

承 认 书

Specification for approval

机 种: TK418 (TK419-3 共用)

名 称: 天线

料 号:

供应商: 唯优特

日 期: 2023-11-22

承认栏			供方栏
承认盖章	研发主管	研发 / 工程	研发主管
			Austin

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1.Indication

This report summarizes the electrical performance results of the proposed Internal antenna to support TK419-3 program. The antenna is an assembly band CATM1-B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B20/B25/B26/ B28/B38/B40/B41



Figure 1: Proposed Antenna

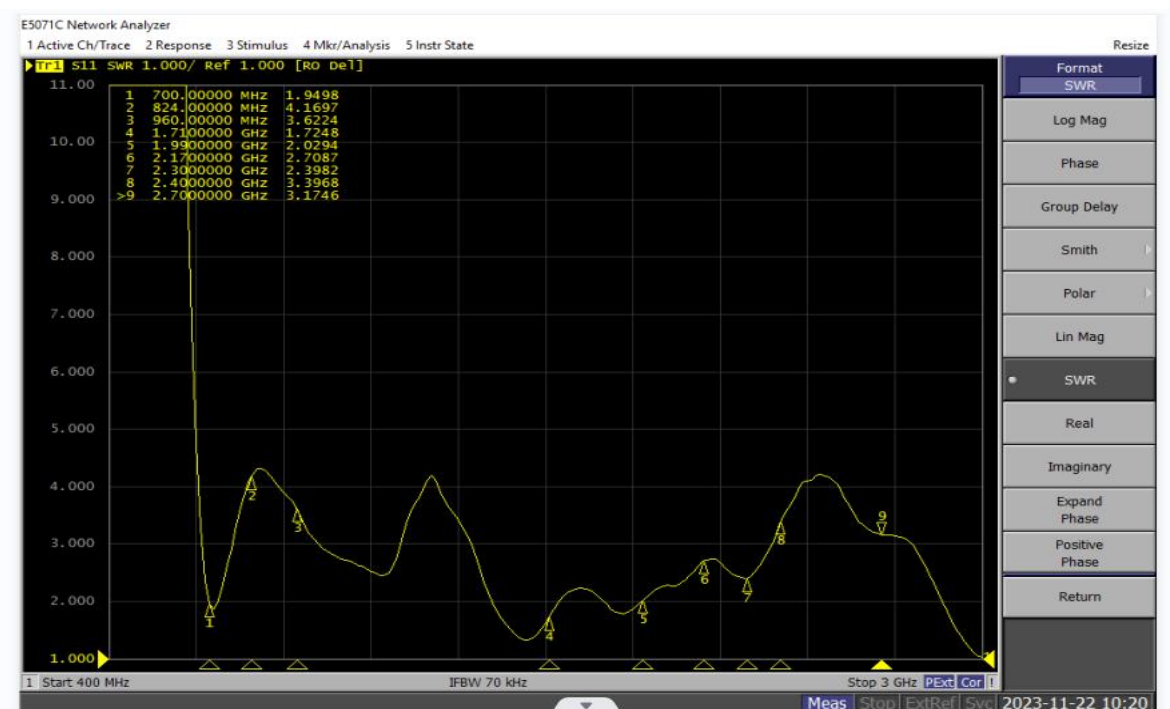
2.General Information

- This approval sheet supports for TK419-3project.
One internal antennas include in this project. This report is for the performance of CATM1 antenna.
- Antenna shape size: Meet the requirement of TK419-3.
- Antenna material: Antenna material meet the requirement of TK419-3.
- Adhesive performance: Adhesive performance meet the requirement of TK419-3.
- Antenna performance meet the spec below:

Description	700MHz~8960 MHz	1710MHz~2700 MHz	Units
Antenna Efficiency	≥35	≥45	%
Return Loss	≤-5	≤-5	dB
S11 Input VSWR	≤3	≤3	
Feed Impedance	50 ohms		

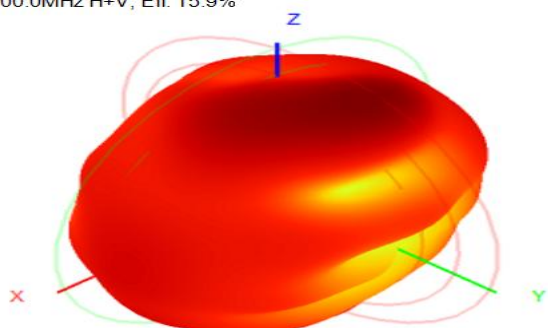
3.Measurement information

3.1. S11

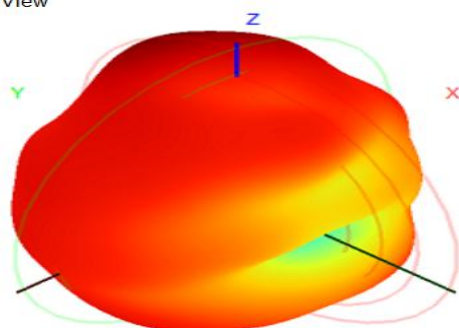




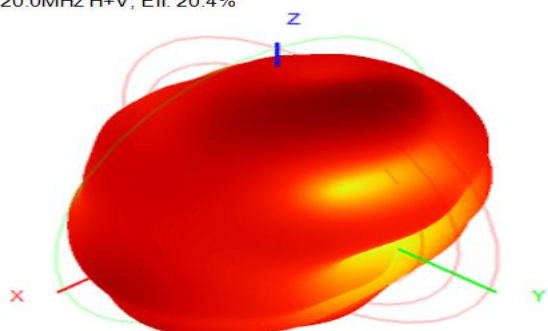
700.0MHz H+V, Eff. 15.9%



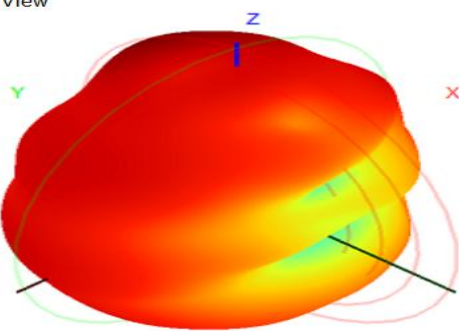
Back View



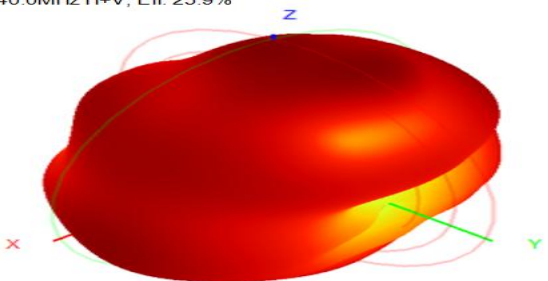
720.0MHz H+V, Eff. 20.4%



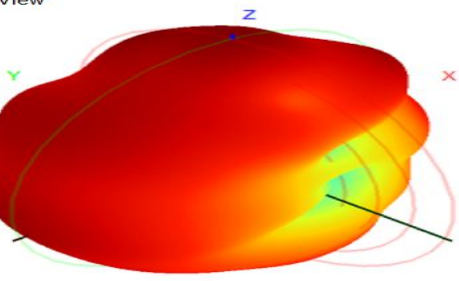
Back View



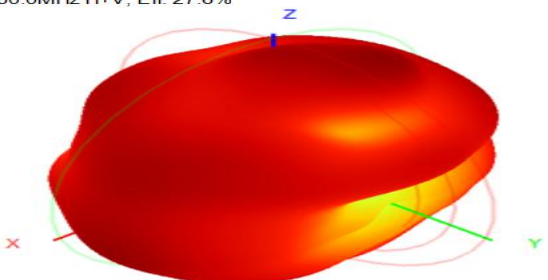
740.0MHz H+V, Eff. 25.9%



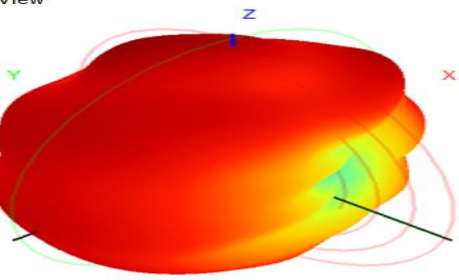
Back View



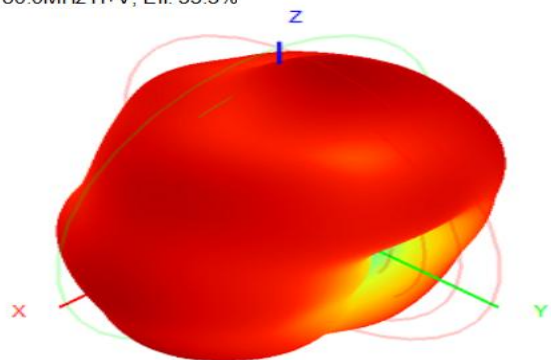
760.0MHz H+V, Eff. 27.6%



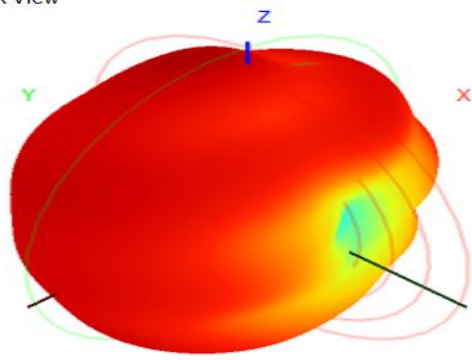
Back View



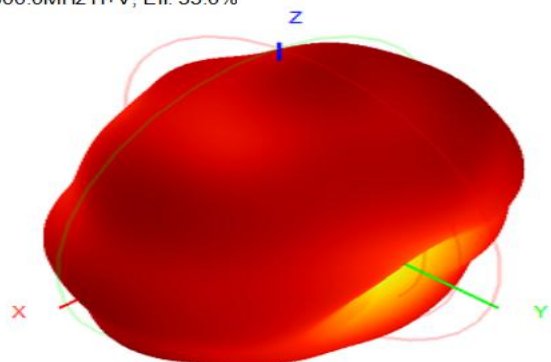
780.0MHz H+V, Eff. 33.3%



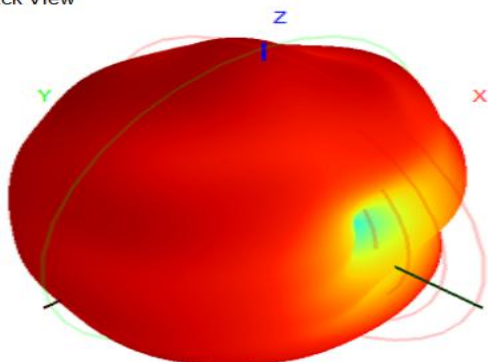
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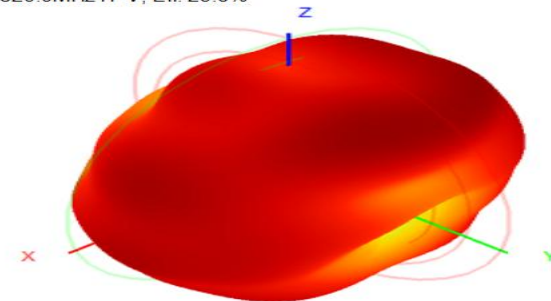
800.0MHz H+V, Eff. 33.0%



