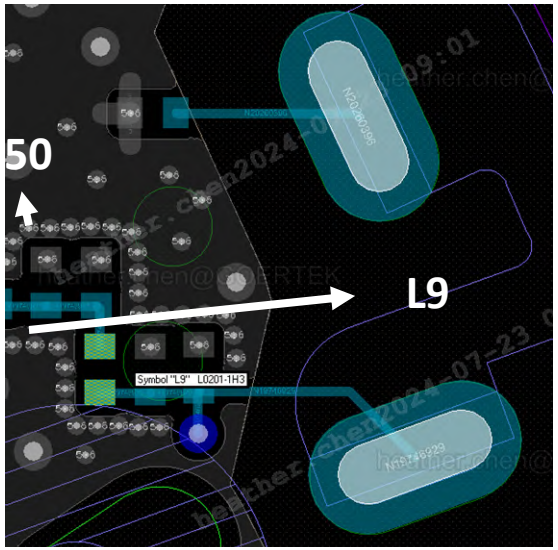
Tiger DVT—Antenna test report

Goertek

DVT headset Z-antenna data

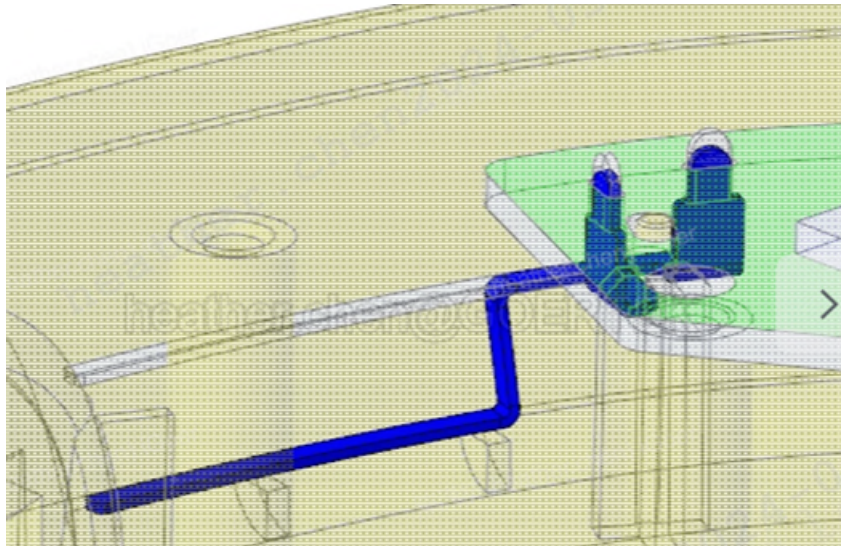
■ Z-antenna：

1. Antenna matching: String 2.2nH inductance at L9, and 2.7pF capacitor at C50.
2. TRP/TIS: The mean value of TRP is 5.5dB, and the mean value of TIS is -89.6dB.
3. Worst horizontal zero gain: -12.8dB.
4. Antenna brand: Hebang Electronics Co., LTD.(Headset) / Goertek Inc. (Dongle)
5. Antenna model: WAG-M-LA-00-094 .(Headset) / 309000151245R2 (Dongle)
6. Antenna material: Stainless steel SUS304 3/4H T0.3mm primary color.



■ Competing headset：

1. TRP/TIS: The mean value of TRP is 5.5dB, and the mean value of TIS is -89.6dB.
2. Worst horizontal zero gain: -13dB.



Conclusion:

The objective laboratory data of DVT headset are basically consistent with those of competing products.

