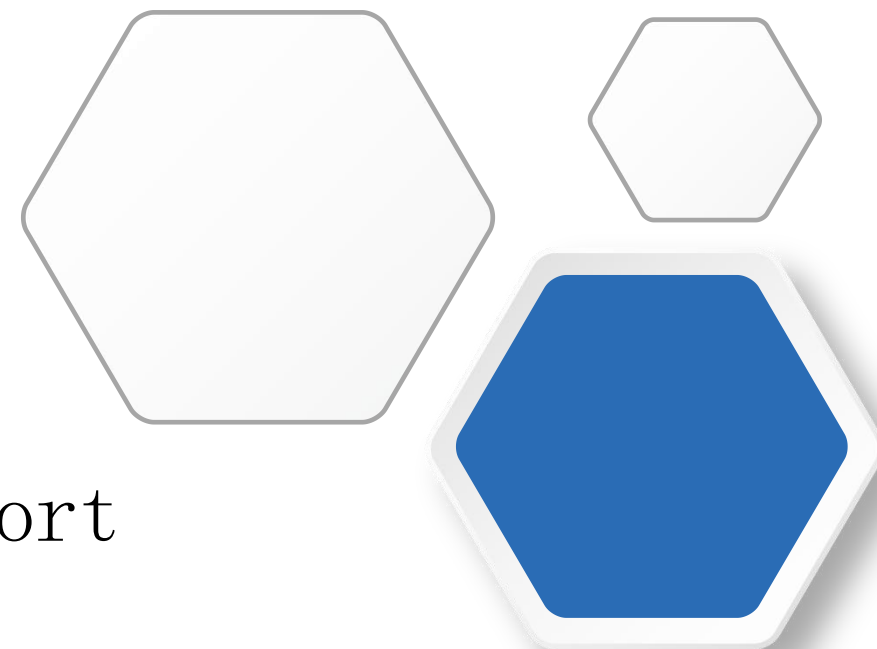




TP"Internet of Things



BC3643-S4 Antenna Debugging Report

SHENZHEN FREQUENCY EXTENSION IOT TECHNOLOGY CO.LTD.

Add:Room 411, 4th Floor, Building A4, Jinbolong Industrial Park, No. 1 Huayun Road, Yucui Community, Longhua Street, Longhua District, Shenzhen

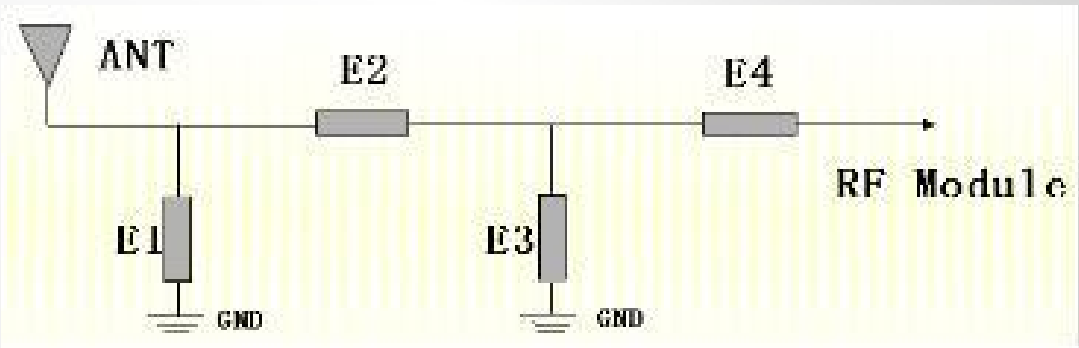


Basic information



"Whole machine information"

- Project Name: BC3643-S4
- Frequency band information: FDD: B2/13/66
- R&d Engineering: Engineer Li
- Completion date: August 18, 2025



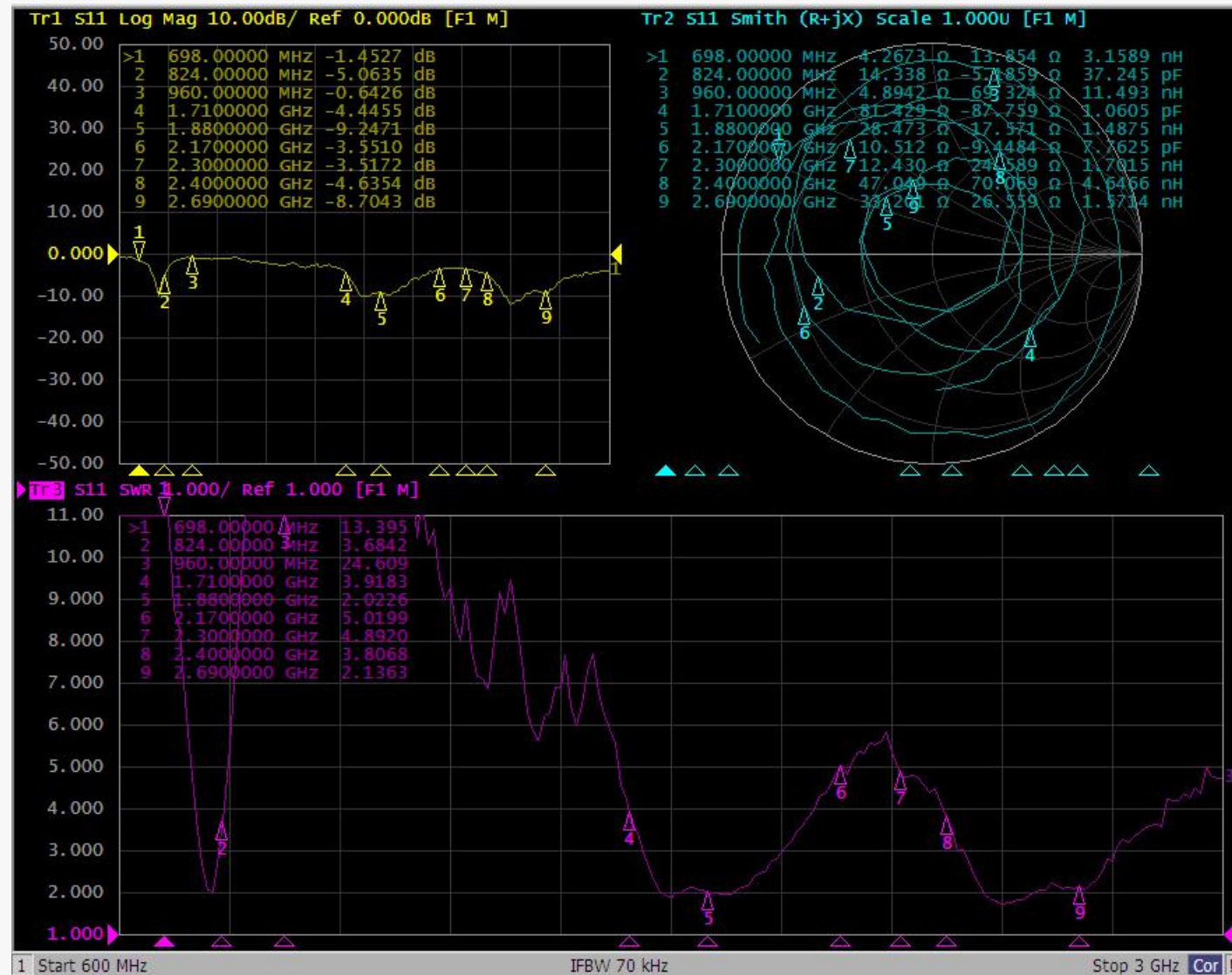
Antenna matching

- (1) Main antenna matching
No changes
- (2) Diversity antenna matching
No changes
- (3) Two-in-one antenna matching
No changes