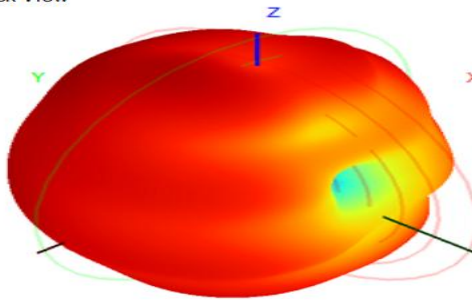
Back View



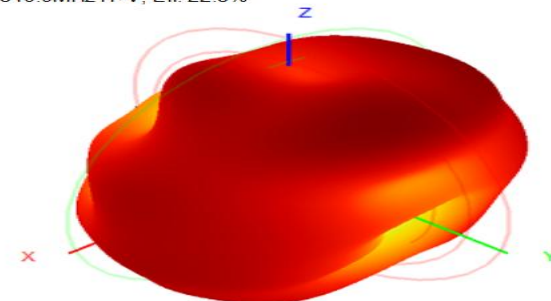
820.0MHz H+V, Eff. 29.6%



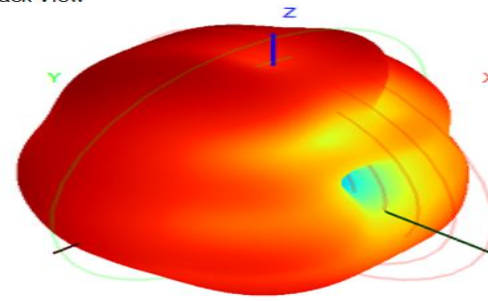
Back View



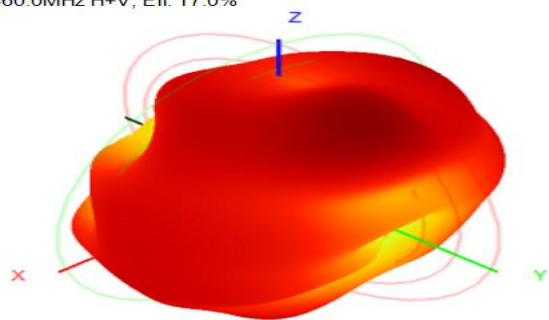
840.0MHz H+V, Eff. 22.8%



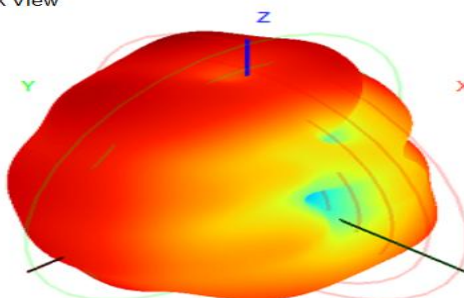
Back View



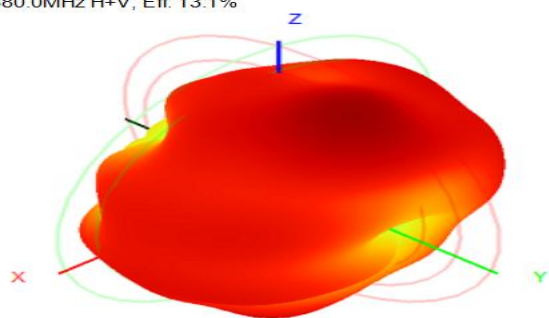
860.0MHz H+V, Eff: 17.0%



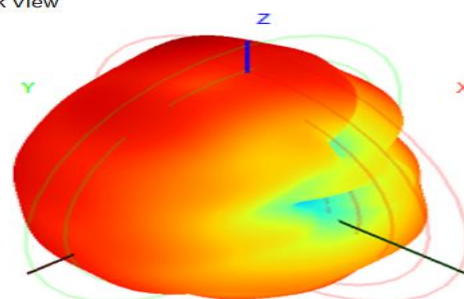
Back View



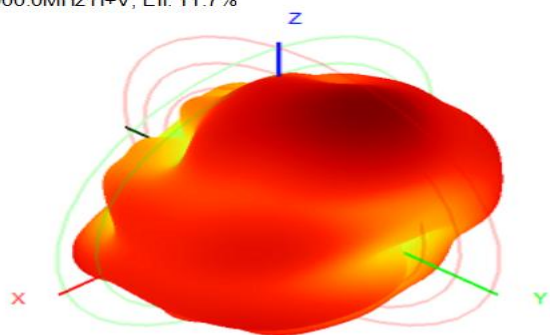
880.0MHz H+V, Eff: 13.1%



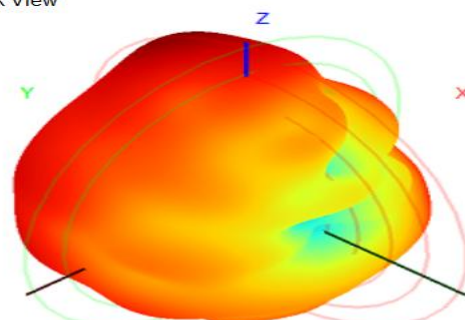
Back View



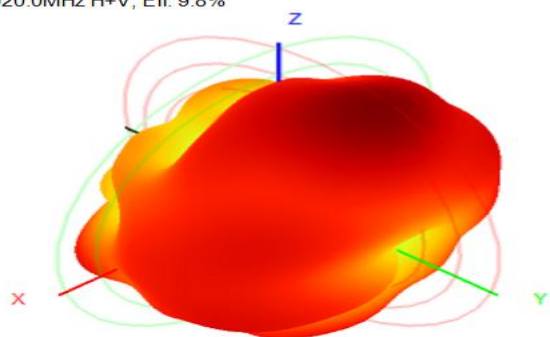
900.0MHz H+V, Eff: 11.7%



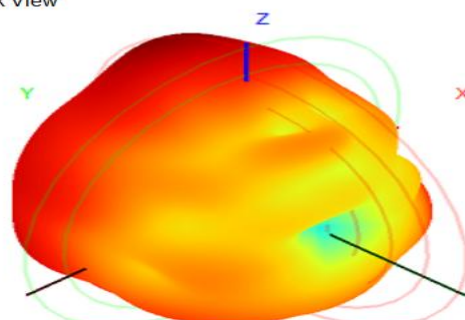
Back View



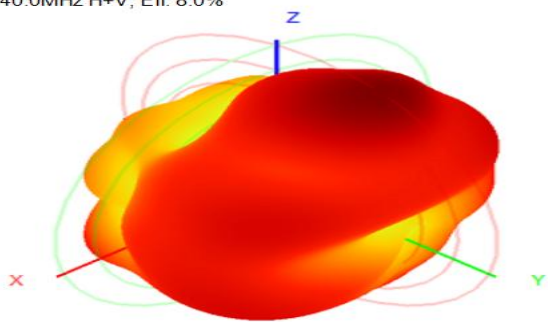
920.0MHz H+V, Eff: 9.8%



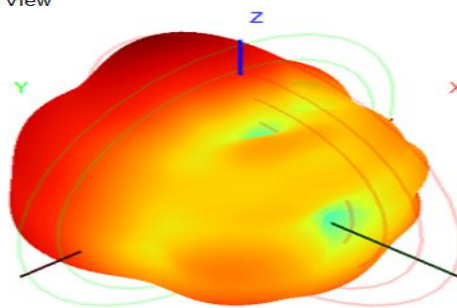
Back View



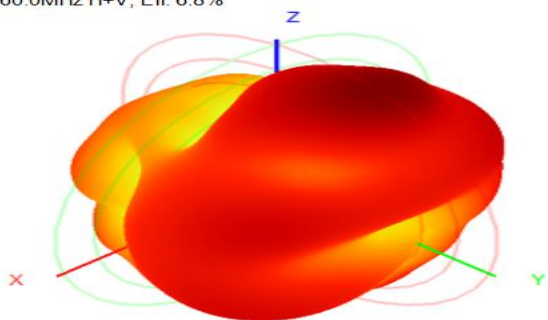
