Antenna Gain Test Report

FCC ID：2ABZ2-OP23869

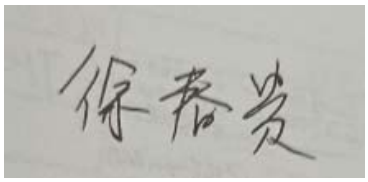
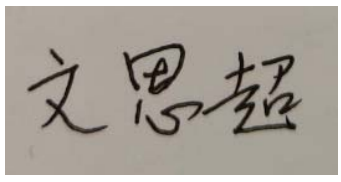
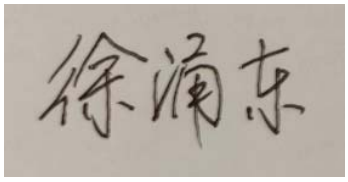
Equipment：Mobile Phone

Brand Name：ONEPLUS

Model Name：CPH2647

Manufacturer：OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China

Issue Date： November 6, 2024

Project Engineer: Chungui Xu Date:2024/11/6

Checked by: Sichao Wen Date:2024/11/6

Approved by: Yongdong Xu Date:2024/11/6

Antenna Location&dimension:

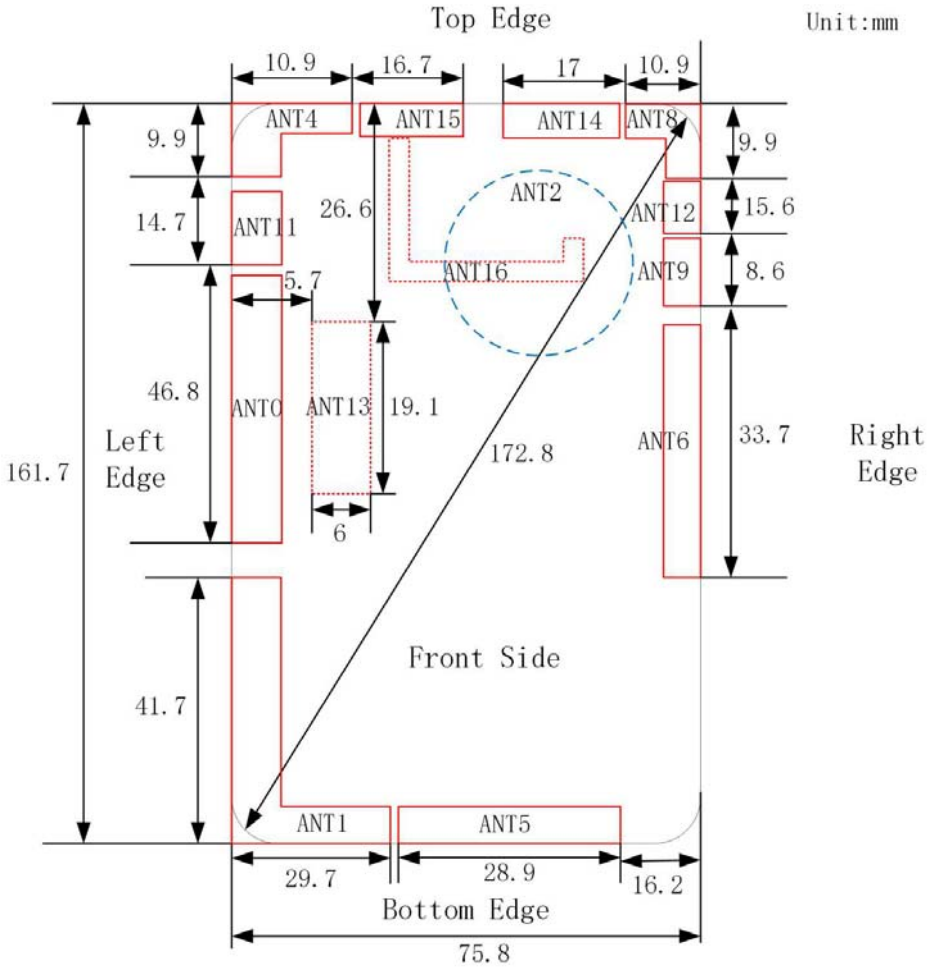


Fig 1 Antenna location&dimension

Antenna Gain and Antenna Type specification:

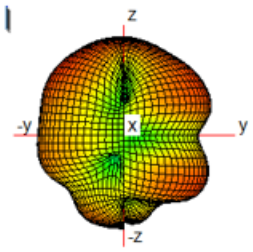
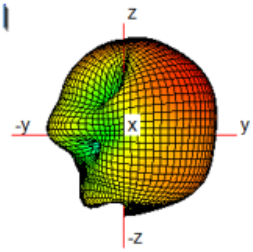
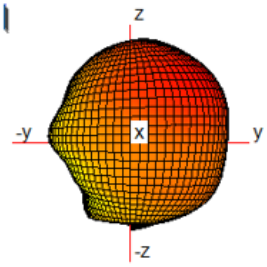
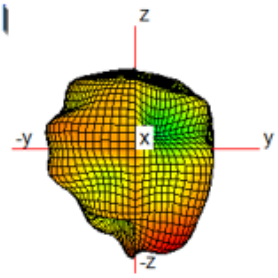
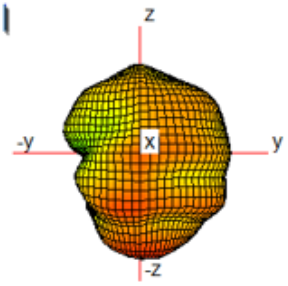
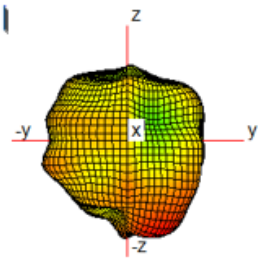
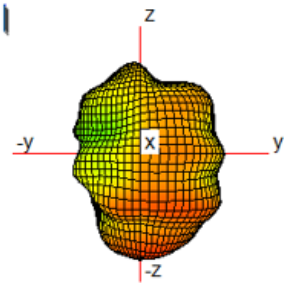
Antenna Gain (dBi)		Ant 1	Ant 8	Ant 9	Antenna Type	Model	Manufacturer
2.4G WiFi	2400~2483.5MHz	/	0.1	-1.8	IFA(Inverted F Antenna)	AA577	OnePlus
BT	2400~2483.5MHz	0.9	0.1	-1.8	IFA(Inverted F Antenna)	AA577	OnePlus
Antenna Gain (dBi)		**Ant 12**	**Ant 13**	**Antenna Type**		**Model**	**Manufacturer**
5G WiFi	5150~5250 MHz	-3.5	0.6	IFA(Inverted F Antenna)		AA577	OnePlus
	5250~5350 MHz	-3.2	-0.6	IFA(Inverted F Antenna)		AA577	OnePlus
	5470~5725 MHz	-2.7	-2.3	IFA(Inverted F Antenna)		AA577	OnePlus
	5725~5850 MHz	-1.7	-3.5	IFA(Inverted F Antenna)		AA577	OnePlus
6G WiFi	5925-6425 MHz	-5	-5	IFA(Inverted F Antenna)		AA577	OnePlus
	6425-6525 MHz	-5	-5	IFA(Inverted F Antenna)		AA577	OnePlus
	6525-6875 MHz	-5	-5	IFA(Inverted F Antenna)		AA577	OnePlus
	6875-7125 MHz	-5	-5	IFA(Inverted F Antenna)		AA577	OnePlus
NFC	13.56MHz	/	/	FPC(Flexible Printed Circuit)		AA577	OnePlus