Test data

Passive diagram of the main antenna – (SWR/Log Mag /Smith)

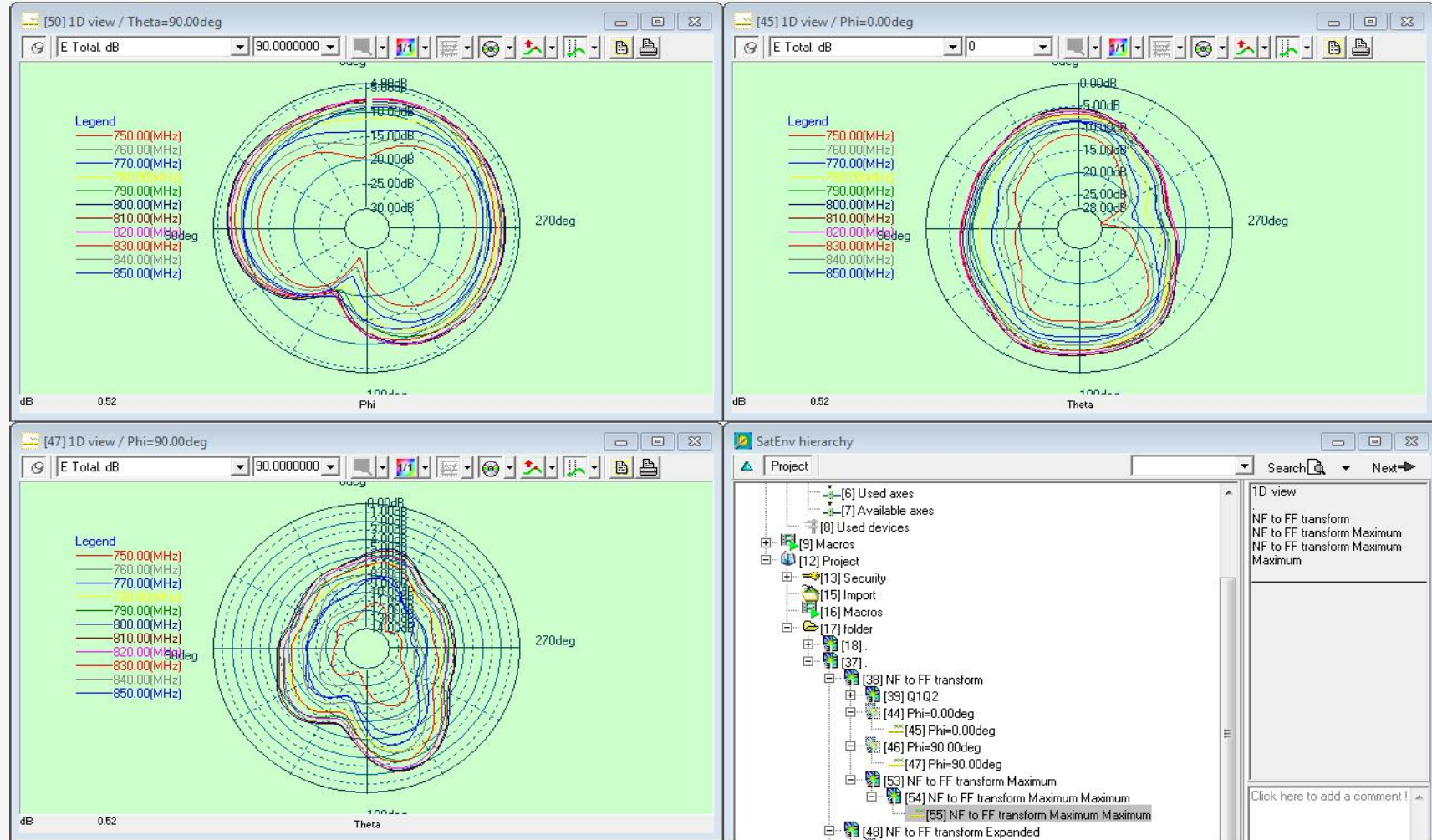




Test data:

Passive data of the main antenna - (Efficiency/gain/pattern)

750-850MHZ Efficiency		
Frequency	Efficiency	Gain. dBi
750MHz	4%	-8.79
760MHz	6%	-7.28
770MHz	9%	-5.63
780MHz	13%	-3.73
790MHz	17%	-2.76
800MHz	21%	-1.78
810MHz	21%	-1.73
820MHz	19%	-2.20
830MHz	16%	-2.96
840MHz	13%	-4.07
850MHz	10%	-4.95

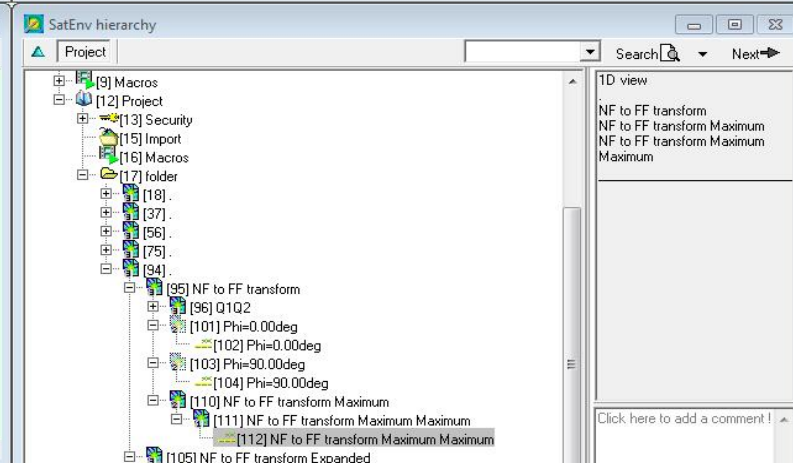
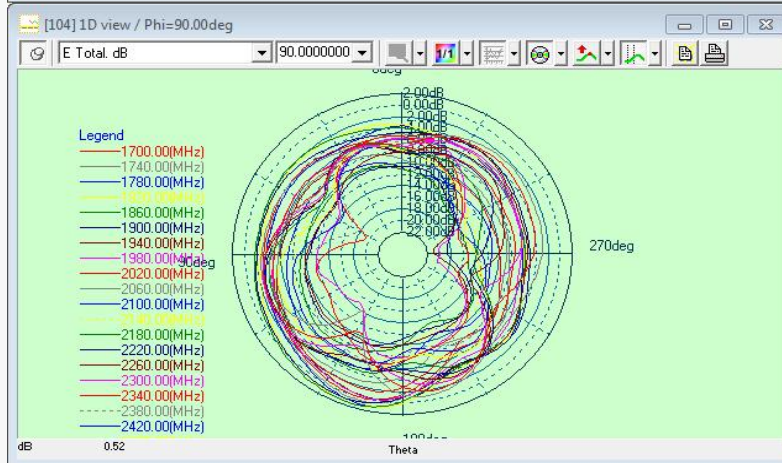
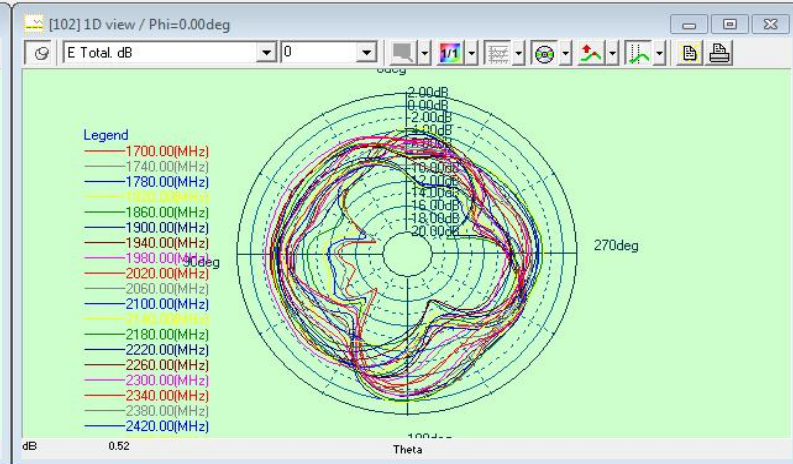
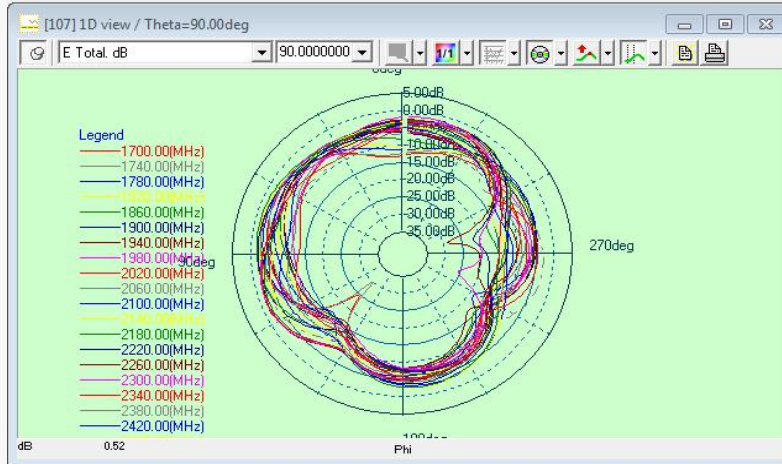