940.0MHz H+V, Eff: 8.0%



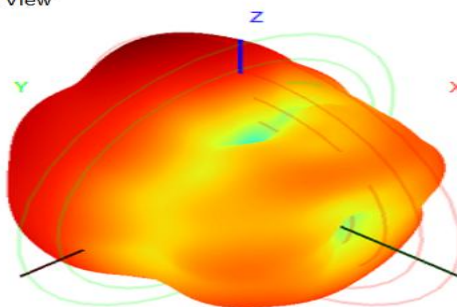
Back View



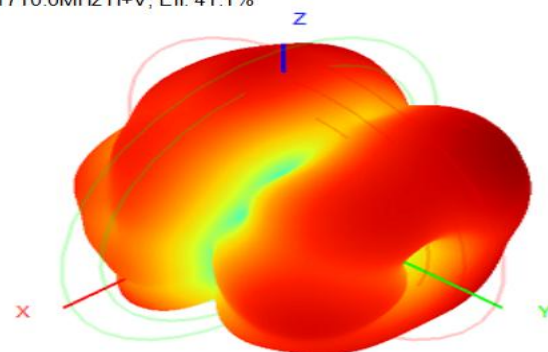
960.0MHz H+V, Eff: 6.8%



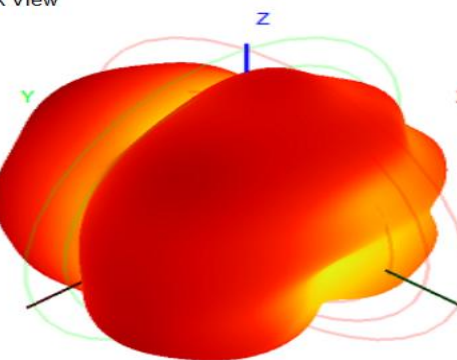
Back View



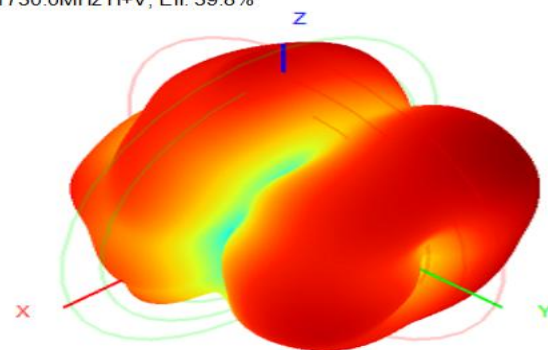
1710.0MHz H+V, Eff: 41.1%



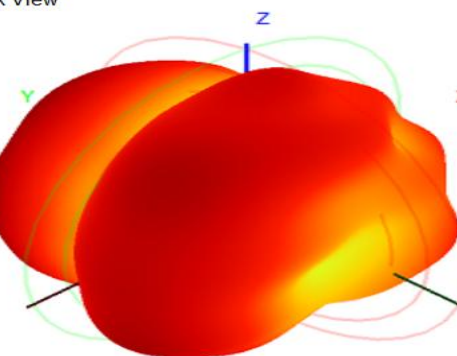
Back View



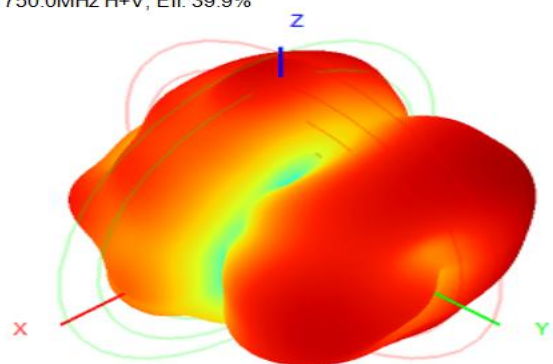
1730.0MHz H+V, Eff: 39.8%



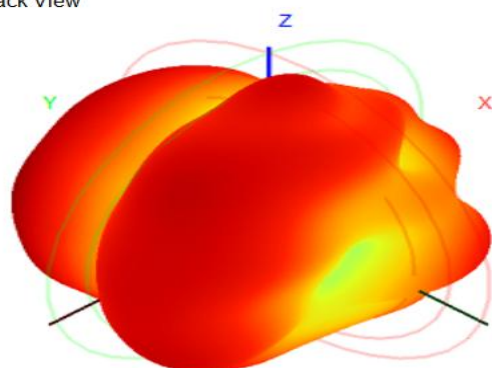
Back View



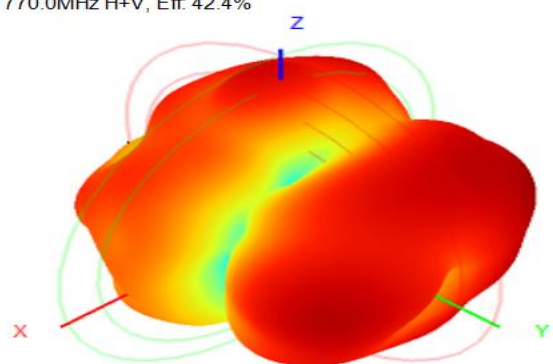
1750.0MHz H+V, Eff. 39.9%



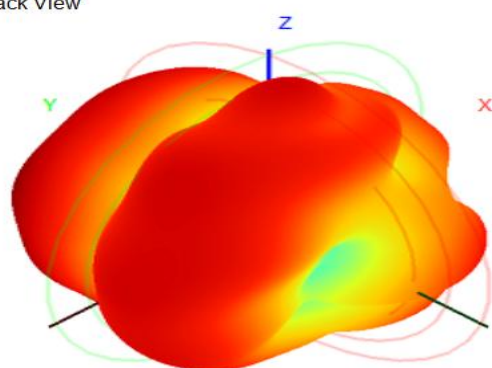
Back View



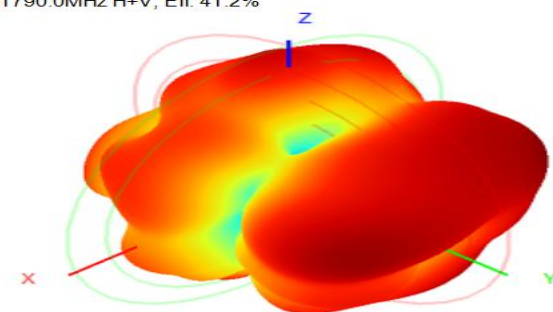
1770.0MHz H+V, Eff. 42.4%



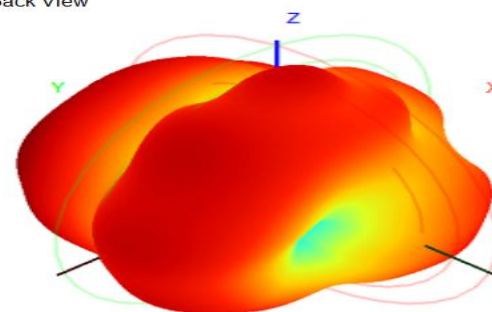
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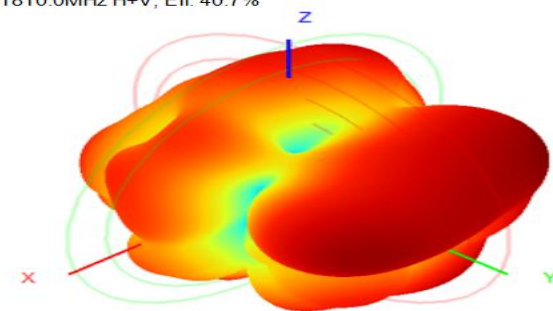
1790.0MHz H+V, Eff. 41.2%