DVT headset Z-antenna data

- Headset IC S11：

DVT headset Z-antenna data

- Free state test environment：

cable was used to connect the dark room with passive fixtures

DVT headset Z-antenna data

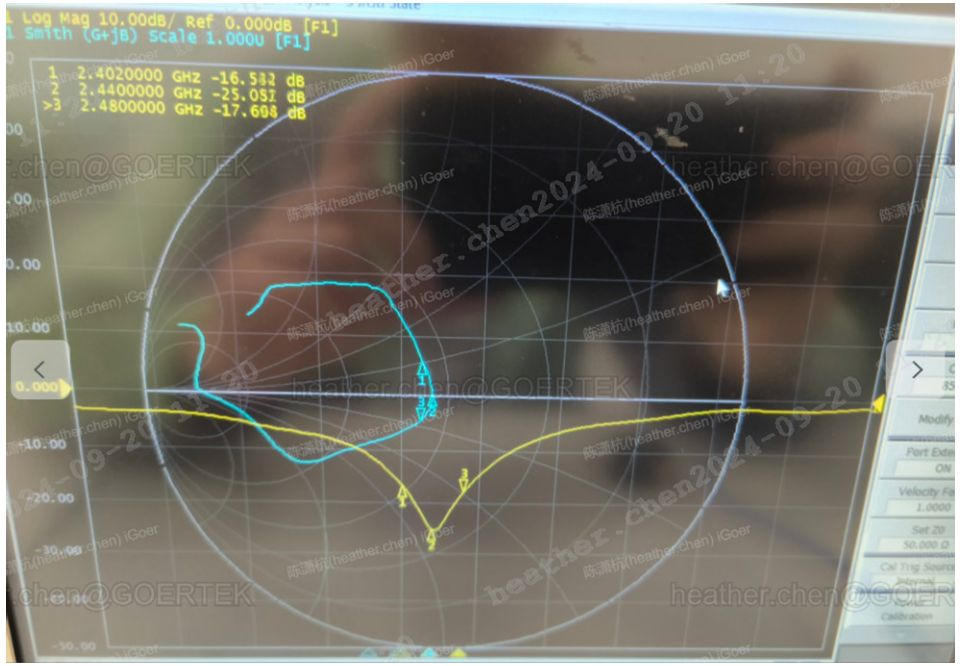
- Free space Passive test：

dongle Antenna		
Frequency	Efficiency(dB)	**Authentication reference gain(dBi)**
2.402GHz	-2.81	**0.47**
2.44GHz	-2.69	**0.41**
2.48GHz	-3.07	**0.07**

The antenna gain required for authentication shall be based on this table

DVT headset Z-antenna data

■ Free state S11&Passive test(PS 1#)：



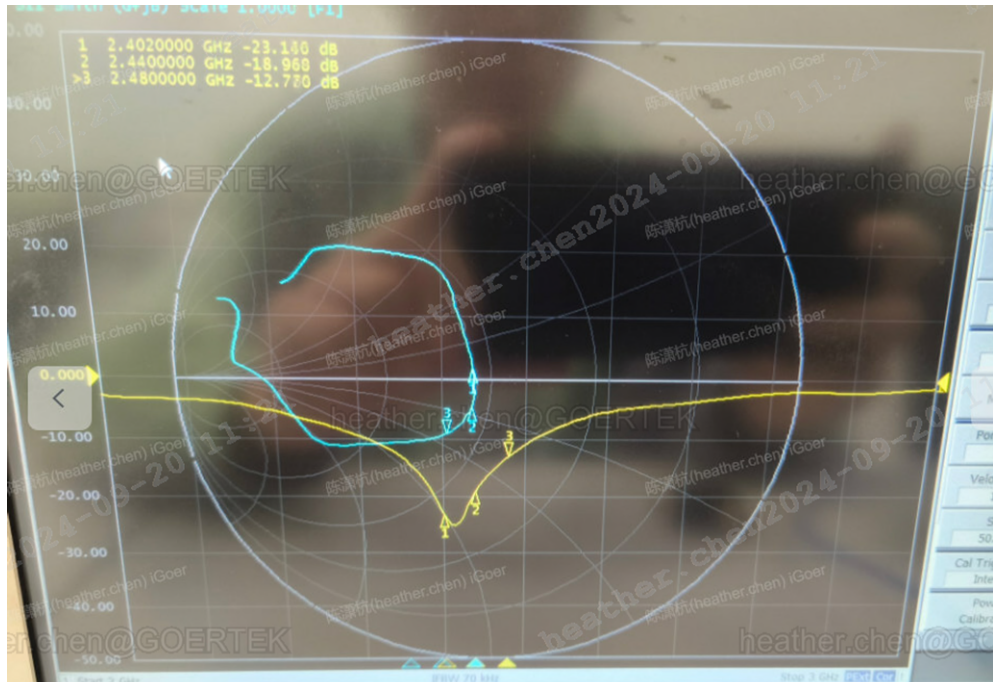
headset Antenna（free space）			
Frequency	Efficiency(dB)	Efficiency(%)	Gain(dBi)
2.402GHz	-2.81	52.13%	**0.47**
2.44GHz	-2.97	50.78%	0.26
2.48GHz	-3.08	49.69%	-0.43

