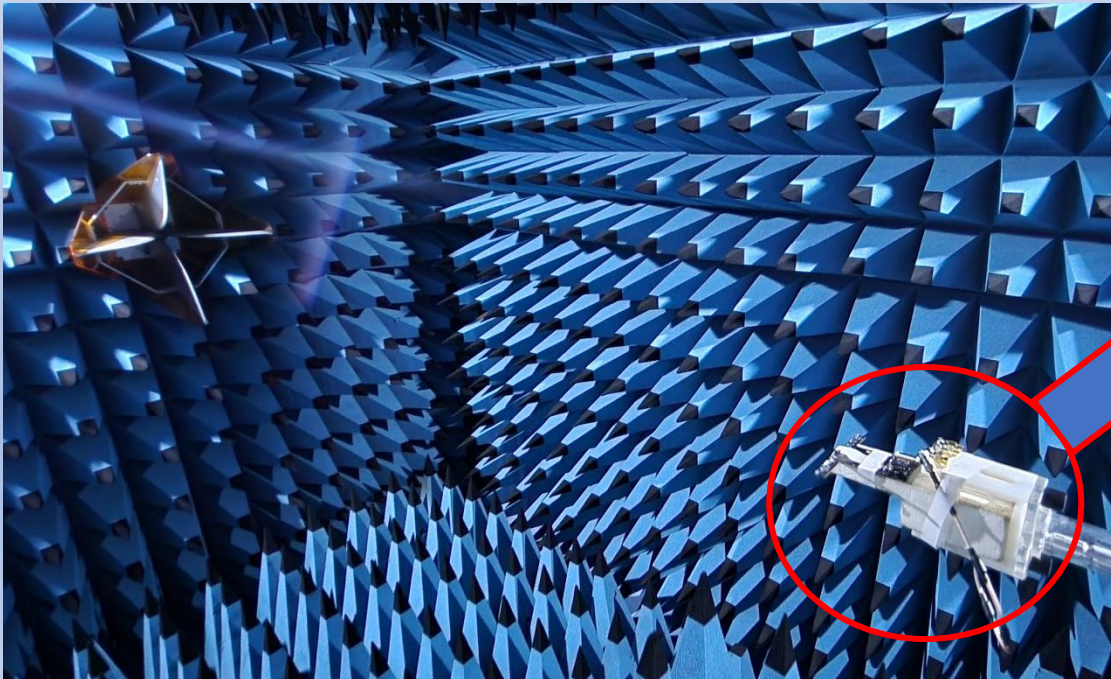
- Test room: Hanyang antenna R&D test room

(Address: Bao Yunda logistics information building 12A11, Qianjin Road two, Baoan District, Shenzhen, China)