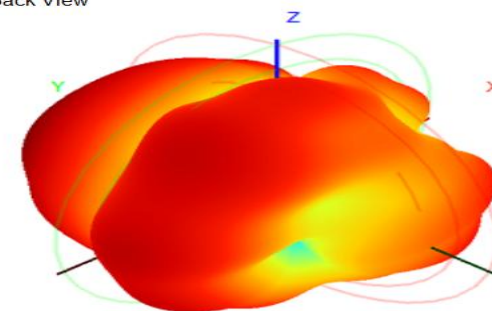
Back View



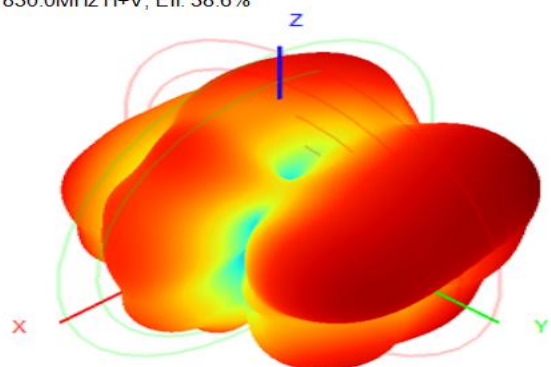
1810.0MHz H+V, Eff. 40.7%



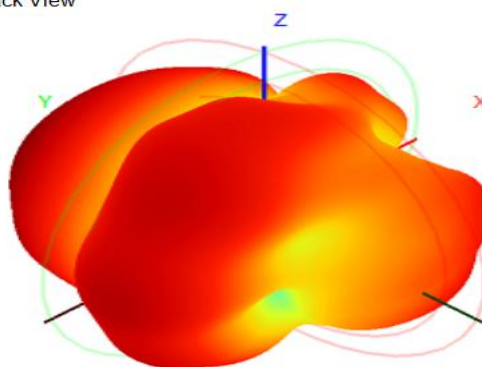
Back View



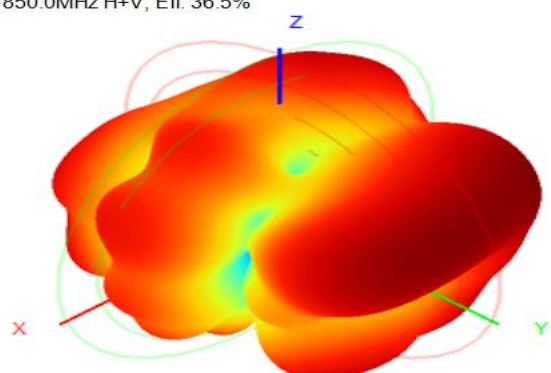
1830.0MHz H+V, Eff. 38.6%



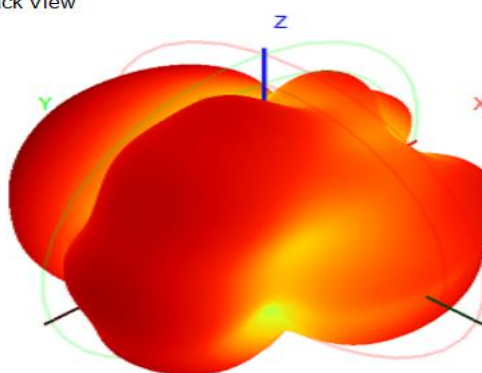
Back View



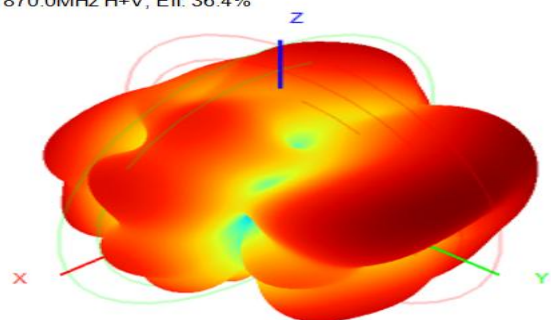
1850.0MHz H+V, Eff. 36.5%



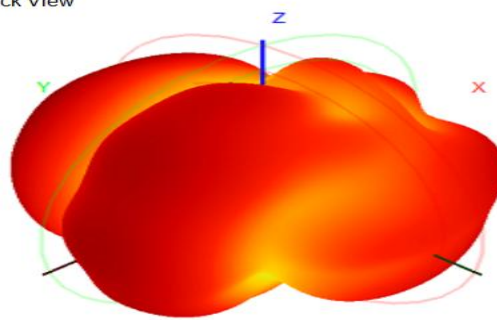
Back View



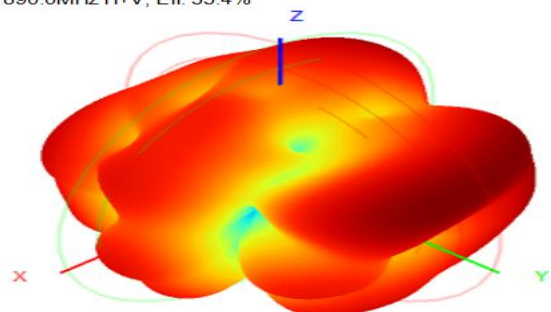
1870.0MHz H+V, Eff. 36.4%



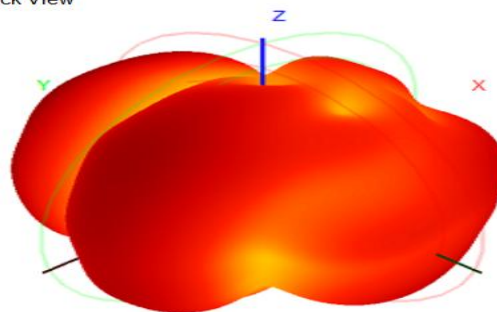
Back View



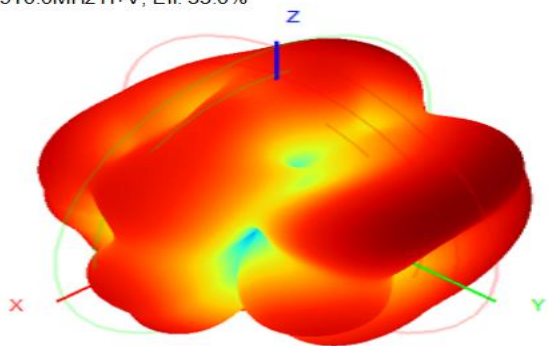
1890.0MHz H+V, Eff. 35.4%



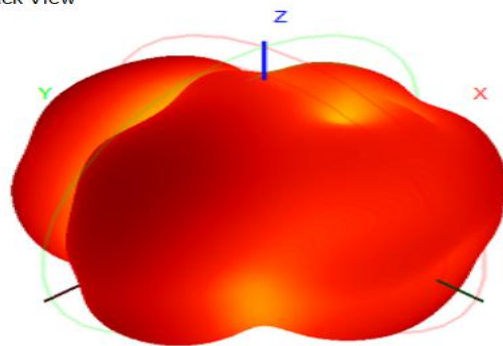
Back View



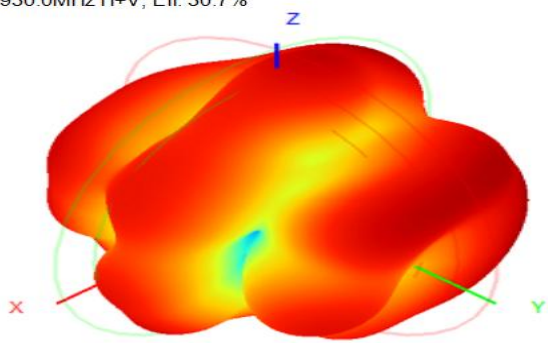
1910.0MHz H+V, Eff. 33.0%



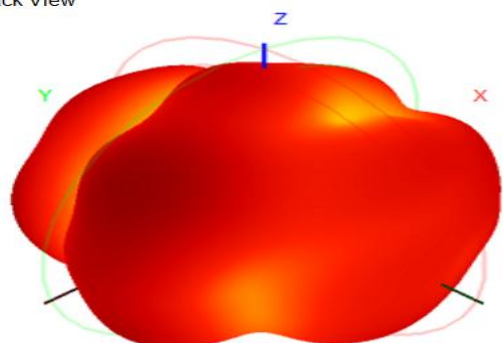
Back View



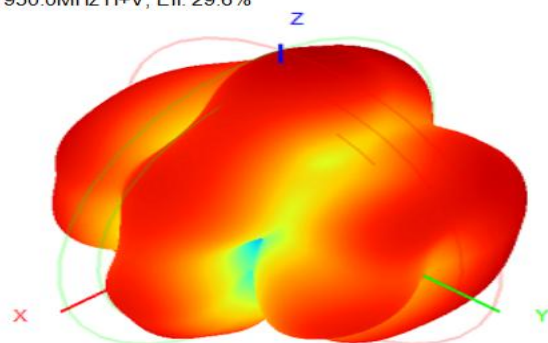
1930.0MHz H+V, Eff. 30.7%



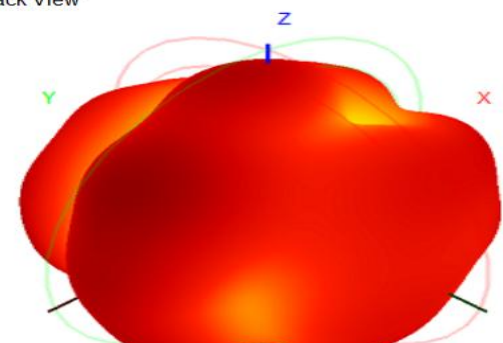
Back View



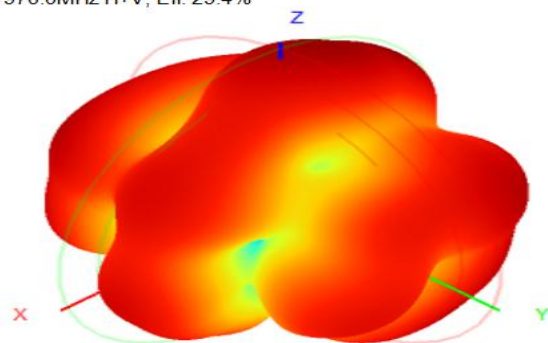
1950.0MHz H+V, Eff. 29.6%



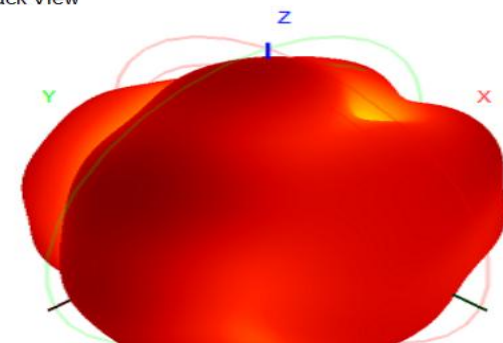
Back View



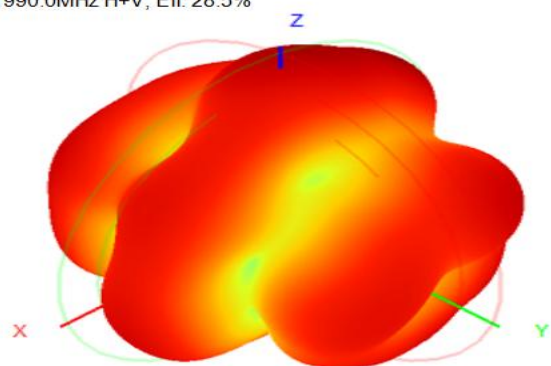
1970.0MHz H+V, Eff. 29.4%