Test data:

Passive data of the main antenna - (Efficiency/gain/pattern)

1700-2700MHz Efficiency			2540MHz	28%	-1.51
Frequency	Efficiency	Gain. dBi	2580MHz	27%	-1.36
1700MHz	20%	-0.12	2620MHz	26%	-1.33
1740MHz	23%	0.40	2660MHz	25%	-1.36
1780MHz	28%	1.08	2700MHz	24%	-0.94
1820MHz	31%	1.26			
1860MHz	32%	1.26			
1900MHz	32%	0.70			
1940MHz	26%	-0.41			
1980MHz	25%	-0.30			
2020MHz	21%	-1.61			
2060MHz	19%	-2.31			
2100MHz	15%	-3.42			
2140MHz	14%	-3.64			
2180MHz	14%	-3.62			
2220MHz	14%	-3.75			
2260MHz	16%	-2.78			
2300MHz	18%	-1.99			
2340MHz	18%	-2.88			
2380MHz	20%	-2.85			
2420MHz	23%	-2.24			
2460MHz	26%	-1.94			
2500MHz	29%	-1.48			





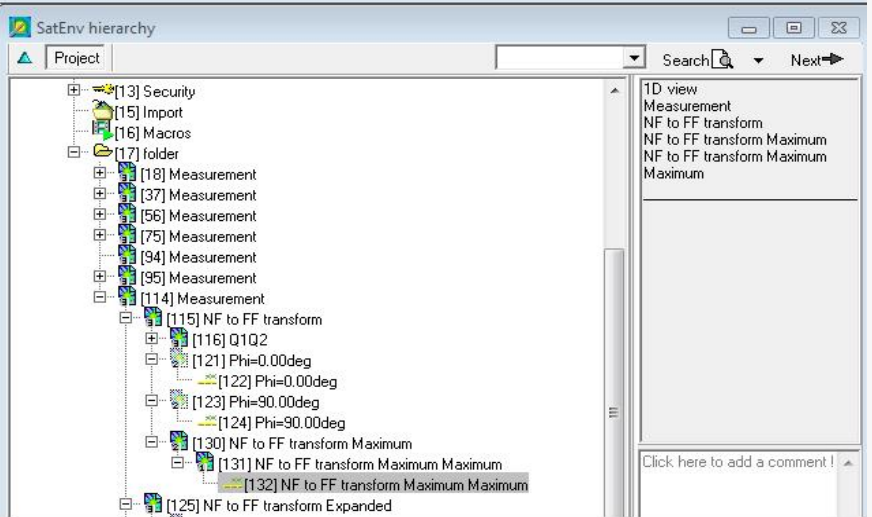
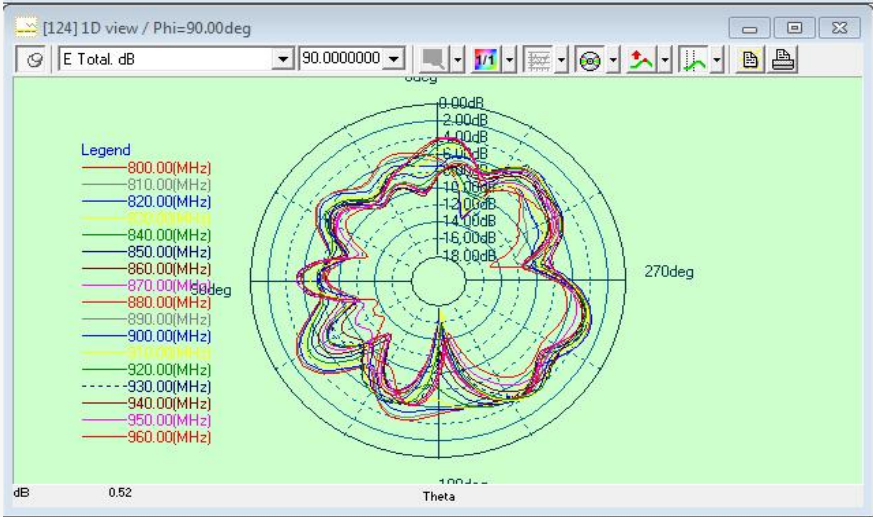
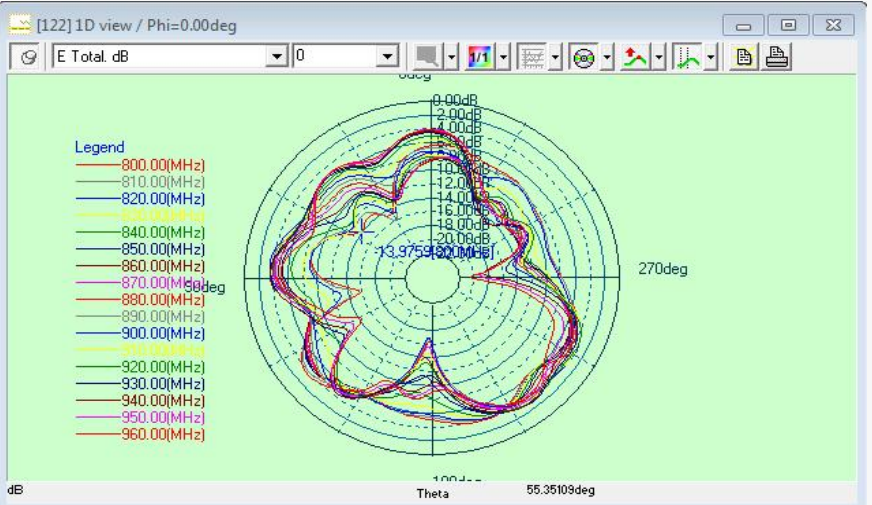
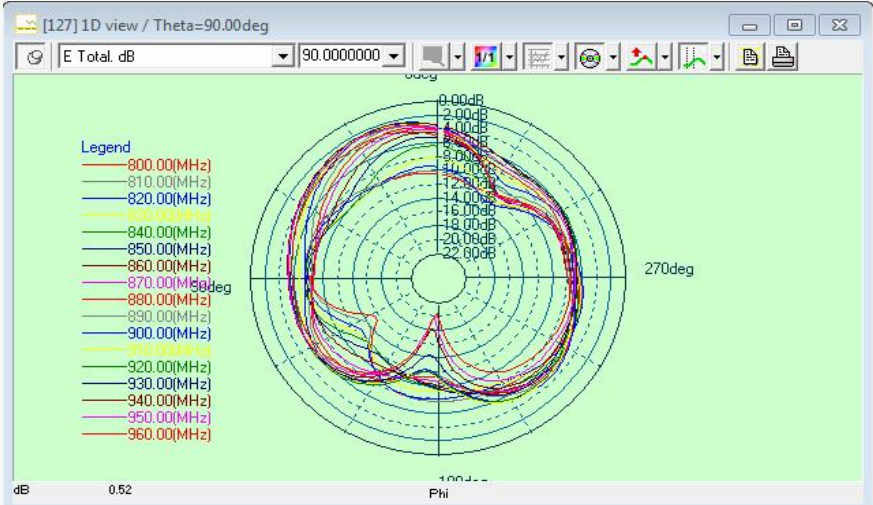
Test data: Passive diagram of diversity antenna - (SWR/Log Mag /Smith)