Antenna	Frequency	S11(dB)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	<-10	<-10	Pass

Antenna	Frequency	Efficiency (%)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	>-45%	>-45%	Pass

DVT headset Z-antenna data

■ Free state S11&Passive test(PS 2#)：



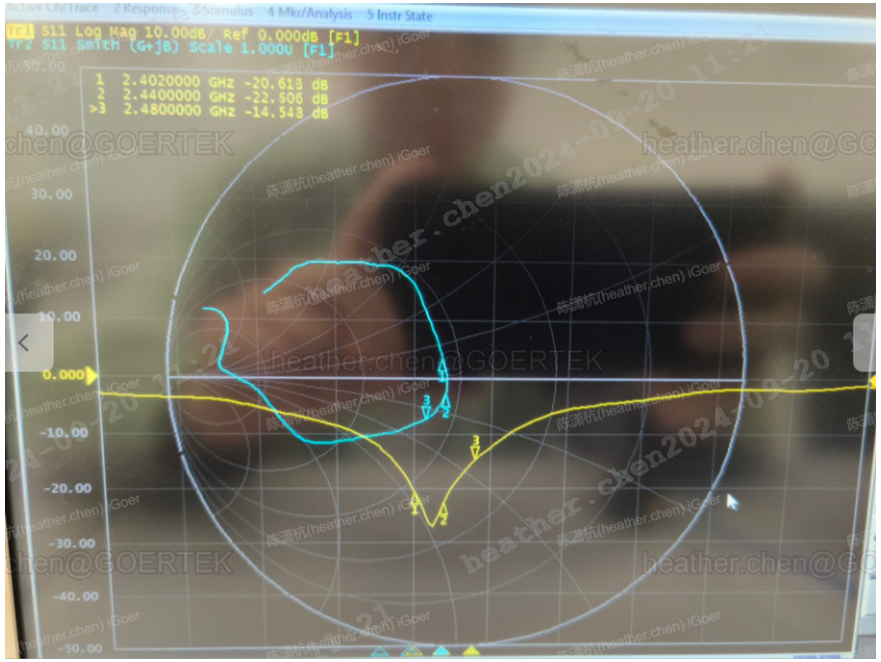
headset Antenna（free space）			
Frequency	Efficiency(dB)	Efficiency(%)	Gain(dBi)
2.402GHz	-2.77	53.17%	0.27
2.44GHz	-2.69	54.86%	0.41
2.48GHz	-3.07	49.45%	0.07

Antenna	Frequency	S11(dB)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	<-10	<-10	Pass

Antenna	Frequency	Efficiency (%)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	>-45%	>-45%	Pass