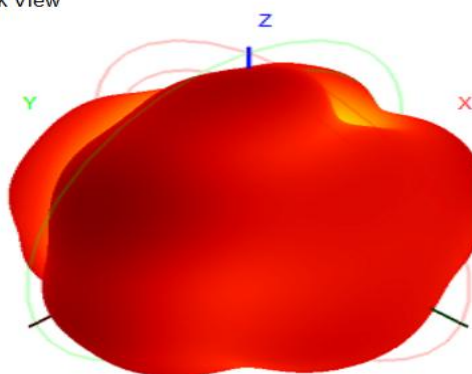
Back View



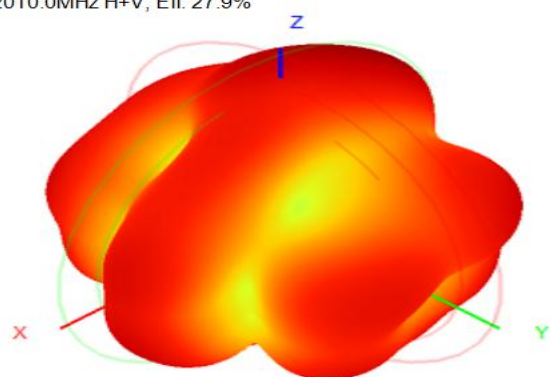
1990.0MHz H+V, Eff. 28.5%



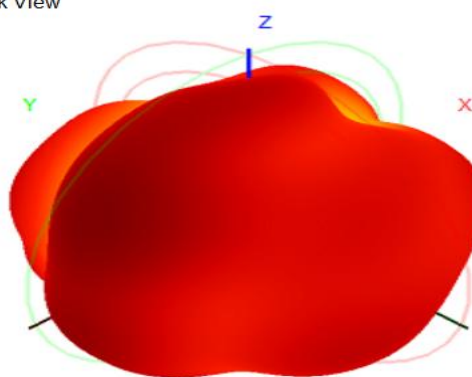
Back View



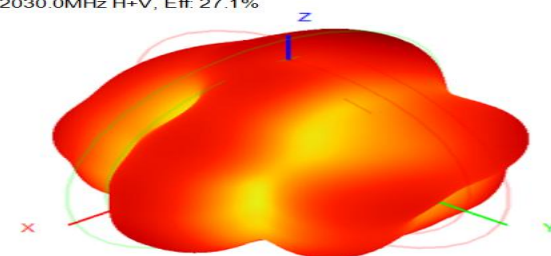
2010.0MHz H+V, Eff. 27.9%



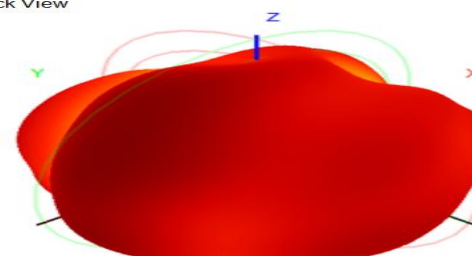
Back View



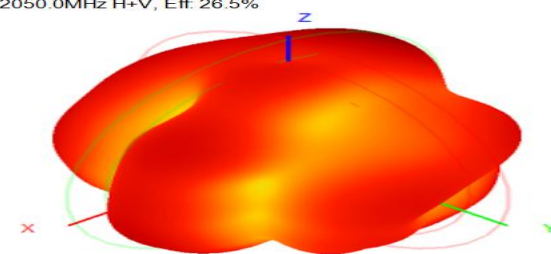
2030.0MHz H+V, Eff. 27.1%



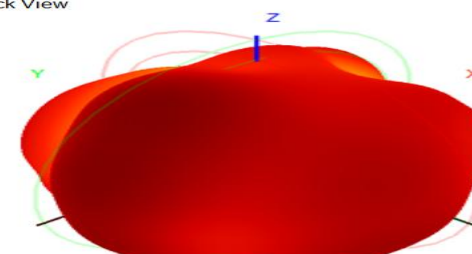
Back View



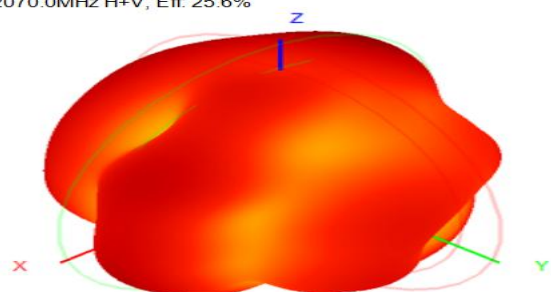
2050.0MHz H+V, Eff. 26.5%



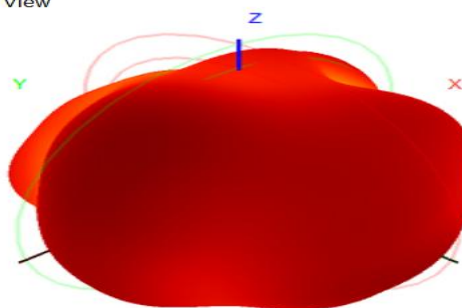
Back View



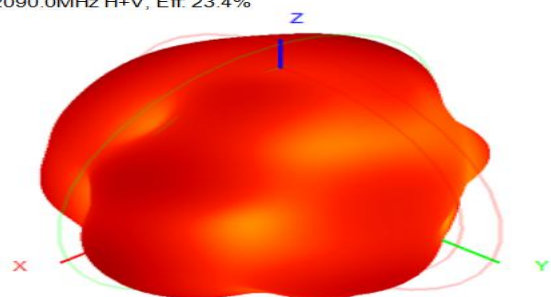
2070.0MHz H+V, Eff. 25.6%



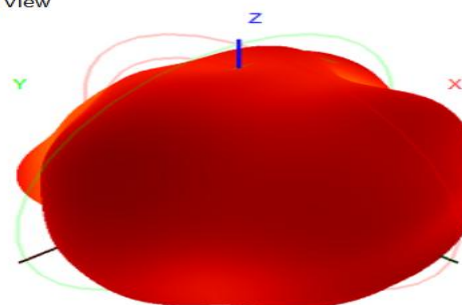
Back View



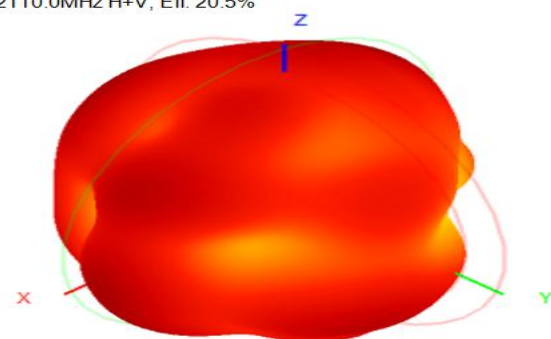
2090.0MHz H+V, Eff. 23.4%



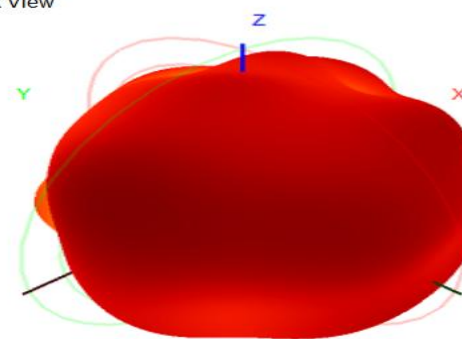
Back View



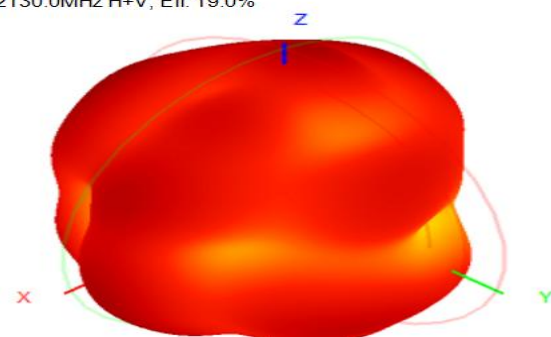
2110.0MHz H+V, Eff. 20.5%



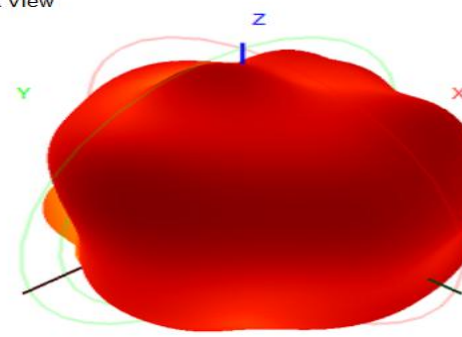
Back View



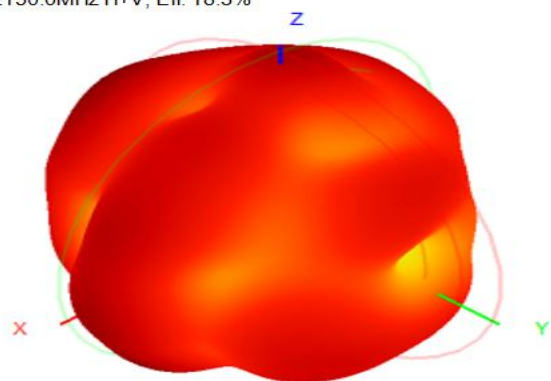
2130.0MHz H+V, Eff. 19.0%



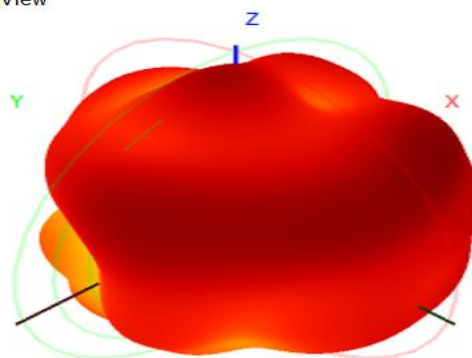
Back View



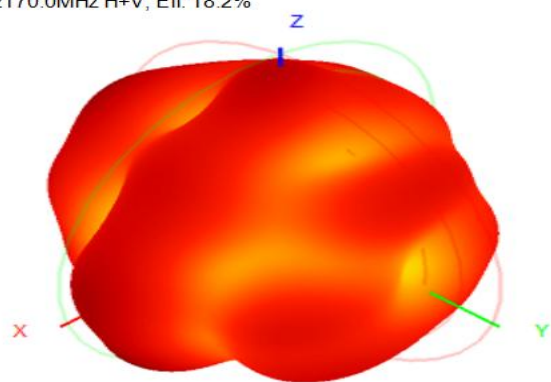
2150.0MHz H+V, Eff. 18.3%



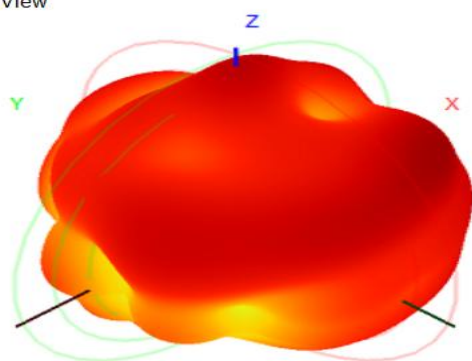