Test data: Passive data of diversity antenna – (Efficiency/Gain/pattern)

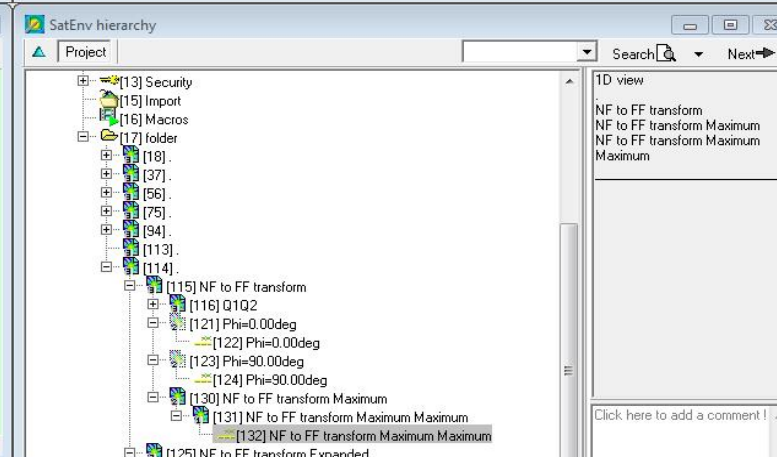
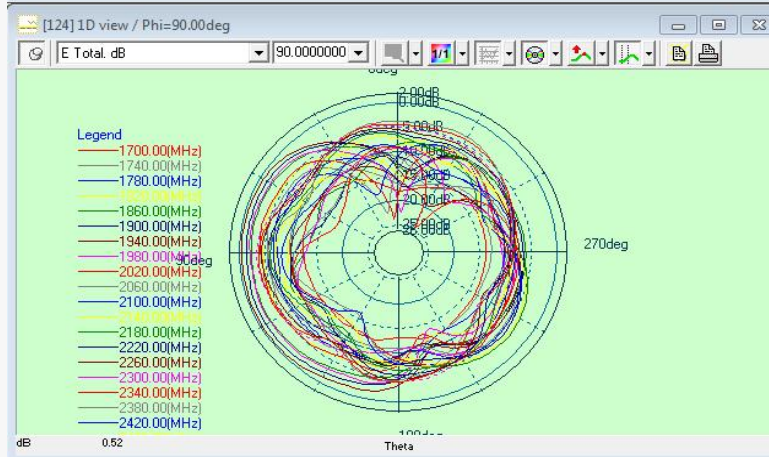
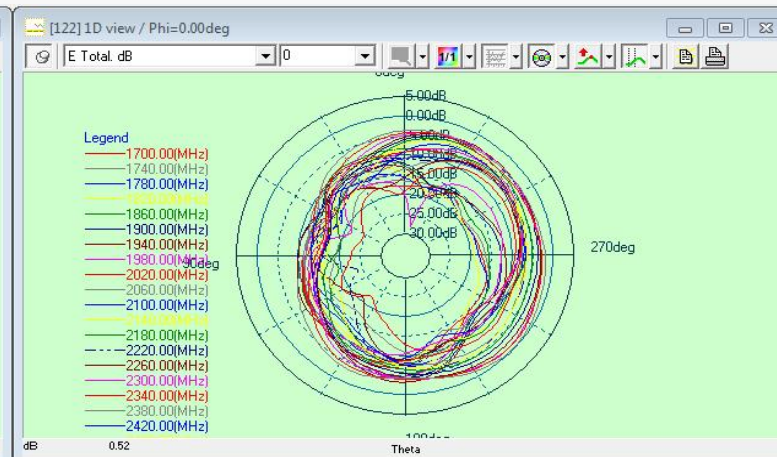
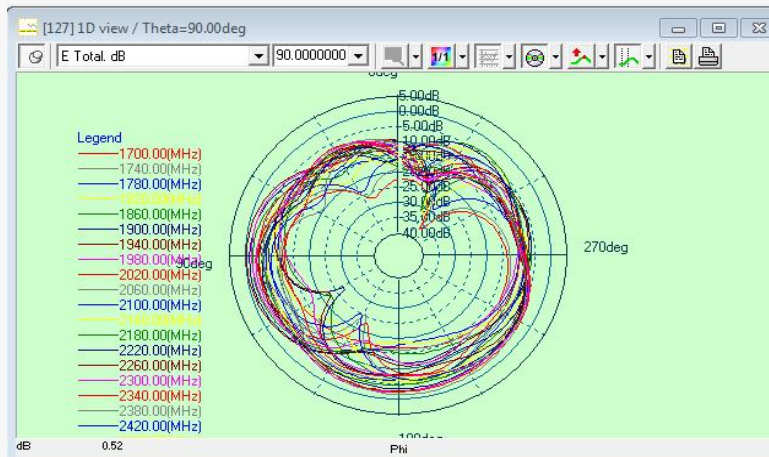
800–960MHZ Efficiency		
Frequency	Efficiency	Gain. dBi
800MHz	5%	−7.58
810MHz	8%	−5.64
820MHz	12%	−3.86
830MHz	17%	−2.62
840MHz	22%	−1.48
850MHz	28%	−0.58
860MHz	30%	−0.24
870MHz	30%	−0.28
880MHz	27%	−0.88
890MHz	23%	−1.47
900MHz	19%	−2.40
910MHz	15%	−3.43
920MHz	13%	−4.13
930MHz	10%	−5.13
940MHz	9%	−5.75
950MHz	8%	−6.15
960MHz	6%	−6.75