DVT headset Z-antenna data

■ Free state S11&Passive test (XBOX 1#)：



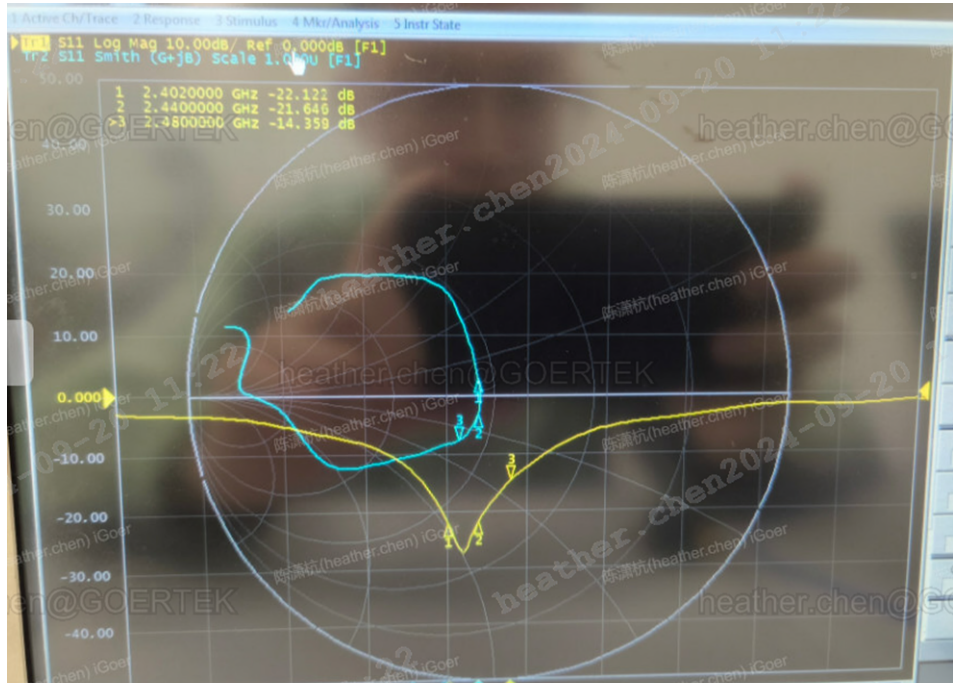
headset Antenna（free space）			
Frequency	Efficiency(dB)	Efficiency(%)	Gain(dBi)
2.402GHz	-2.62	55.06%	0.41
2.44GHz	-2.95	51.18%	0.01
2.48GHz	-3.15	48.55%	-0.32

Antenna	Frequency	S11(dB)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	<-10	<-10	Pass

Antenna	Frequency	Efficiency (%)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	>-45%	>-45%	Pass

DVT headset Z-antenna data

■ Free state S11&Passive test (XBOX 2#)：



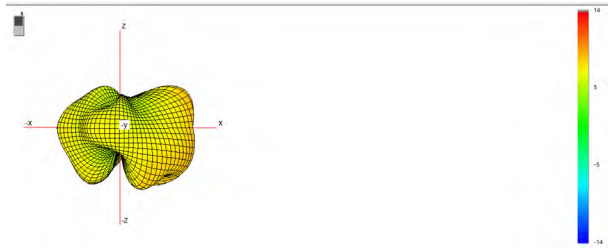
headset Antenna（free space）			
Frequency	Efficiency(dB)	Efficiency(%)	Gain(dBi)
2.402GHz	-2.73	53.2%	0.36
2.44GHz	-2.85	52.39%	0.31
2.48GHz	-3.2	48.74%	-0.38

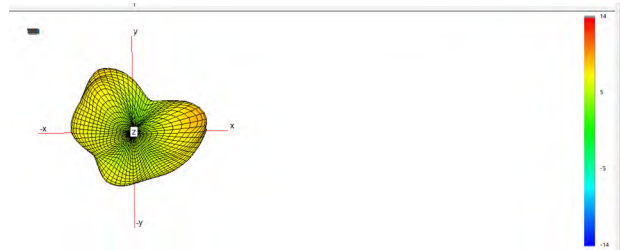
Antenna	Frequency	S11(dB)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	<-10	<-10	Pass

Antenna	Frequency	Efficiency (%)	Limit(dB)	Pass or Fail
headset	2.402GHz~2.48GHz	>-45%	>-45%	Pass