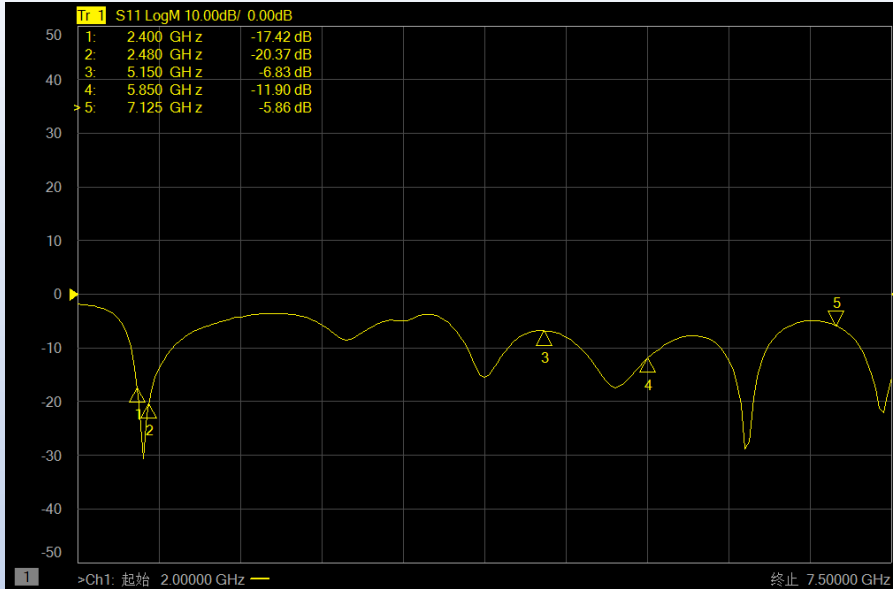
- Network Analyzer : Return Loss

- 3D Passive Chamber : Gain and Efficiency

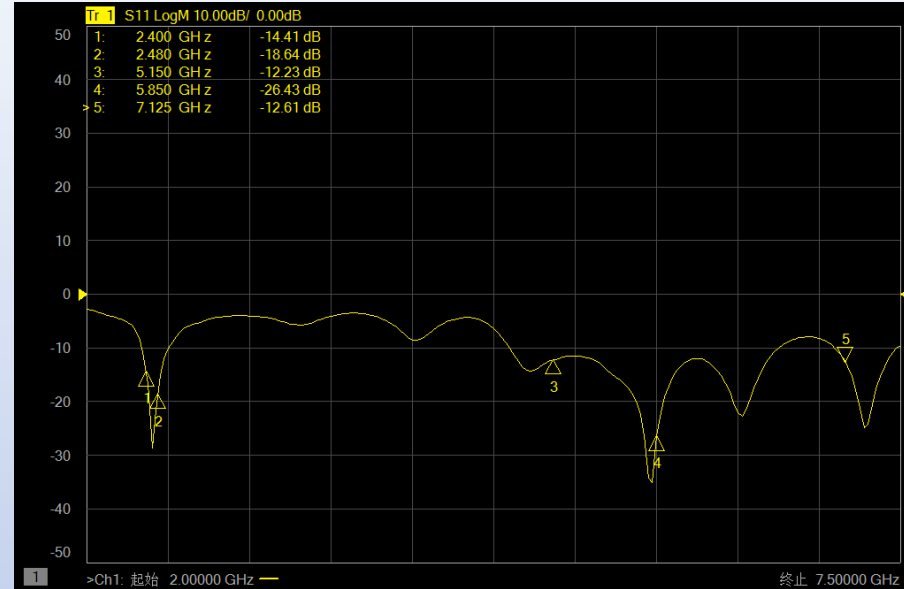
2. Test Environment



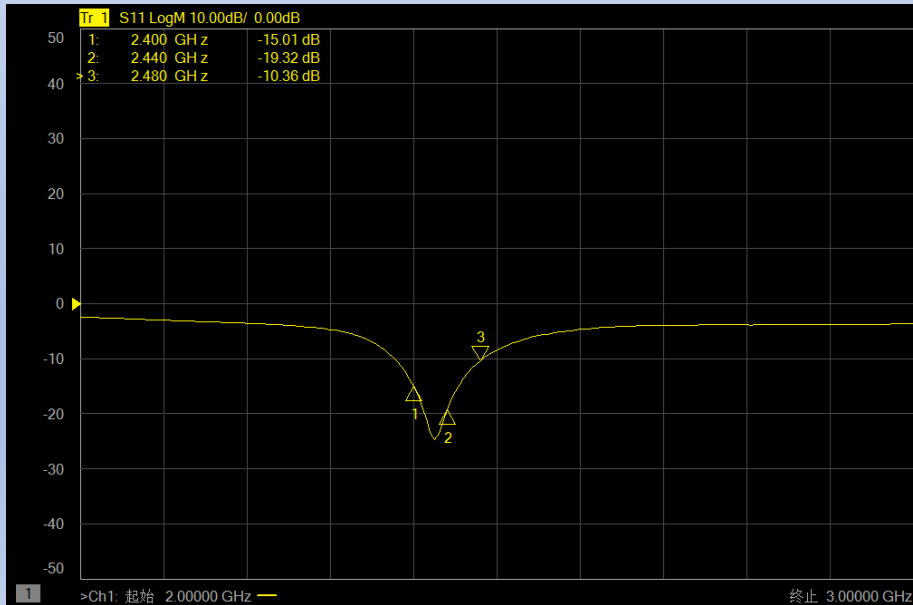