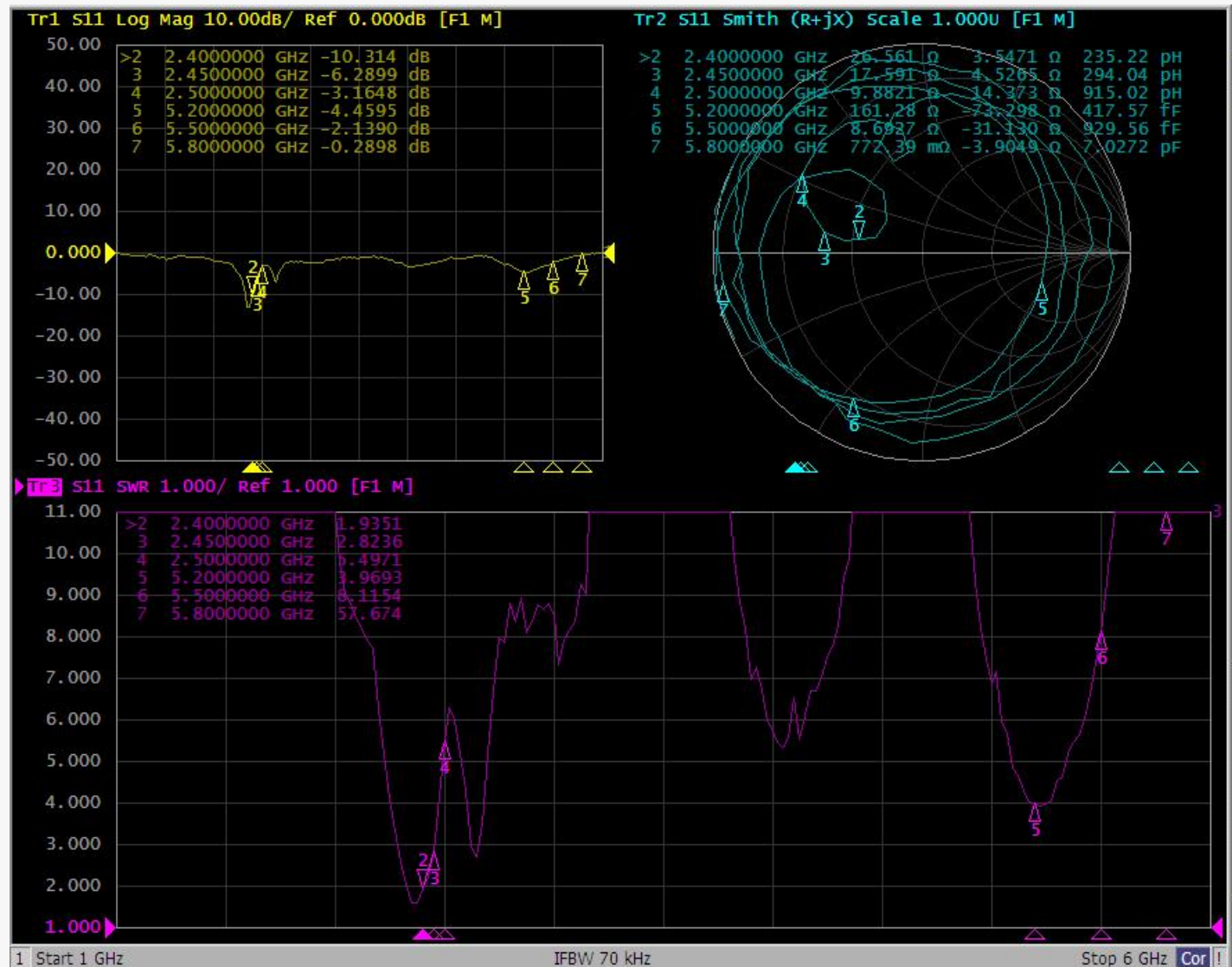
Test data: Passive data of diversity antenna - (Efficiency/Gain/pattern)

1700-2700MHZ Efficiency			2540MHz	21%	-3.31
Frequency	Efficiency	Gain. dBi	2580MHz	24%	-2.28
1700MHz	3%	-10.72	2620MHz	27%	-1.50
1740MHz	4%	-9.20	2660MHz	27%	-1.22
1780MHz	7%	-6.28	2700MHz	28%	-0.35
1820MHz	10%	-4.24			
1860MHz	16%	-1.93			
1900MHz	20%	-0.94			
1940MHz	23%	-0.26			
1980MHz	15%	-1.73			
2020MHz	13%	-3.62			
2060MHz	13%	-5.00			
2100MHz	12%	-4.82			
2140MHz	14%	-3.62			
2180MHz	14%	-3.12			
2220MHz	12%	-4.10			
2260MHz	10%	-5.53			
2300MHz	12%	-3.97			
2340MHz	13%	-4.78			
2380MHz	13%	-4.82			
2420MHz	14%	-4.76			
2460MHz	15%	-4.93			
2500MHz	18%	-4.11			





Test data: WiFi Passive Graph - (SWR/Log Mag /Smith)