Back View



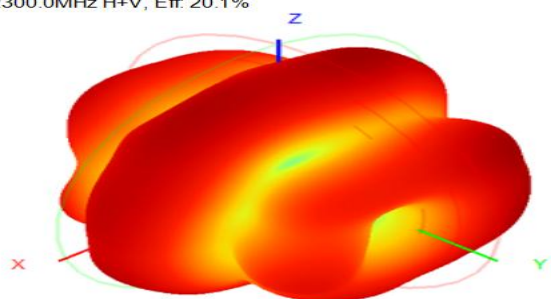
2170.0MHz H+V, Eff. 18.2%



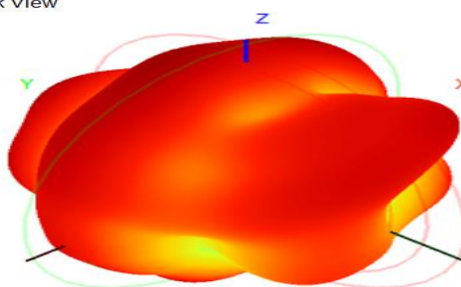
Back View



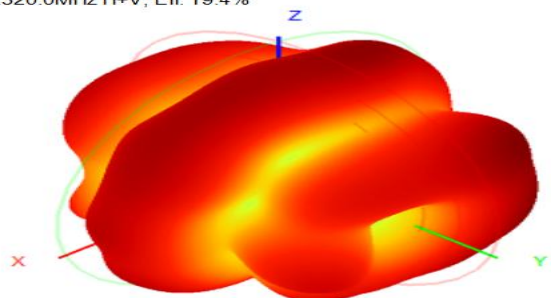
2300.0MHz H+V, Eff. 20.1%



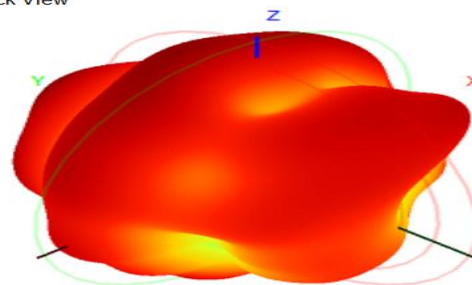
Back View



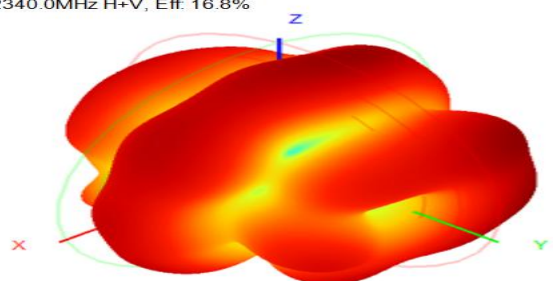
2320.0MHz H+V, Eff. 19.4%



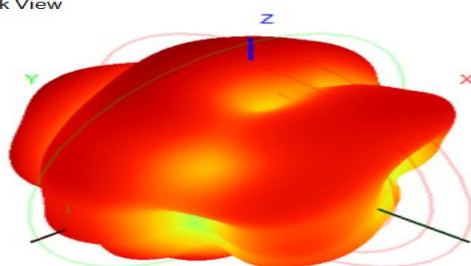
Back View



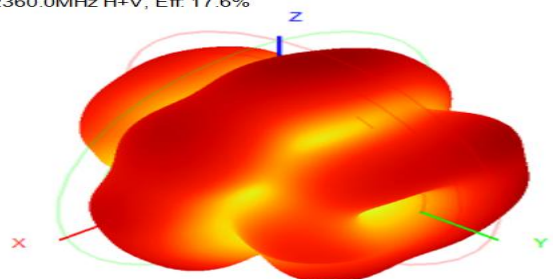
2340.0MHz H+V, Eff: 16.8%



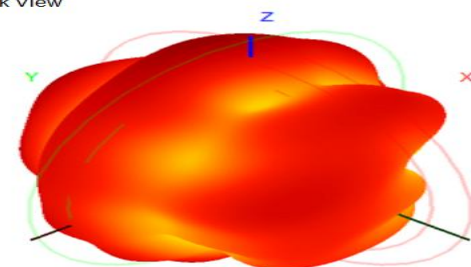
Back View



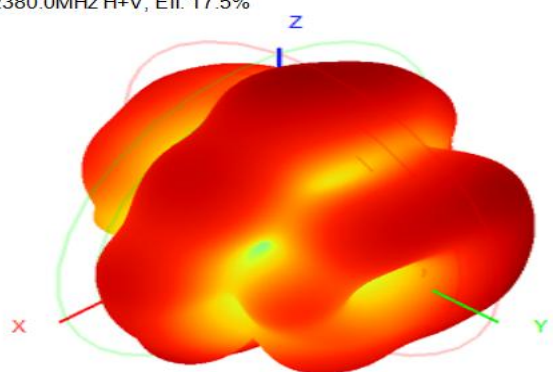
2360.0MHz H+V, Eff: 17.6%



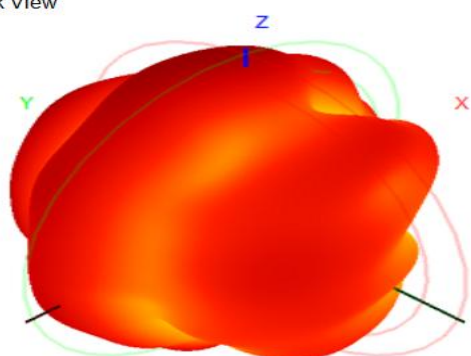
Back View



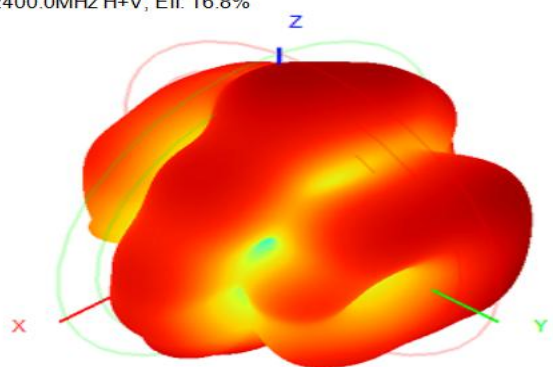
2380.0MHz H+V, Eff: 17.5%



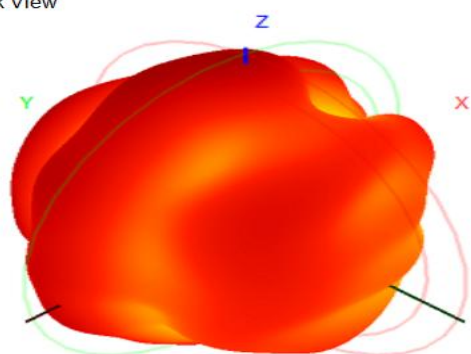
Back View



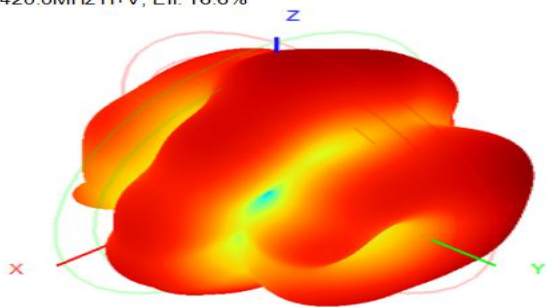
2400.0MHz H+V, Eff: 16.8%



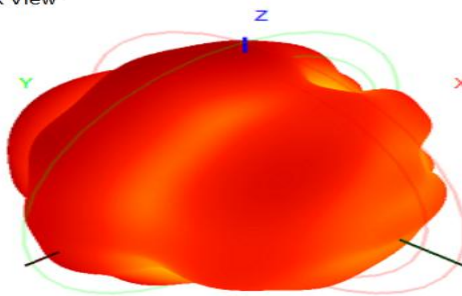
Back View



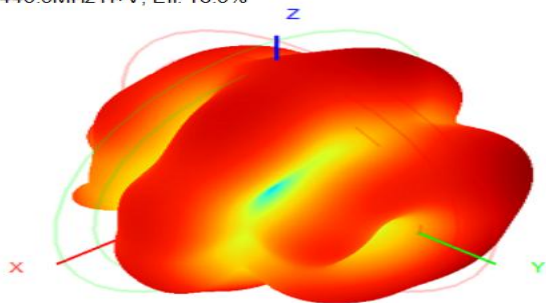
2420.0MHz H+V, Eff. 16.6%



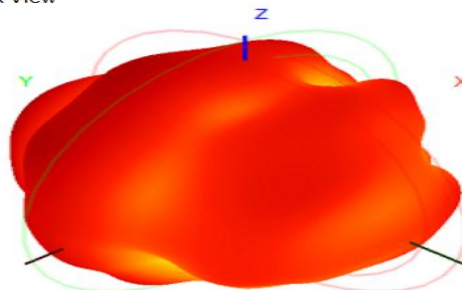
Back View



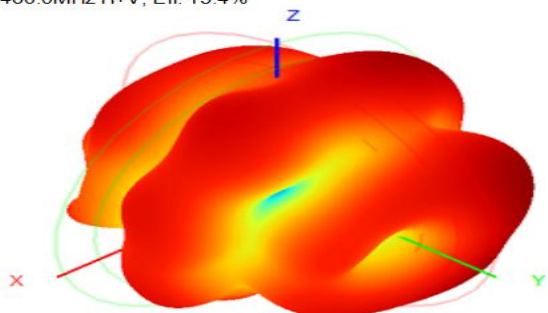
2440.0MHz H+V, Eff. 16.0%



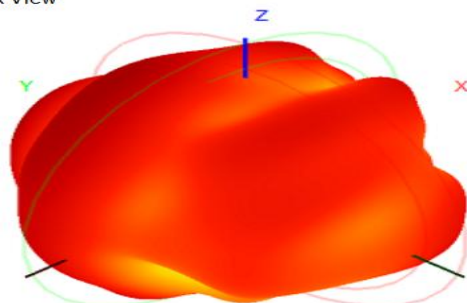