SRF20 Passive TEST – Return Loss



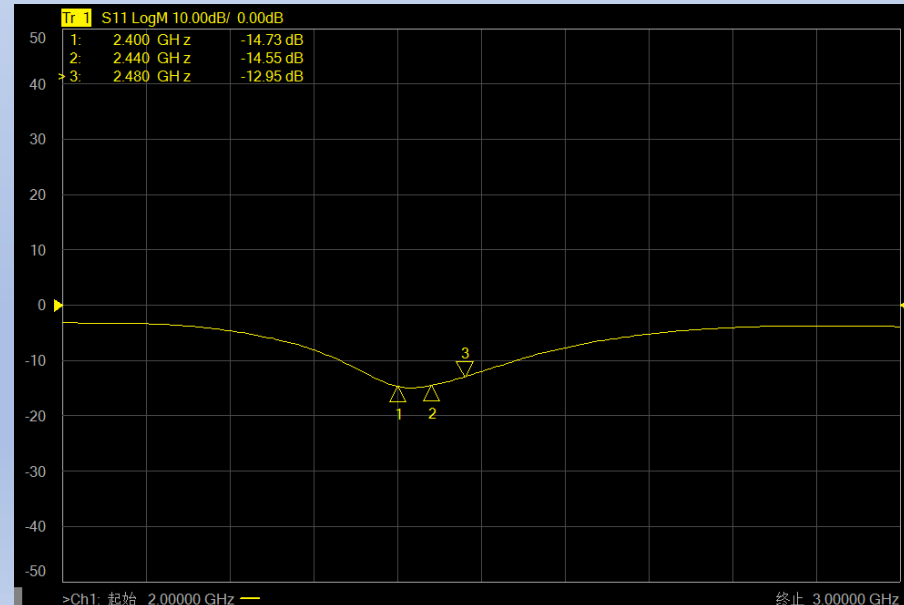
ANT0



ANT1



BT0

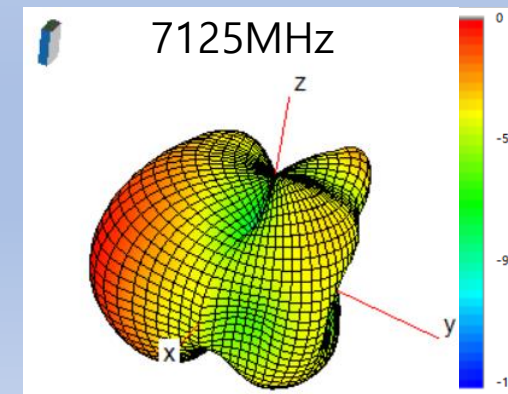
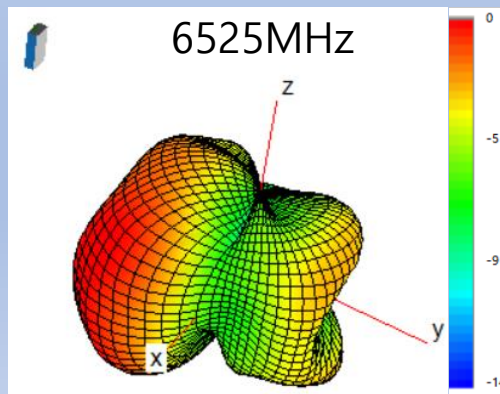
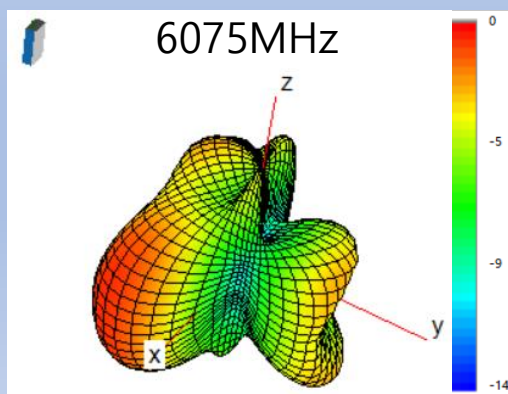