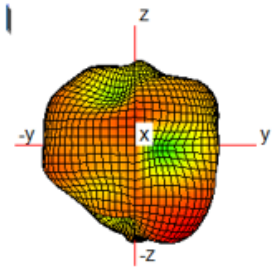
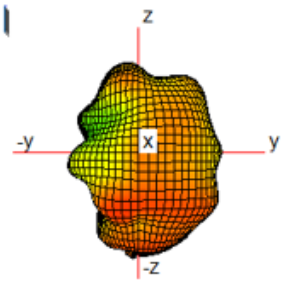
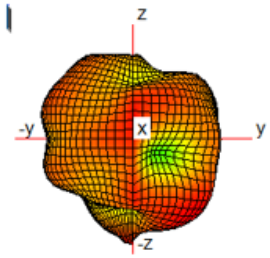
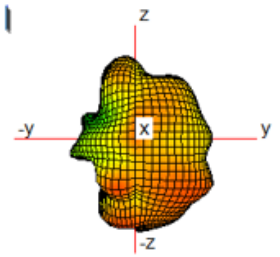
Table1 Antenna Gain and Antenna Type specification

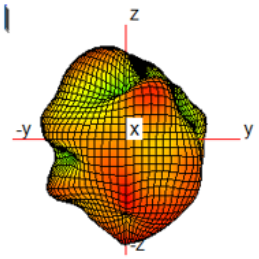
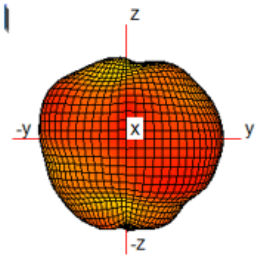
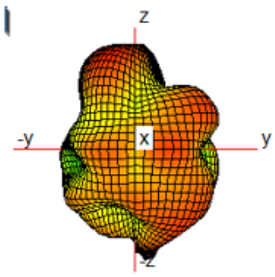
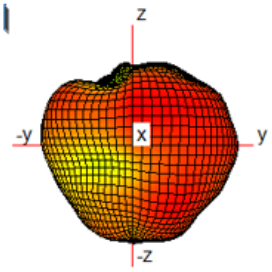
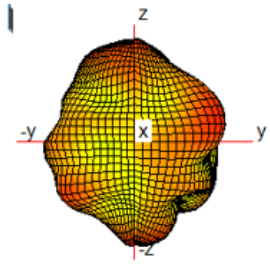
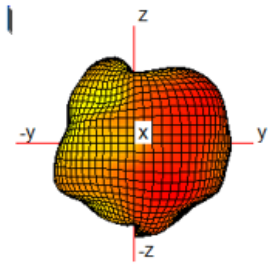
Note: Antenna gain was measured in the anechoic chamber, 3D scan was exercised, and the highest numbers are reported in this document.

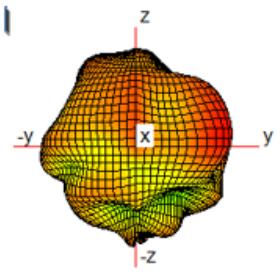
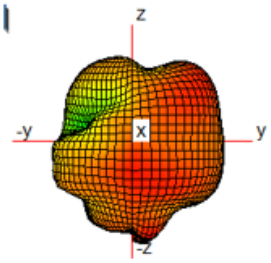
According to Test standard: IEEE Std 149-2021,we measure antenna gain .