DVT headset Z-antenna data

- Free state Active test& Antenna pattern(PS 1#):





headset Antenna（free space）		
Channel	TRP (dBm)	TIS
0	6.5	-91.6
39	6.57	-91.45
78	6.35	-90.83

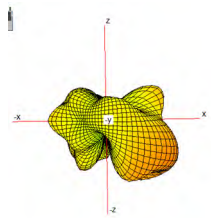
Right ear

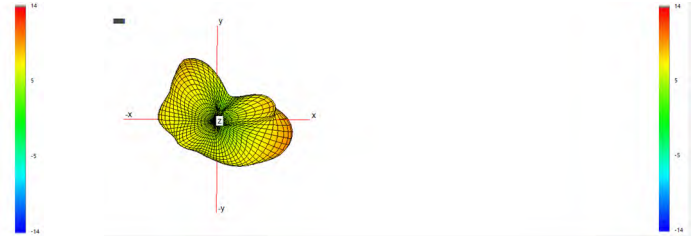
Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

- Free state Active test& Antenna pattern(PS 2#):

headset Antenna（free space）		
Channel	TRP (dBm)	TIS
0	6.91	-91.46
39	6.71	-91.31
78	6.09	-90.69





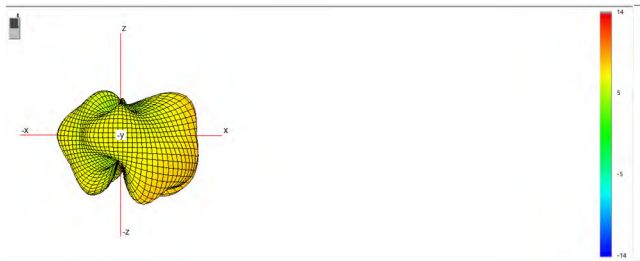
Right ear

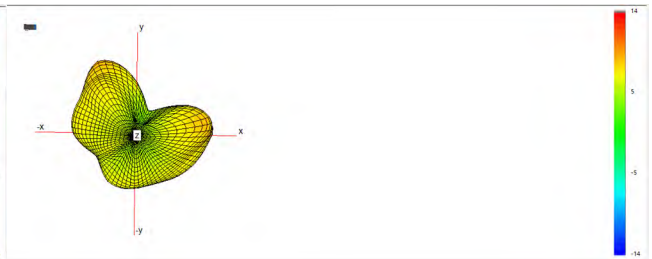
Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

■ Free state Active test& Antenna pattern(XBOX 1#)：

headset Antenna（free space）		
Channel	TRP (dBm)	TIS
0	6.53	-90.93
39	6.6	-91.05
78	6.37	-90.56





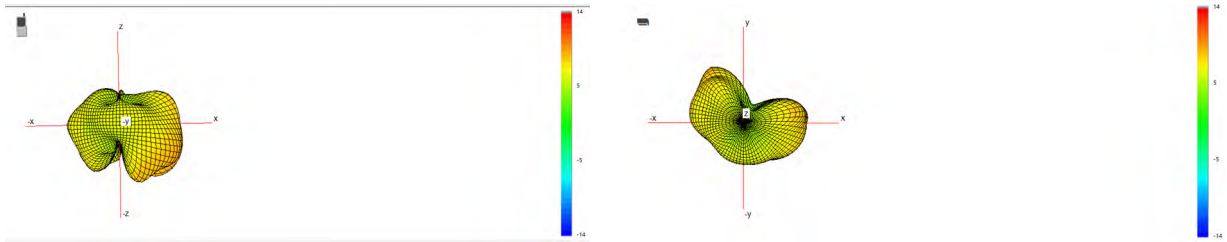
Right ear

Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

- Free state Active test& Antenna pattern(XBOX 2#)：

headset Antenna（free space）		
Channel	TRP (dBm)	TIS
0	6.62	-91.74
39	6.64	-91.45
78	6.47	-91.13