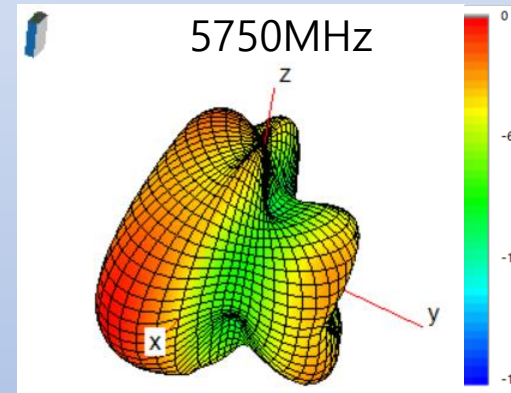
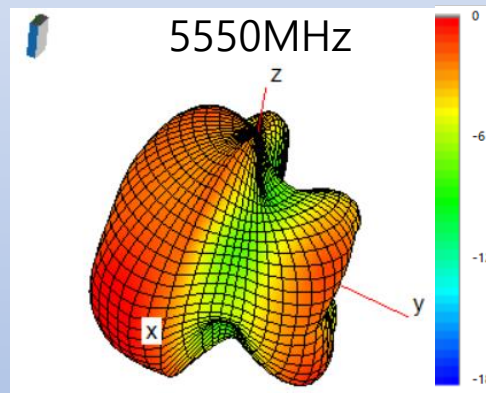
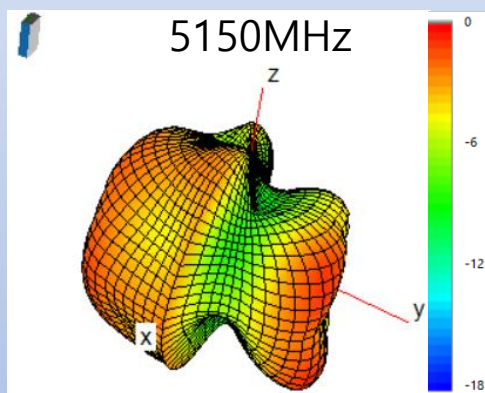
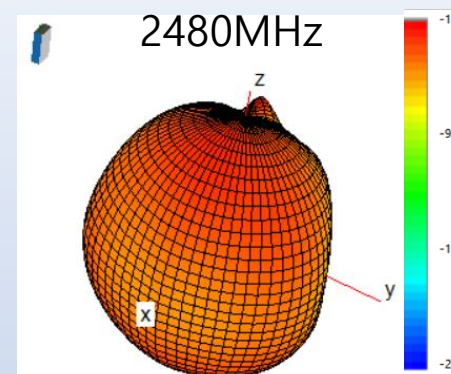
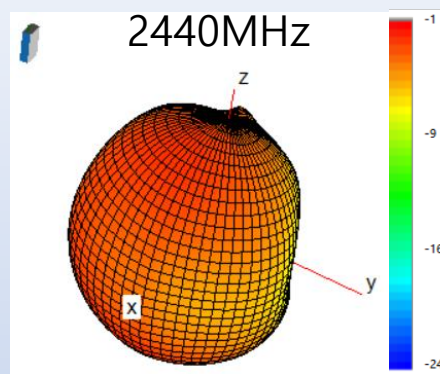
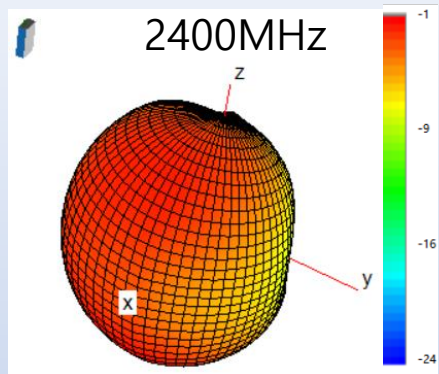