Antenna Radiation Pattern:

	
ANT8 WiFi 2.4G&BT chain0 Gain: 0.1dBi	ANT9 WiFi 2.4G &BT chain1 Gain: -1.8dBi
	
ANT1 BT chain2 Gain: 0.9dBi	
	
ANT12 WiFi 5G B1 chain0 Gain: -3.5dBi	ANT13 WiFi 5G B1 chain1 Gain: 0.6dBi
	
ANT12 WiFi 5G B2 chain0 Gain: -3.2dBi	ANT13 WiFi 5G B2 chain1 Gain:-0.6dBi

	
ANT12 WiFi 5G B3 chain0 Gain: -2.7dBi	ANT13 WiFi 5G B3 chain1 Gain:-2.3dBi
	
ANT12 WiFi 5G B4 chain0 Gain:-1.7dBi	ANT13 WiFi 5G B4 chain1 Gain: -3.5dBi

	
ANT12 WiFi 6G B5 chain0 Gain: -5dBi	ANT13 WiFi 6G B5 chain1 Gain: -5dBi
	
ANT12 WiFi 6G B6 chain0 Gain: -5dBi	ANT13 WiFi 6G B6 chain1 Gain: -5dBi
	
ANT12 WiFi 6G B7 chain0 Gain: -5dBi	ANT13 WiFi 6G B7 chain1 Gain:-5dBi

	
ANT12 WiFi 6G B8 chain0 Gain: -5dBi	ANT13 WiFi 6G B8 chain1 Gain:-5dBi

List of Test and Measurement Instruments

TEST EQUIPMENT

NO.	Equipment	Manufacturer	Model No.	Cal.date	Cal.due
1	GTS RayZone-2800	General Test	SN636692864	2024/06/14	2025/06/14
2	Network Analyzer E5071C	Keysight	MY4690575	2024/06/14	2025/06/14
3	MaxSign Libra (Test software)	General Test	Version-1.1.16	NA	NA

	
Fig 1 dipole model RA-L2329DP frequency 2300~2900 MHz	Fig 2 dipole model RA-L4959DP frequency 4900~5900 MHz

	
Fig 3 dipole model RA-L5969DP frequency 5900~6900 MHz	Fig 4 dipole model RA-L6989DP frequency 6900~8000 MHz

I. Measurement Setup:

A. Reflection Coefficient Measurement:

Instrument: Network Analyzer (Keysight E5071C).
Setup:
1. Calibrate the Network Analyzer by one port calibration using Keysight 85093C Electronic calibration module .
2. Connect the antenna under test to the Network Analyzer.
3. Measure the S11(reflection coefficient),Return Loss….

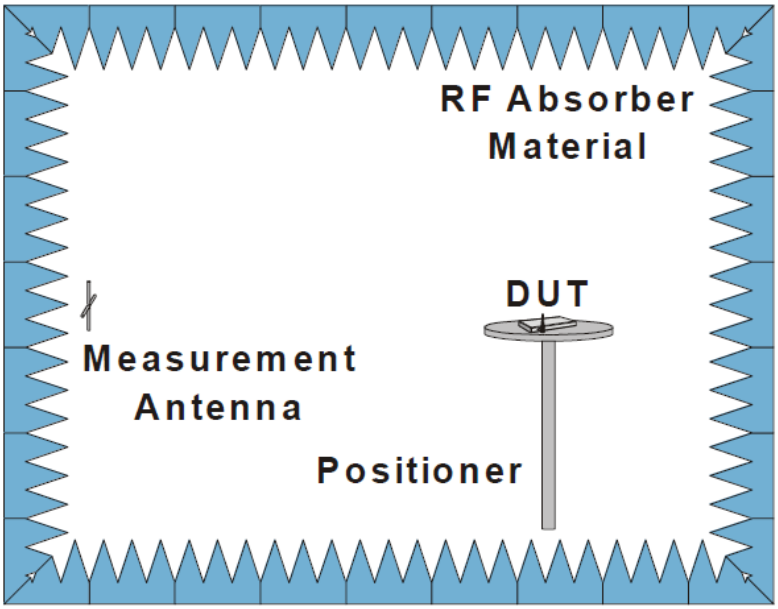
B. Pattern Measurement:

A Fully Anechoic Chamber is used to simulate free-space conditions.

A Fully Anechoic Chamber is a shielded room lined with RF/microwave absorber on all walls, ceiling, and floor.