Right ear

Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

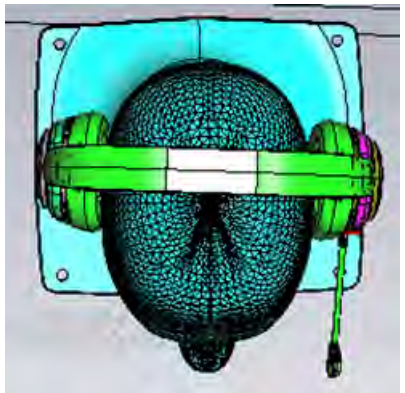
- Head wearing state test environment：

The cable was used as a passive fixture and placed on the simulation head die to connect the darkroom

DVT headset Z-antenna data

- Head wearing state Active test&Antenna pattern：(PS 1#)

headset Antenna（on head）		
Channel	TRP (dBm)	TIS
0	5.61	-89.72
39	5.62	-89.75
78	5.4	-89.33

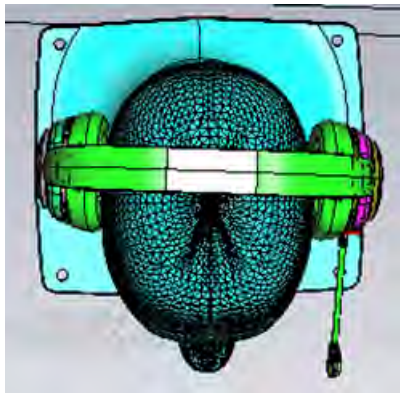


Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

- Head wearing state Active test&Antenna pattern (PS 2#):

headset Antenna（on head）		
Channel	TRP (dBm)	TIS
0	5.96	-90
39	5.87	-89.81
78	5.37	-89.58

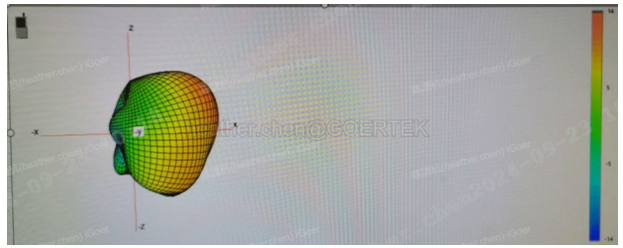


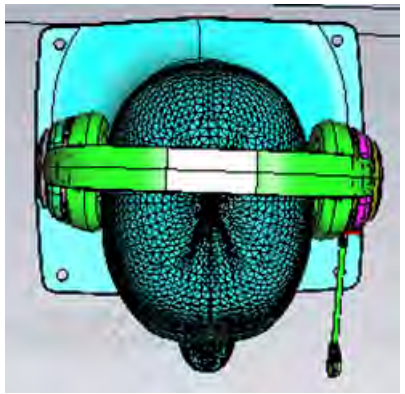
Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

■ Head wearing state Active test&Antenna pattern (XBOX 1#)：

headset Antenna（on head）		
Channel	TRP (dBm)	TIS
0	5.52	-89.61
39	5.6	-89.55
78	5.45	-88.94



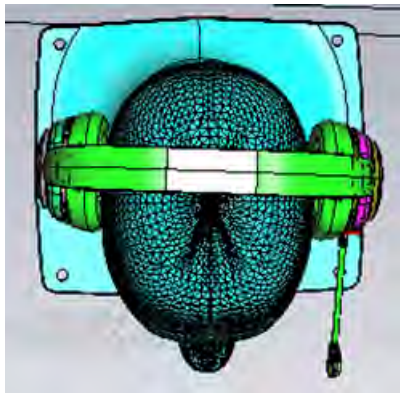


Conclusion:
OTA testing of DVT headset performance meets the demand.