BT1

SRF20 ANT0 Passive TEST – Antenna 3D Gain

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400 MHz	31.40 %	-10.40 dBi	-6.50 dBi	-5.03 dBi	-2.13 dBi	-1.72 dBi	-1.19 dBi
2410 MHz	31.80 %	-10.40 dBi	-6.40 dBi	-4.97 dBi	-2.11 dBi	-1.47 dBi	-1.10 dBi
2420 MHz	32.10 %	-10.40 dBi	-6.40 dBi	-4.94 dBi	-2.06 dBi	-1.31 dBi	-0.92 dBi
2430 MHz	32.60 %	-10.40 dBi	-6.30 dBi	-4.86 dBi	-1.94 dBi	-1.15 dBi	-0.63 dBi
2440 MHz	33.30 %	-10.30 dBi	-6.20 dBi	-4.78 dBi	-1.86 dBi	-0.96 dBi	-0.40 dBi
2450 MHz	33.70 %	-10.30 dBi	-6.10 dBi	-4.72 dBi	-1.95 dBi	-0.81 dBi	-0.17 dBi
2460 MHz	34.40 %	-10.20 dBi	-6.00 dBi	-4.63 dBi	-1.82 dBi	-0.67 dBi	-0.07 dBi
2470 MHz	34.20 %	-10.30 dBi	-6.10 dBi	-4.66 dBi	-1.78 dBi	-0.63 dBi	0.04 dBi
2480 MHz	33.90 %	-10.30 dBi	-6.10 dBi	-4.70 dBi	-1.64 dBi	-0.58 dBi	0.09 dBi
5150 MHz	32.80 %	-10.10 dBi	-6.40 dBi	-4.84 dBi	-3.16 dBi	-0.85 dBi	-0.36 dBi
5250 MHz	35.40 %	-9.60 dBi	-6.10 dBi	-4.51 dBi	-2.51 dBi	-0.27 dBi	0.19 dBi
5350 MHz	39.50 %	-9.20 dBi	-5.60 dBi	-4.03 dBi	-2.15 dBi	0.33 dBi	0.66 dBi
5450 MHz	41.20 %	-9.30 dBi	-5.30 dBi	-3.85 dBi	-1.44 dBi	1.22 dBi	1.22 dBi
5550 MHz	42.40 %	-9.20 dBi	-5.20 dBi	-3.73 dBi	-1.06 dBi	1.41 dBi	1.42 dBi
5650 MHz	43.30 %	-9.10 dBi	-5.10 dBi	-3.63 dBi	-0.84 dBi	1.61 dBi	1.61 dBi
5750 MHz	40.50 %	-9.10 dBi	-5.50 dBi	-3.92 dBi	-1.88 dBi	0.48 dBi	0.69 dBi
5850 MHz	39.10 %	-9.30 dBi	-5.60 dBi	-4.08 dBi	-1.87 dBi	0.32 dBi	0.69 dBi
5925 MHz	35.30 %	-10.20 dBi	-5.90 dBi	-4.53 dBi	-2.34 dBi	1.27 dBi	1.29 dBi
6075 MHz	33.00 %	-10.50 dBi	-6.20 dBi	-4.81 dBi	-2.35 dBi	0.96 dBi	0.99 dBi
6225 MHz	31.20 %	-10.40 dBi	-6.60 dBi	-5.06 dBi	-2.88 dBi	0.21 dBi	0.24 dBi
6375 MHz	29.80 %	-10.30 dBi	-6.90 dBi	-5.26 dBi	-3.64 dBi	-0.49 dBi	-0.48 dBi
6525 MHz	33.30 %	-9.80 dBi	-6.40 dBi	-4.78 dBi	-3.77 dBi	-0.33 dBi	-0.13 dBi
6675 MHz	31.80 %	-9.90 dBi	-6.70 dBi	-4.97 dBi	-4.15 dBi	-0.89 dBi	-0.45 dBi
6825 MHz	23.10 %	-11.20 dBi	-8.10 dBi	-6.37 dBi	-5.55 dBi	-2.22 dBi	-1.61 dBi
6975 MHz	22.00 %	-11.40 dBi	-8.30 dBi	-6.57 dBi	-5.99 dBi	-2.74 dBi	-2.28 dBi
7125 MHz	20.30 %	-11.70 dBi	-8.70 dBi	-6.93 dBi	-6.19 dBi	-2.96 dBi	-2.44 dBi