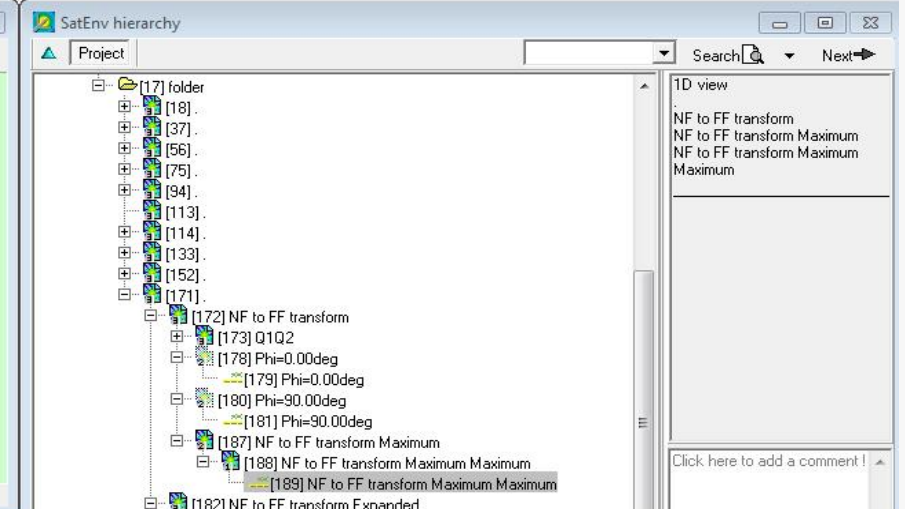
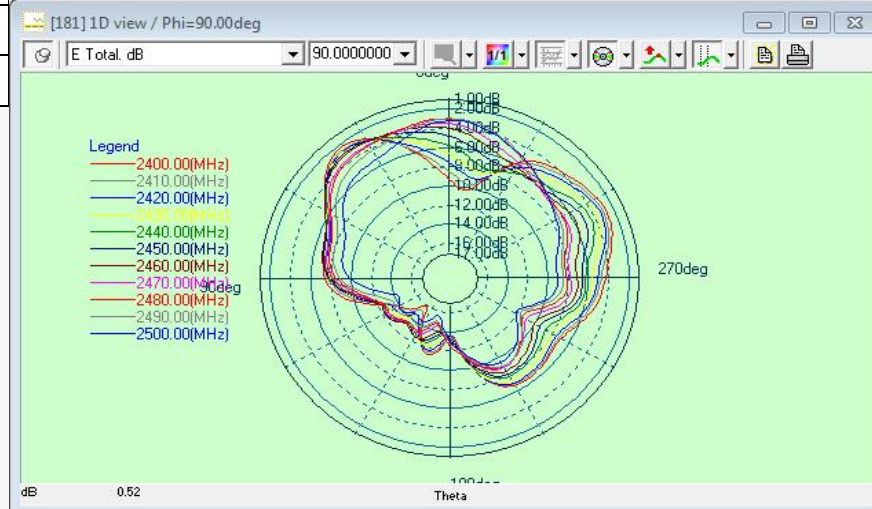
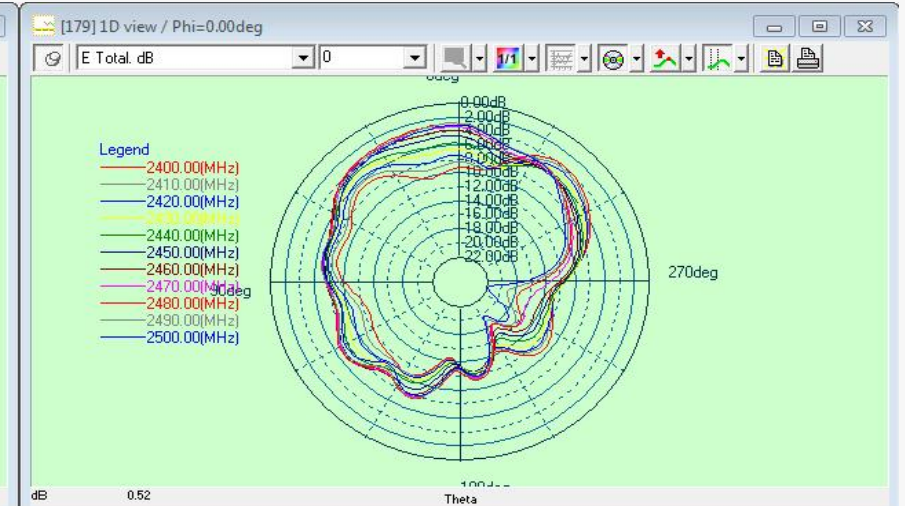
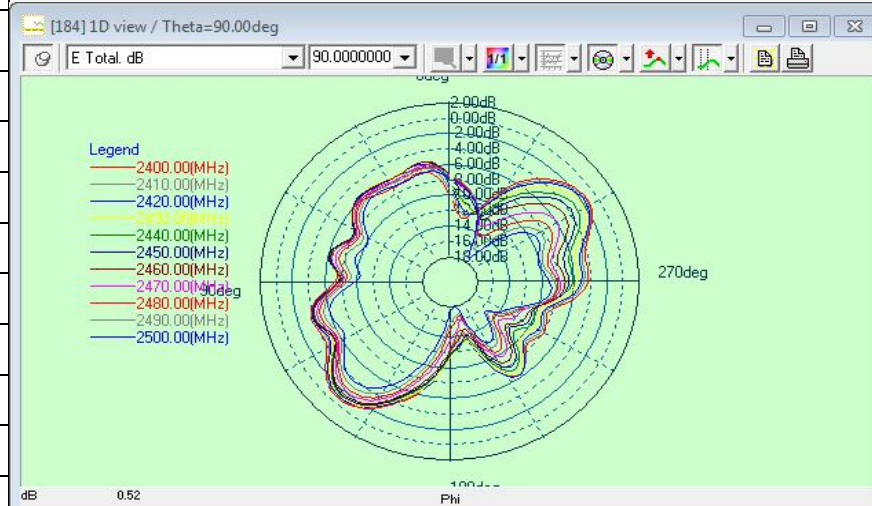




Test data: Wifi 2.4G Antenna Passive Data - (Efficiency/Gain/Pattern)

2400-2500MHZ Efficiency

Frequency	Efficiency	Gain. dBi
2400MHz	29%	0.20
2410MHz	30%	0.34
2420MHz	30%	0.44
2430MHz	30%	0.47
2440MHz	30%	0.61
2450MHz	28%	0.31
2460MHz	27%	0.09
2470MHz	27%	-0.01
2480MHz	26%	-0.39
2490MHz	25%	-0.65
2500MHz	25%	-0.85



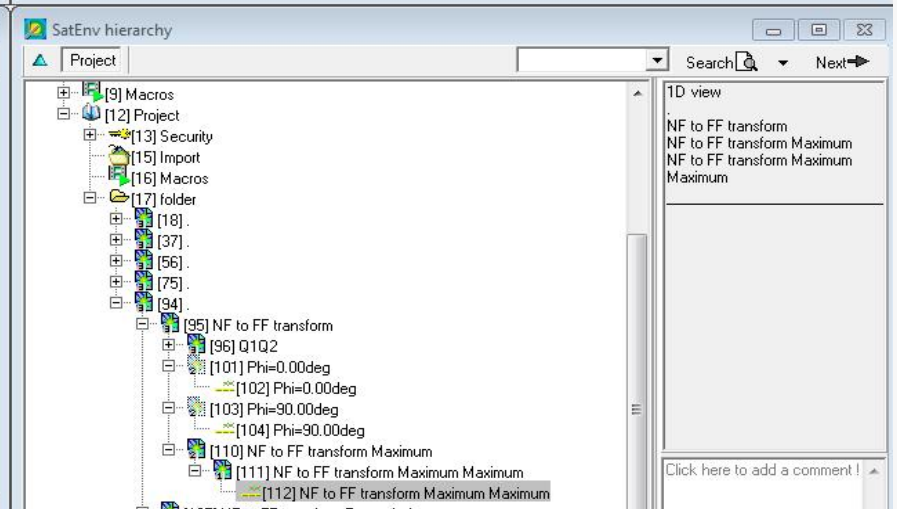
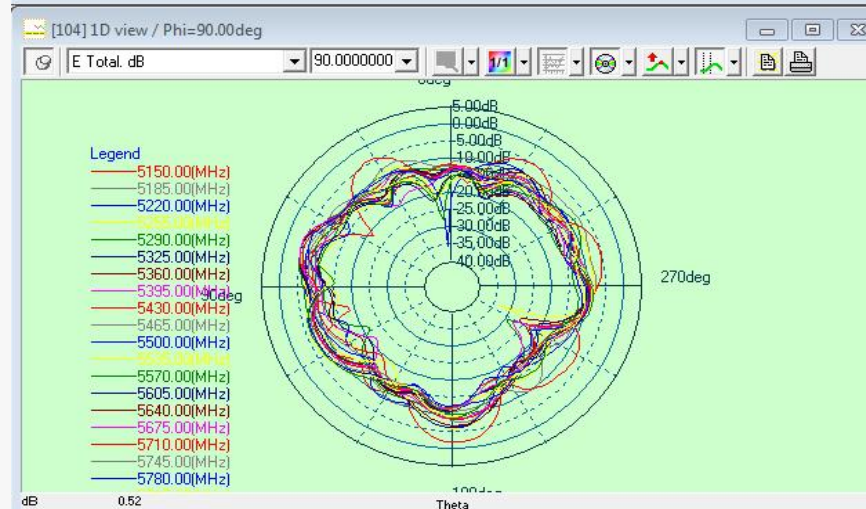
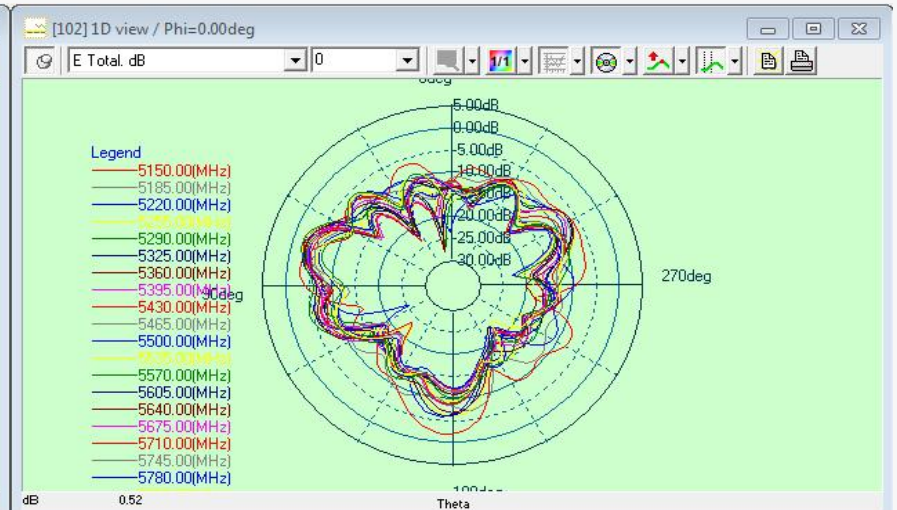
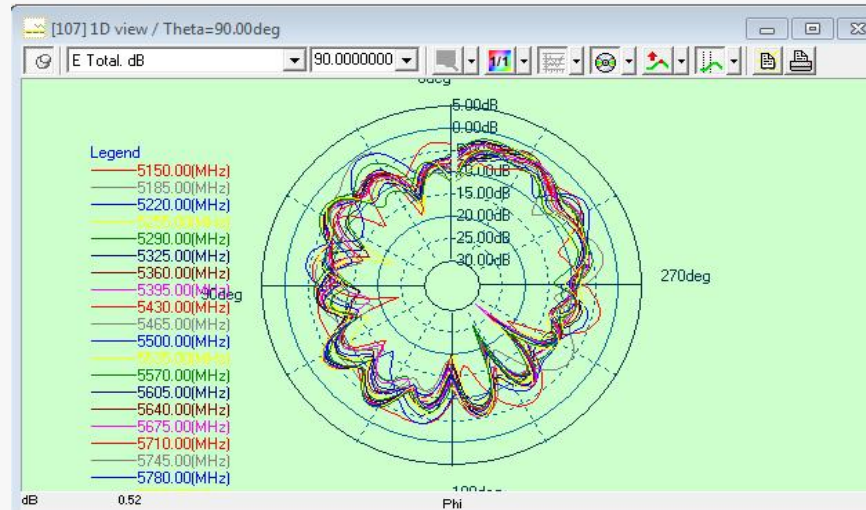


