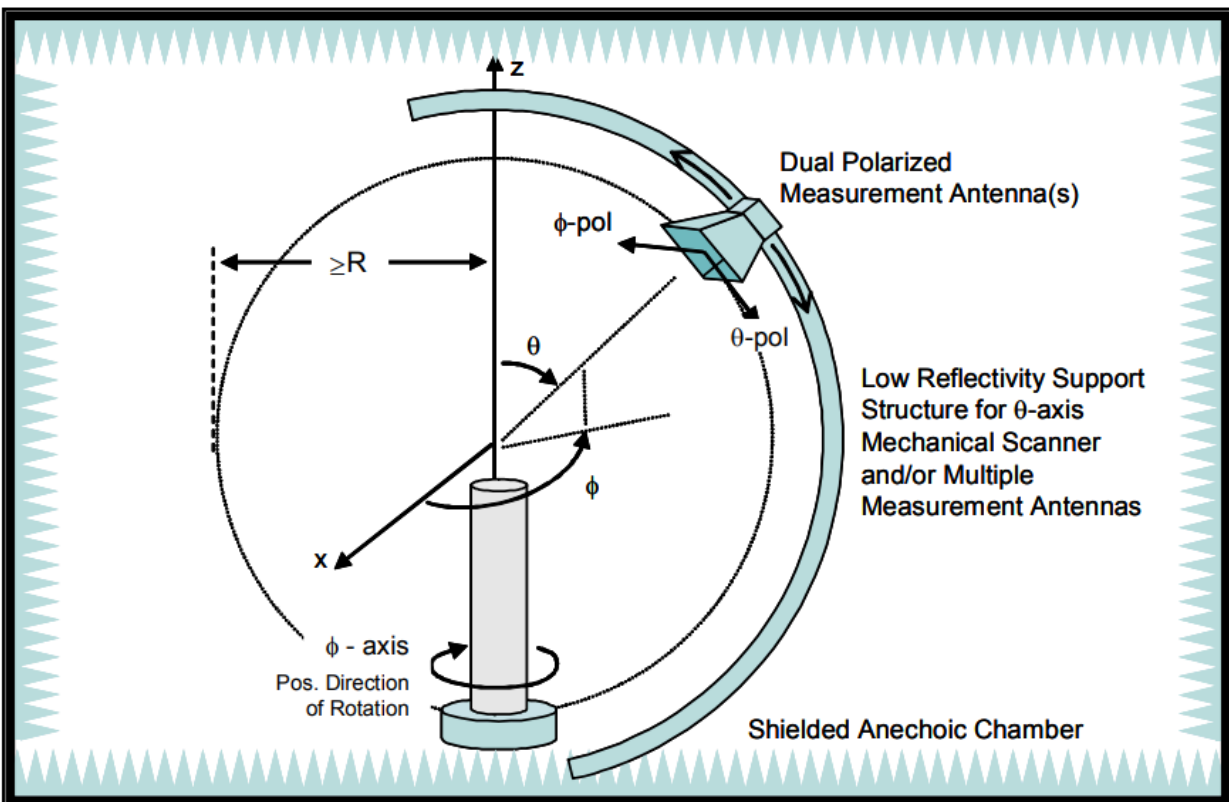# Antenna Report

FCC ID: A4RG4SKY

01/05/2024

1. Test Method

The antenna gains are obtained through measurements in a fully anechoic OTA chamber with a 3D positioner.

Measurements are taken in discrete steps in theta and phi direction, data is being recorded using the spectrum analyzer (active) or network analyzer (passive) for both theta and phi polarizations at each position resulting in a 3D gain pattern. Step size is <30 deg along both axes.

Gain is derived directly through spatial averaging of VNA S21 measurements (passive measurement).

2. Test Equipment

Site Description	Chamber Manufacturer	Type
ETS AMS8500	ETS	Fully Anechoic
Software Version	Version 1.12	
Site location:	Room 407, Chengda Creative Park, No.402 Guilin Road, Xuhui District, Shanghai, China	
Test Engineer	Su.xu haifeng.xu nickyl.liu	
Date	Dec. 29, 2023	

Description	Manufacturer	Model	Calibration Date	Due Date
Network Analyzer	Keysight	E5071C	March 6, 2023	March 5, 2024

3. Antenna Type
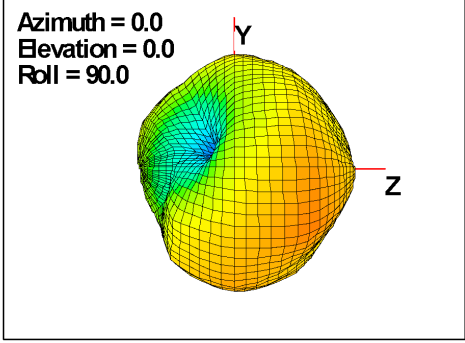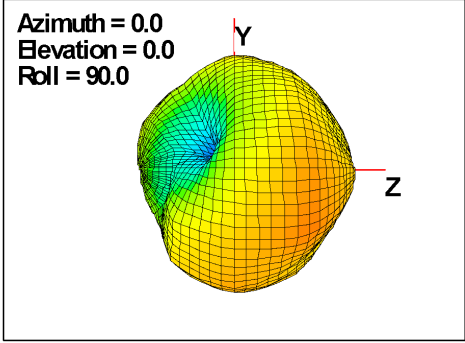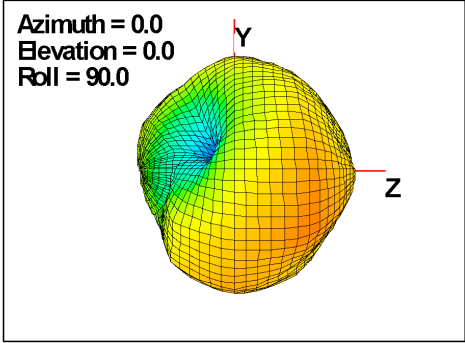
Antenna	Type
LTE LB Antenna (Bottom, Ant 0)	Monopole
LTE MB/HB Antenna (Top, Ant 1)	Monopole
BT/WLAN2.4GHz Antenna (Top, Ant 2)	Monopole

4. Antenna Test Data

BT:BR/EDR2/EDR3/BLE1M/BLE2M/WLAN:802.11 b/g/n20/

Radio	Antenna location	Peak Gain(dBi)
BT/BLE/WLAN(2.4GHz)	Ant2 - Top	-6.3

Radiation Plots for Max Gain Plane

Antenna	Frequency (MHz)	Radiation Pattern
BT BR	2440	**Total** Azimuth = 0.0 Elevation = 0.0 Roll = 90.0
BT EDR2	2440	**Total** Azimuth = 0.0 Elevation = 0.0 Roll = 90.0
WiFi 802.11b	2440	**Total** Azimuth = 0.0 Elevation = 0.0 Roll = 90.0