SRF20 ANT0 Passive TEST – Antenna 3D Radiation Pattern

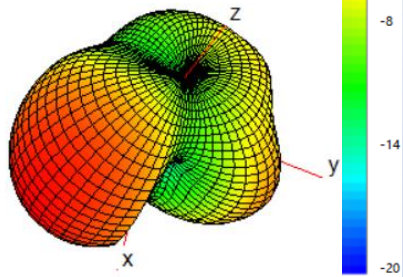


SRF20 ANT1 Passive TEST – Antenna 3D Gain

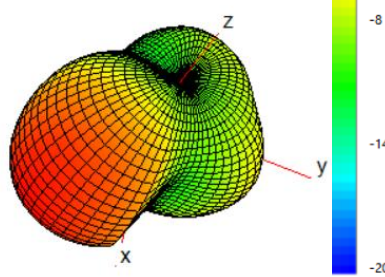
Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400 MHz	33.70 %	-13.10 dBi	-5.40 dBi	-4.72 dBi	-5.87 dBi	0.77 dBi	0.79 dBi
2410 MHz	34.00 %	-12.90 dBi	-5.40 dBi	-4.68 dBi	-5.76 dBi	0.71 dBi	0.73 dBi
2420 MHz	34.70 %	-12.80 dBi	-5.30 dBi	-4.60 dBi	-5.82 dBi	0.67 dBi	0.70 dBi
2430 MHz	34.90 %	-12.60 dBi	-5.30 dBi	-4.58 dBi	-5.90 dBi	0.67 dBi	0.70 dBi
2440 MHz	35.20 %	-12.40 dBi	-5.30 dBi	-4.54 dBi	-5.88 dBi	0.57 dBi	0.60 dBi
2450 MHz	35.00 %	-12.30 dBi	-5.40 dBi	-4.56 dBi	-5.89 dBi	0.38 dBi	0.40 dBi
2460 MHz	35.40 %	-12.10 dBi	-5.30 dBi	-4.52 dBi	-6.00 dBi	0.29 dBi	0.31 dBi
2470 MHz	35.30 %	-12.00 dBi	-5.40 dBi	-4.52 dBi	-6.19 dBi	0.06 dBi	0.09 dBi
2480 MHz	35.40 %	-11.80 dBi	-5.40 dBi	-4.51 dBi	-6.05 dBi	-0.05 dBi	0.06 dBi
5150 MHz	32.50 %	-9.50 dBi	-6.70 dBi	-5.39 dBi	-0.69 dBi	-1.44 dBi	-0.39 dBi
5250 MHz	34.40 %	-9.40 dBi	-6.40 dBi	-4.64 dBi	-0.36 dBi	-1.30 dBi	-0.08 dBi
5350 MHz	36.40 %	-9.10 dBi	-6.20 dBi	-4.36 dBi	-2.44 dBi	0.08 dBi	0.51 dBi
5450 MHz	37.60 %	-9.00 dBi	-6.00 dBi	-4.25 dBi	-1.88 dBi	0.48 dBi	0.69 dBi
5550 MHz	41.60 %	-8.90 dBi	-5.40 dBi	-3.81 dBi	-1.14 dBi	1.58 dBi	1.59 dBi
5650 MHz	46.10 %	-8.30 dBi	-5.00 dBi	-3.37 dBi	-0.84 dBi	0.60 dBi	0.90 dBi
5750 MHz	45.90 %	-8.40 dBi	-5.00 dBi	-3.38 dBi	-1.09 dBi	-0.13 dBi	-0.04 dBi
5850 MHz	45.20 %	-8.40 dBi	-5.10 dBi	-3.45dBi	-1.01 dBi	-0.33 dBi	-0.26 dBi
5925 MHz	36.10 %	-10.40 dBi	-5.70 dBi	-4.43 dBi	-1.97 dBi	-0.64 dBi	-0.48 dBi
6075 MHz	33.70 %	-10.50 dBi	-5.60 dBi	-4.72 dBi	-2.56 dBi	-0.04 dBi	0.10 dBi
6225 MHz	30.40 %	-10.70 dBi	-5.70 dBi	-5.17 dBi	-1.83 dBi	-0.77 dBi	-0.58 dBi
6375 MHz	22.30 %	-11.50 dBi	-8.20 dBi	-6.52 dBi	-4.32 dBi	-3.28 dBi	-2.88 dBi
6525 MHz	22.90 %	-11.30 dBi	-8.10 dBi	-6.40 dBi	-4.34 dBi	-3.14 dBi	-2.77 dBi
6675 MHz	23.60 %	-11.20 dBi	-8.00 dBi	-6.28 dBi	-4.41 dBi	-2.91 dBi	-2.55 dBi
6825 MHz	24.10 %	-11.10 dBi	-7.80 dBi	-6.17 dBi	-4.29 dBi	-2.83 dBi	-2.45 dBi
6975 MHz	25.50 %	-10.90 dBi	-7.60 dBi	-5.94 dBi	-4.10 dBi	-2.79 dBi	-2.57 dBi
7125 MHz	24.00 %	-11.20 dBi	-7.90 dBi	-6.20 dBi	-4.27 dBi	-3.04 dBi	-2.80 dBi