Test data:

WIFI5G Passive Data - (Efficiency/Gain/Pattern)

5150-5850MHZ Efficiency

Frequency	Efficiency	Gain. dBi
5150MHz	17%	0.15
5185MHz	15%	-0.55
5220MHz	13%	0.78
5255MHz	11%	-1.19
5290MHz	10%	-1.94
5325MHz	10%	-1.97
5360MHz	10%	-1.59
5395MHz	9%	-1.91
5430MHz	9%	-2.29
5465MHz	10%	-2.02
5500MHz	10%	-2.05
5535MHz	11%	-1.96
5570MHz	12%	-1.25
5605MHz	11%	-1.94
5640MHz	11%	-2.15
5675MHz	11%	-2.32
5710MHz	11%	-2.06
5745MHz	10%	-1.85
5780MHz	10%	-1.58
5815MHz	11%	-1.03
5850MHz	10%	-1.83

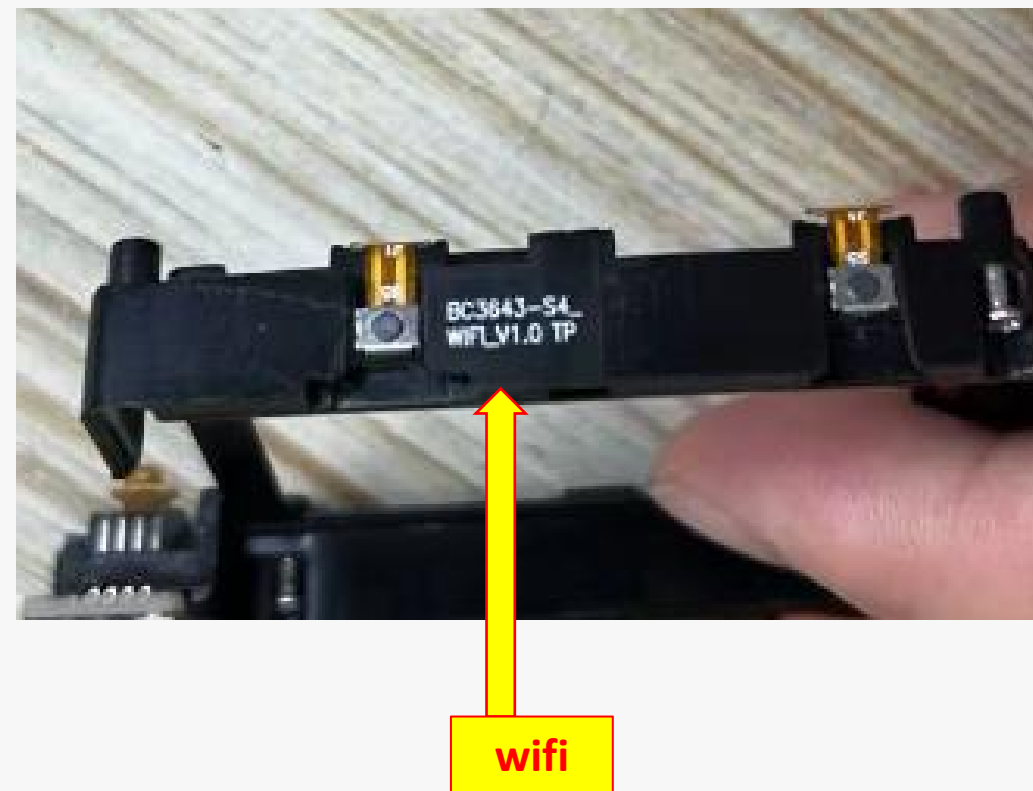
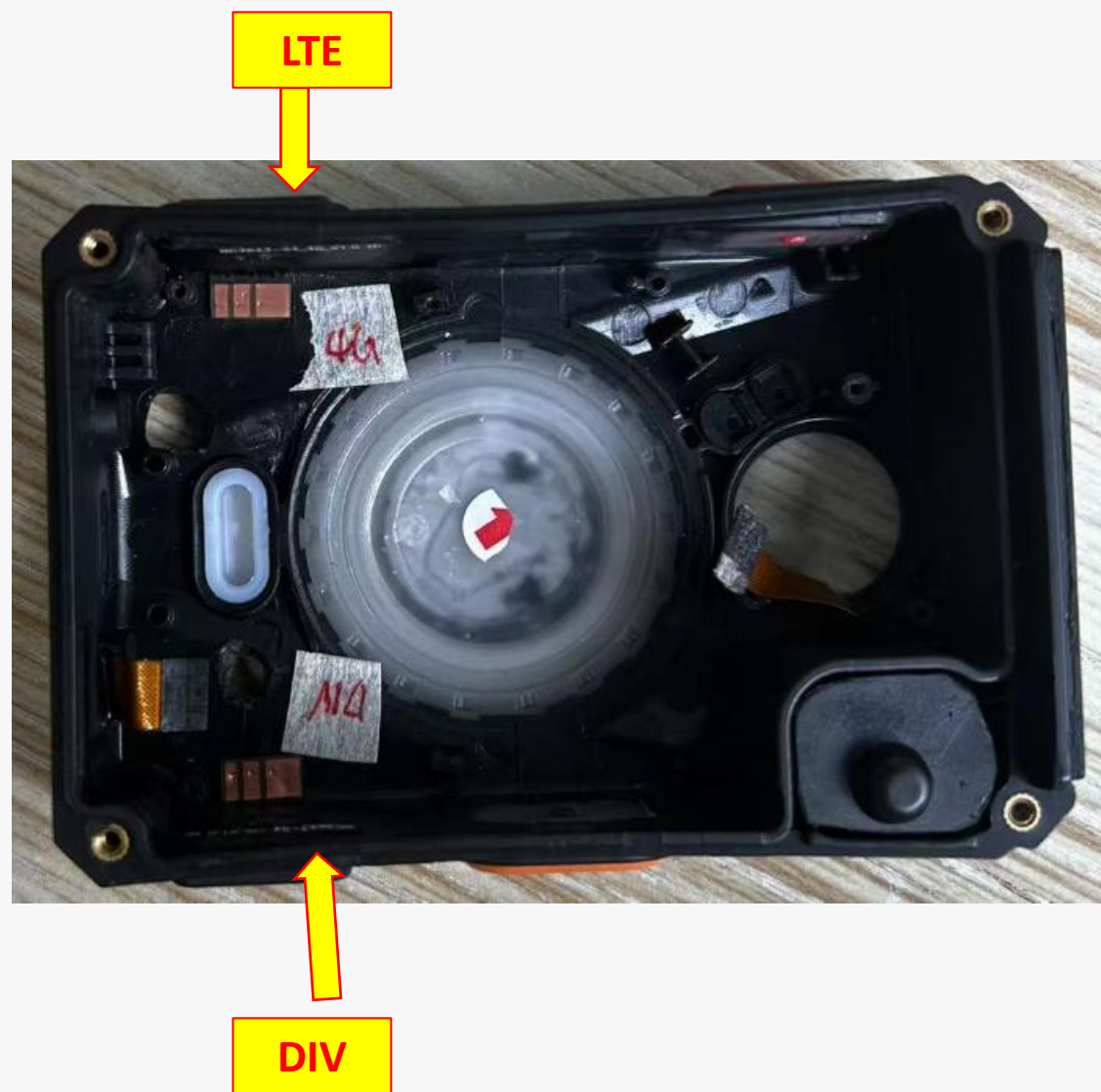