DVT headset Z-antenna data

- Head wearing state Active test&Antenna pattern (XBOX 2#)：

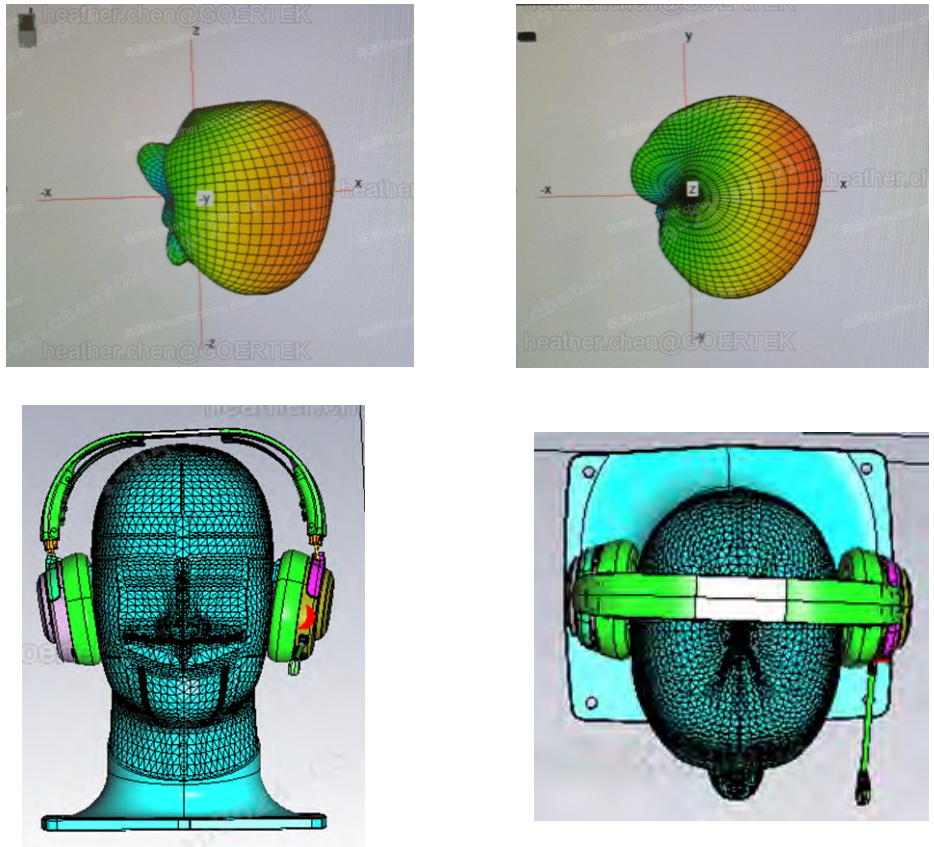
headset Antenna（on head）		
Channel	TRP (dBm)	TIS
0	5.67	-89.87
39	5.62	-89.78
78	5.56	-89.19



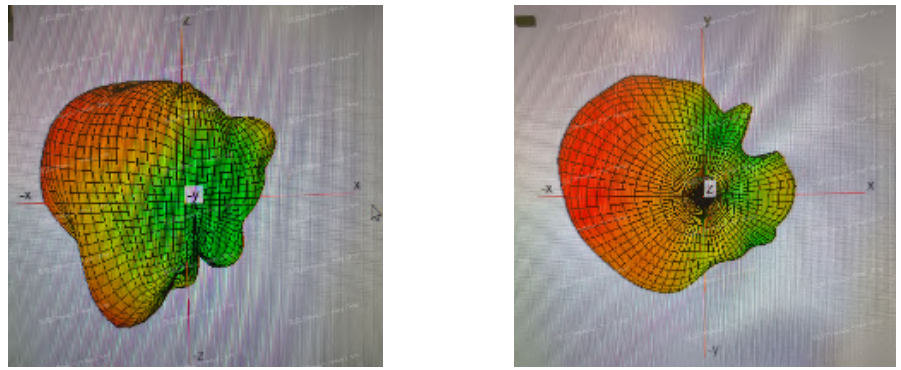
Conclusion:
OTA testing of DVT headset performance meets the demand.

Antenna pattern comparison

■ Z antenna headset direction diagram：



■ Competing headset direction diagram：



Conclusion:

According to the direction diagram and the worst horizontal zero gain, it can be judged that the directivity of the competing antenna and the Z-antenna headset is not much different.