Back View



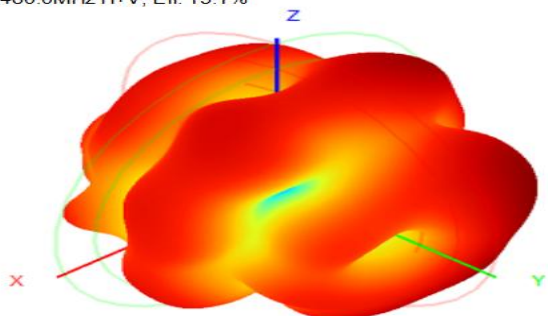
2460.0MHz H+V, Eff. 15.4%



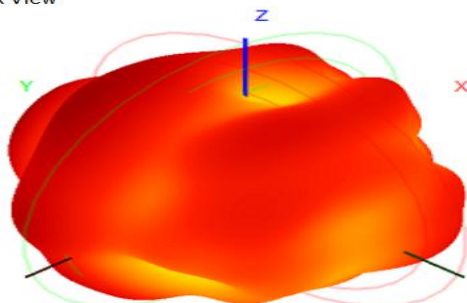
Back View



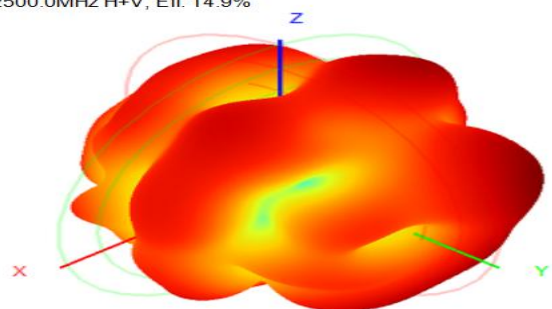
2480.0MHz H+V, Eff. 15.1%



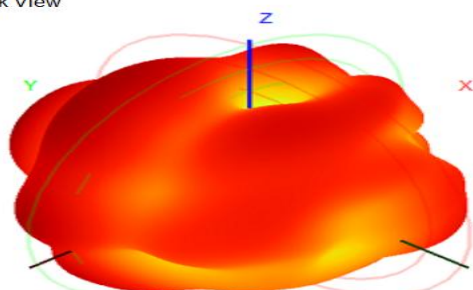
Back View



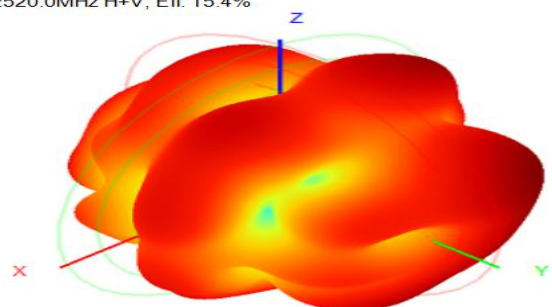
2500.0MHz H+V, Eff: 14.9%



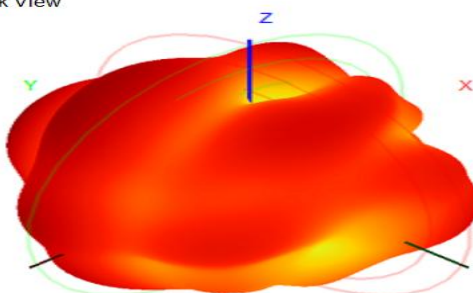
Back View



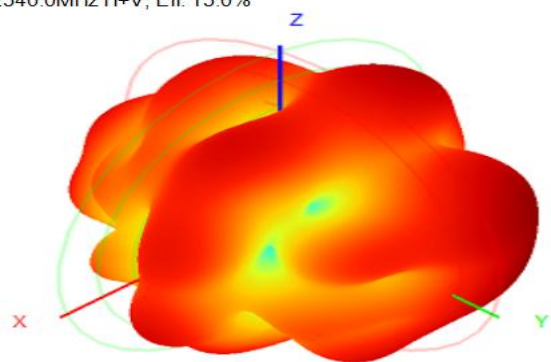
2520.0MHz H+V, Eff: 15.4%



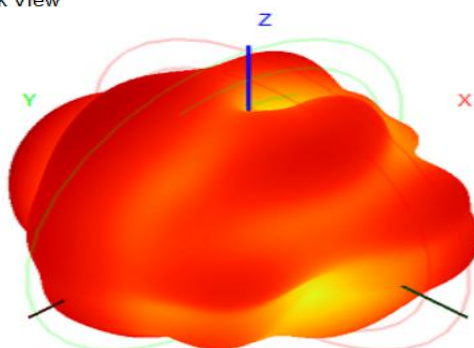
Back View



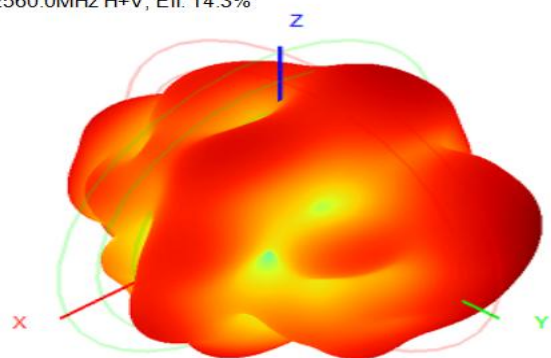
2540.0MHz H+V, Eff: 15.0%



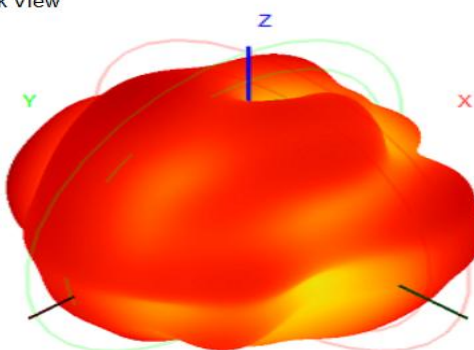
Back View



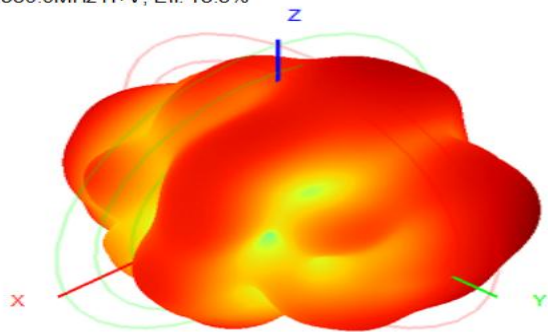
2560.0MHz H+V, Eff: 14.3%



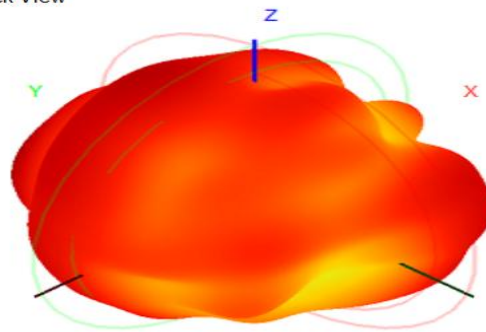
Back View



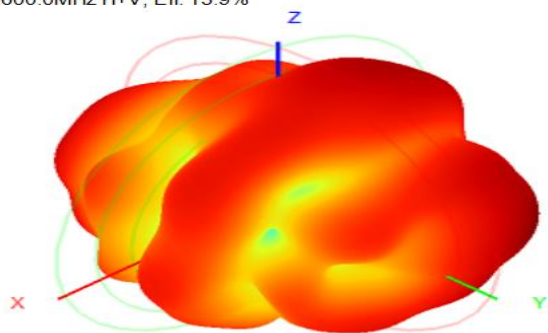
2580.0MHz H+V, Eff. 13.8%



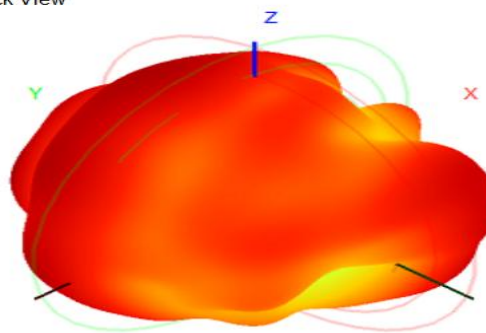
Back View



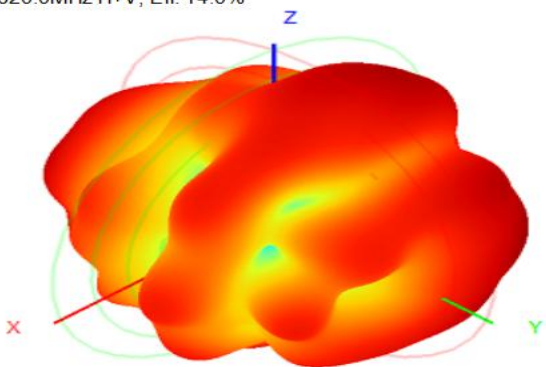
2600.0MHz H+V, Eff. 13.9%



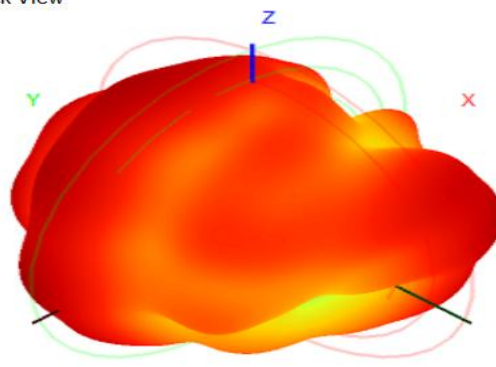
Back View



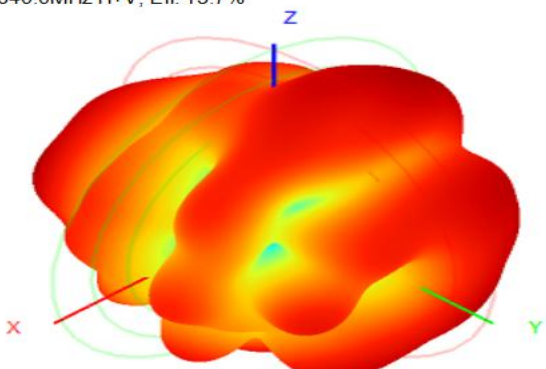
2620.0MHz H+V, Eff. 14.0%



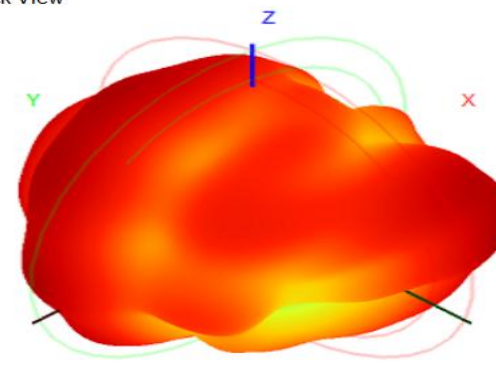
Back View