Test data: Main antenna active data – TRP/TIS

Antenna Performance Table						
		Channel No.	TRP (dBm)		TIS (dBm)	
LTE:FDD	B2	L	18. 73			10mhz
		M	18. 37			
		H	17. 92		-88. 43	
	B13	L	15. 10			5mhz
		M	15. 44			
		H	15. 60		-83. 16	
	B66	L	18. 65			10mhz
		M	18. 80			
		H	18. 51		-91. 07	
Supplementary note: Sample retest						

4G antenna assembly reference diagram



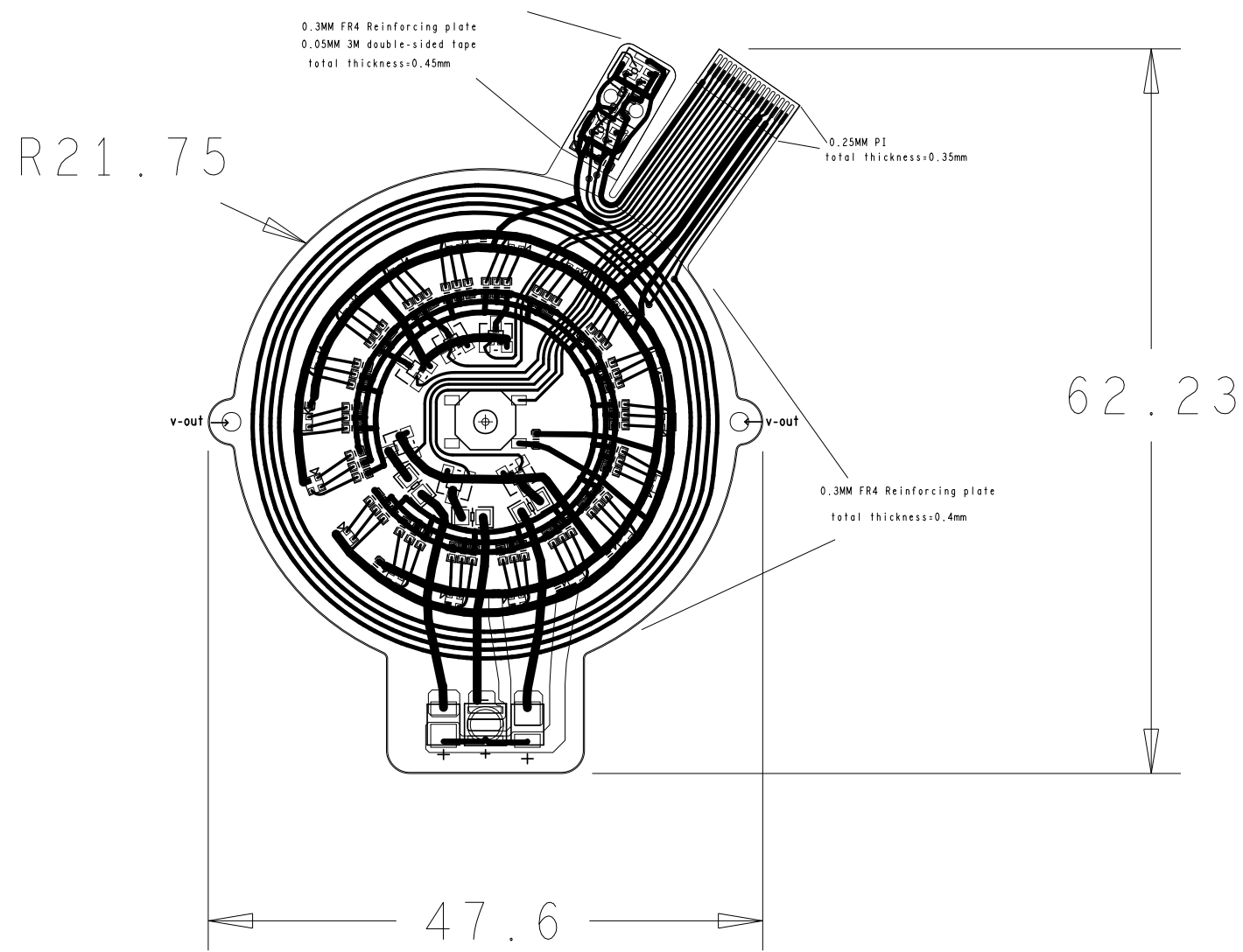


Planning summary:

The above report is the re-measurement data of the sample antenna of the BC3643-S4 customer-supplied machine.

1. Both passive data and active data are for the overall machine status test.
2. For other accessory wiring harnesses, please twist them into a pretzel shape as much as possible and place them fixedly away from the antenna area.
3. No environmental treatment.
4. There is no change in the motherboard matching

ART FILM - dimension



ART FILM - dimension



THANK YOU

May you have a peaceful heart in this bustling and noisy world
-Tuopin Internet of Things