SRF20 ANT1 Passive TEST – Antenna 3D Radiation Pattern

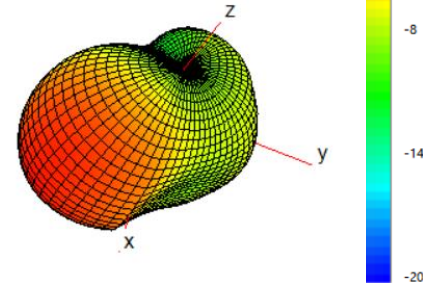
2400MHz



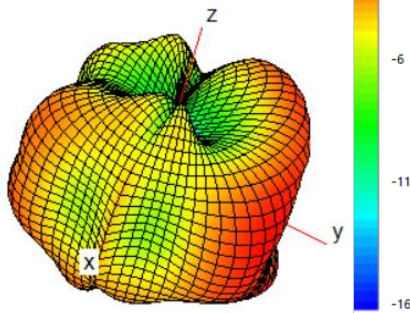
2440MHz



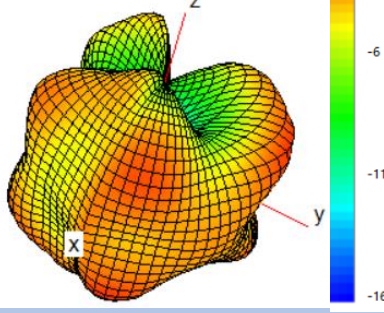
2480MHz



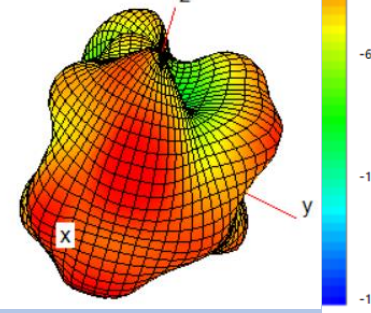
5150MHz



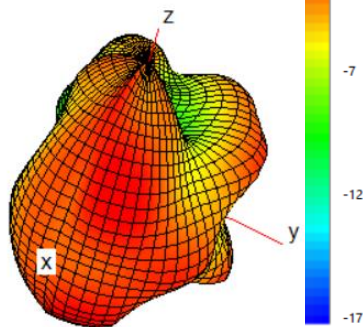
5550MHz



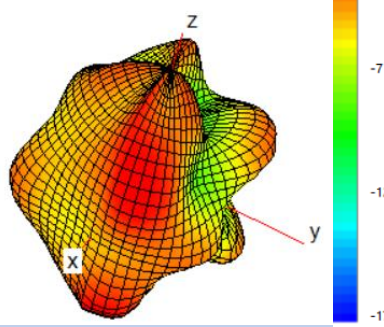
5750MHz



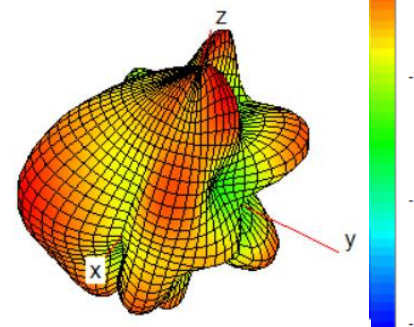
6075MHz



6525MHz



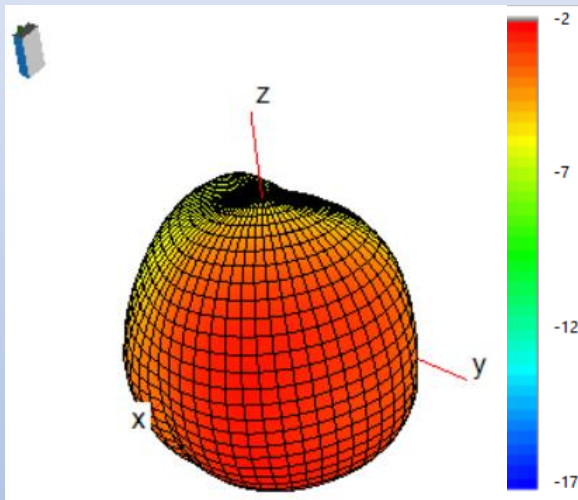
7125MHz



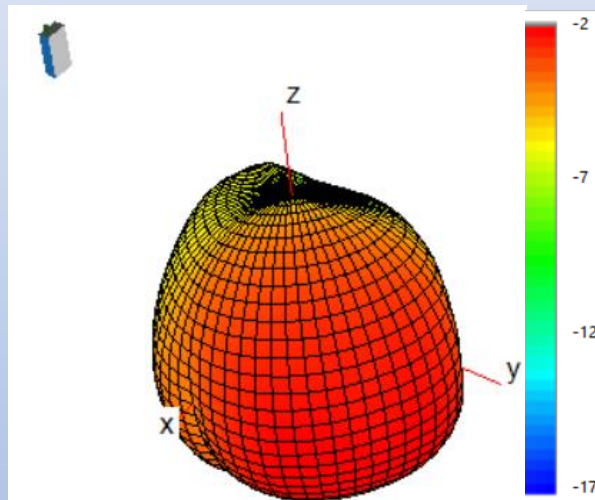
SRF20 BT0 Passive TEST – Antenna 3D Gain

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400 MHz	26.80 %	-10.30 dBi	-7.60 dBi	-5.73 dBi	-3.5 dBi	-1.87 dBi	-1.71 dBi
2410 MHz	29.50 %	-9.90 dBi	-7.10 dBi	-5.30 dBi	-3.31 dBi	-1.62 dBi	-1.46 dBi
2420 MHz	31.40 %	-9.60 dBi	-6.90 dBi	-5.03 dBi	-3.40 dBi	-1.69 dBi	-1.50 dBi
2430 MHz	31.20 %	-9.70 dBi	-6.90 dBi	-5.06 dBi	-3.78 dBi	-2.04 dBi	-1.85 dBi
2440 MHz	29.40 %	-9.90 dBi	-7.20 dBi	-5.32 dBi	-4.23 dBi	-2.36 dBi	-2.14 dBi
2450 MHz	27.10 %	-10.20 dBi	-7.50 dBi	-5.67 dBi	-4.36 dBi	-2.71 dBi	-2.56 dBi
2460 MHz	26.00 %	-12.70 dBi	-6.90 dBi	-5.86 dBi	-6.32 dBi	-2.05 dBi	-2.01 dBi
2470 MHz	26.00 %	-12.60 dBi	-6.90 dBi	-5.85 dBi	-6.27 dBi	-2.11 dBi	-2.08 dBi
2480 MHz	25.90 %	-12.50 dBi	-6.90 dBi	-5.86 dBi	-6.24 dBi	-1.99 dBi	-1.98 dBi

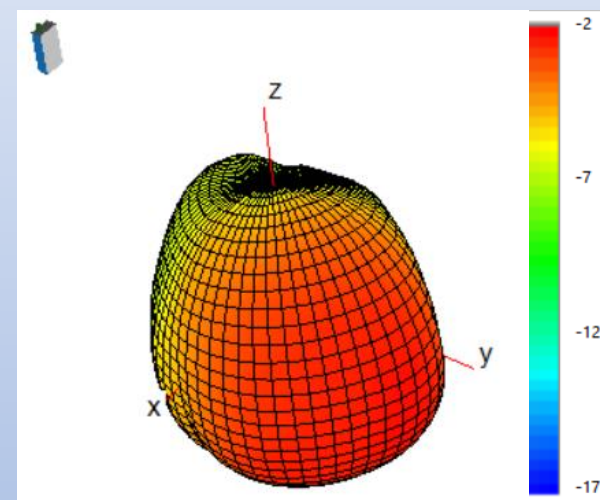
SRF20 BT0 Passive TEST – Antenna 3D Radiation Pattern