RF/microwave absorber reduces reflections from the inner walls of the shield. Absorber performance depends on the depth and design of the absorber and the angle of incidence of the field.

Normal incidence is best, shallower angles are worse.



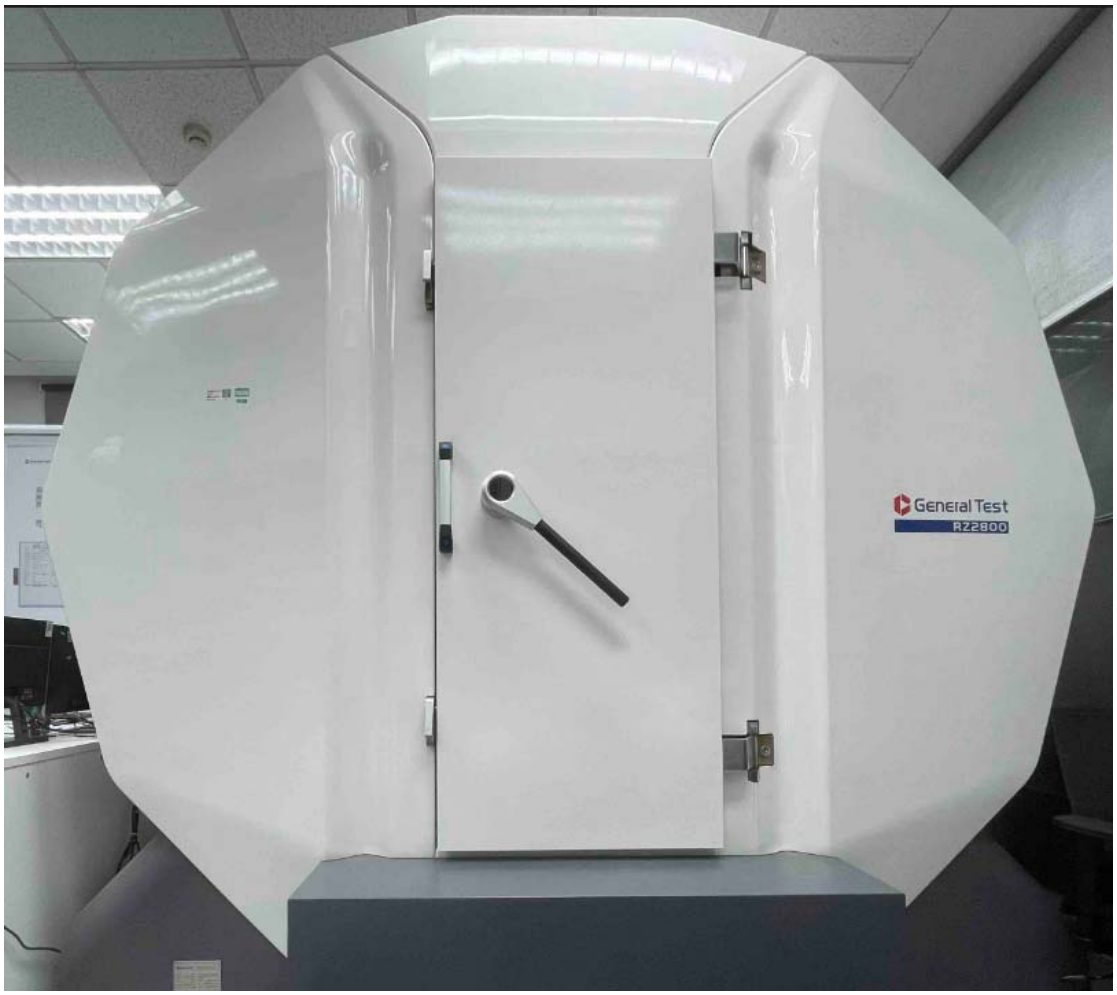


Fig. 5. The fully anechoic chamber