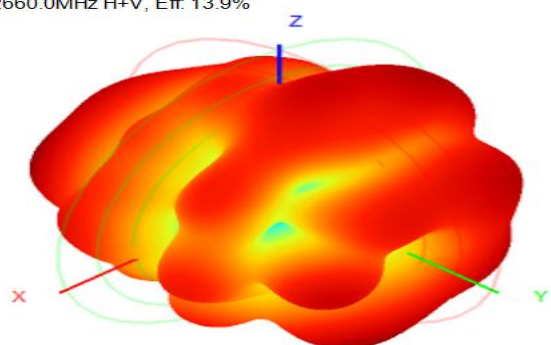
2640.0MHz H+V, Eff. 13.7%



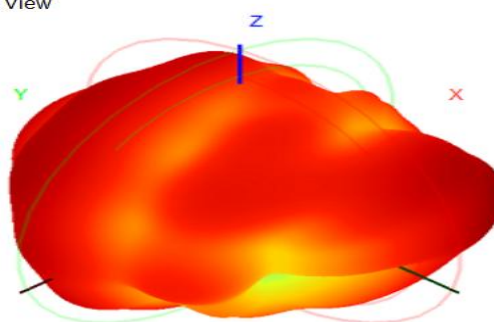
Back View



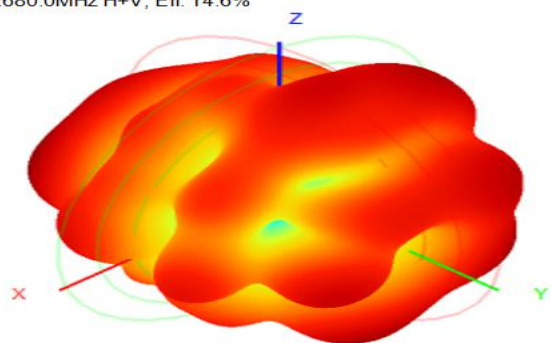
2660.0MHz H+V, Eff: 13.9%



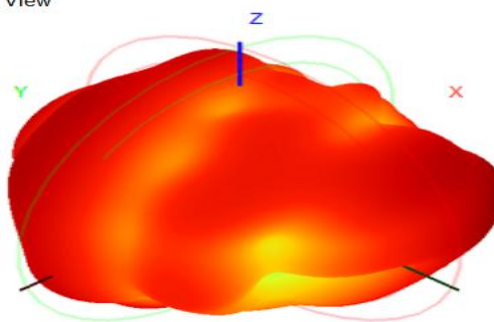
Back View



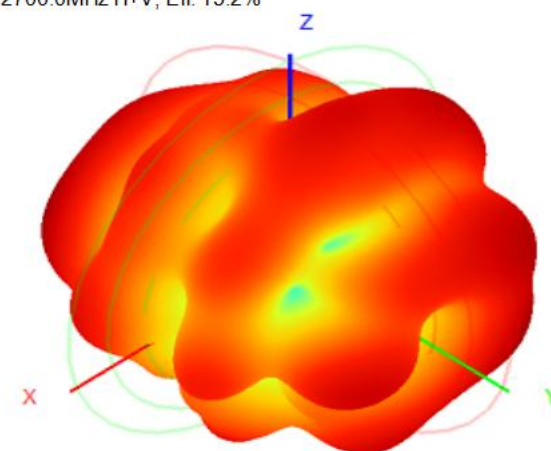
2680.0MHz H+V, Eff: 14.6%



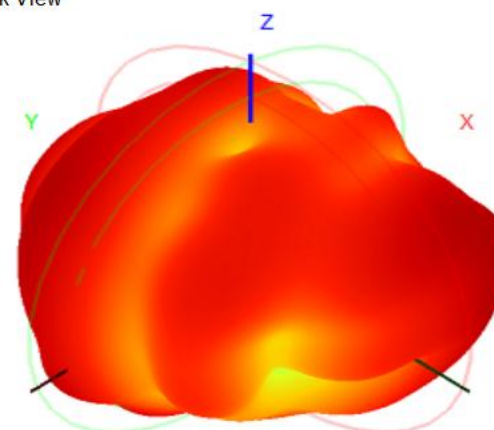
Back View



2700.0MHz H+V, Eff: 15.2%



Back View

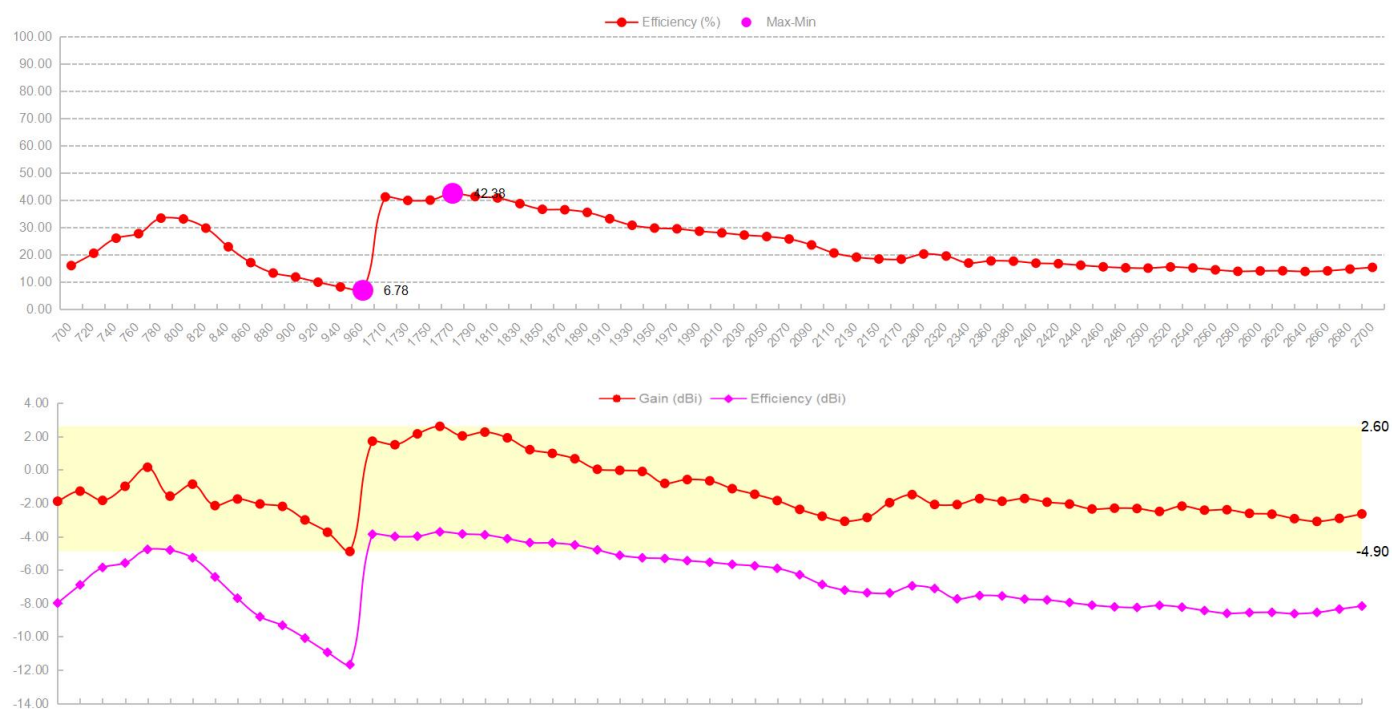


3.2. Maximum Gain and Average Gain(azimuth plane)

The efficiency is tested in chamber.

The data point are 8128/Frequency

ANTENNA



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4. TRP&TIS

TK419-3 共用 TK418 天线 3D TEST REPORT

测试日期：2023-11-22 单位：dBm

项目名											备注
TK419-3 20231122 4G 频段		B1	B2	B3	B4	B5	B7	B8	B12	B13	用 TK418 天线
		18550	18650	19250	20000	20450	20800	21750	5130	5230	
	TRP	19.83	19.72	19.51	20.05	13.53	14.02	15.12	15.22	16.92	
	TIS	-91.13	-95.40	-92.93	-91.43	-89.05	-86.88	-83.27	-90.46	-89.19	
		B17	B20	B25	B26	B38	B40	B41	B66		
	TRP	12.95	14.48	19.93	16.34	14.04	19.35	13.05	19.12		
	TIS	-88.67	-87.66	-94.05	-80.84	-84.48	-91.01	-86.27	-90.26		