2400MHz



2440MHz

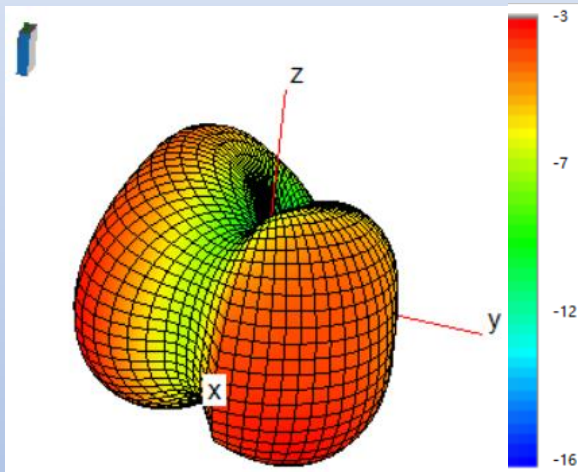


2480MHz

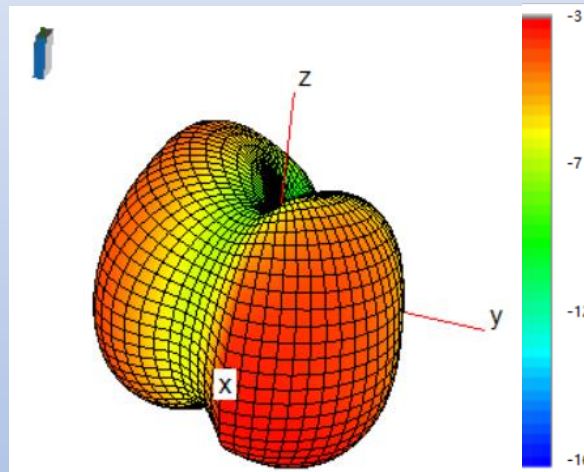
SRF20 BT1 Passive TEST – Antenna 3D Gain

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400 MHz	26.00 %	-12.80 dBi	-6.80 dBi	-5.85 dBi	-6.48 dBi	-2.03 dBi	-1.99 dBi
2410 MHz	26.00 %	-12.70 dBi	-6.90 dBi	-5.86 dBi	-6.32 dBi	-2.05 dBi	-2.01 dBi
2420 MHz	29.30 %	-12.30 dBi	-6.30 dBi	-5.34 dBi	-3.62 dBi	0.14 dBi	0.20 dBi
2430 MHz	28.90 %	-12.50 dBi	-6.40 dBi	-5.40 dBi	-3.63 dBi	0.10 dBi	0.16 dBi
2440 MHz	28.60 %	-12.50 dBi	-6.40 dBi	-5.43 dBi	-3.67 dBi	0.05 dBi	0.11 dBi
2450 MHz	27.40 %	-12.80 dBi	-6.50 dBi	-5.62 dBi	-3.83 dBi	-0.16 dBi	-0.10 dBi
2460 MHz	26.00 %	-13.10 dBi	-6.80 dBi	-5.84 dBi	-4.15 dBi	-0.38 dBi	-0.31 dBi
2470 MHz	25.20 %	-13.30 dBi	-6.90 dBi	-5.99 dBi	-4.31 dBi	-0.58 dBi	-0.50 dBi
2480 MHz	23.70 %	-13.60 dBi	-7.10 dBi	-6.25 dBi	-4.70 dBi	-0.87 dBi	-0.77 dBi

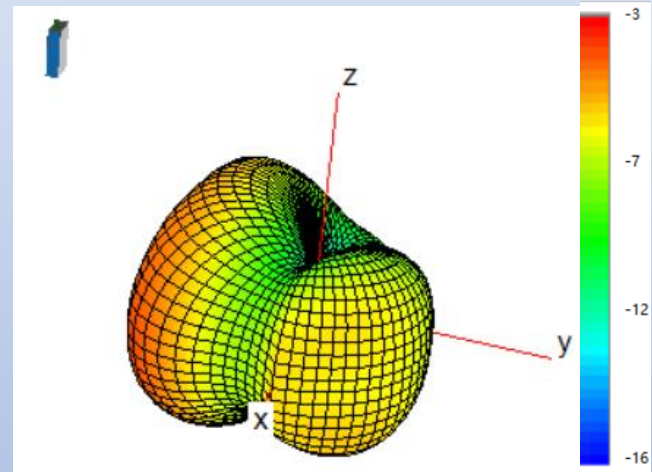
SRF20 BT1 Passive TEST – Antenna 3D Radiation Pattern



2400MHz



2440MHz



2480MHz