

Antenna Report

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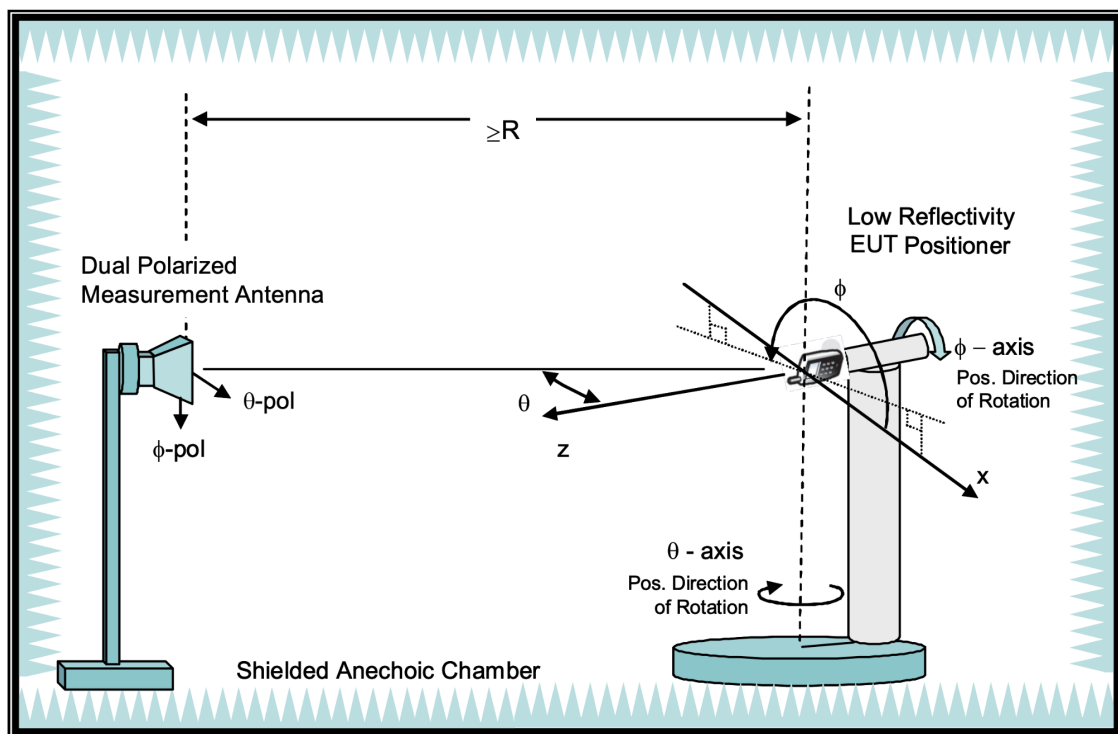
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1. Test Method

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 a network analyzer (passive) for both theta and phi polarizations at each position resulting in a 3D gain pattern. Step size is <30deg along both axes.

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



$R=4.9\text{m}$

2. Test Equipment

Site Description	Chamber Manufacturer	Type
AMS-8500	ETS-Lindgren	Fully Anechoic
Site location:	No. 4, Minsheng St., Tucheng Dist., New Taipei City , Taiwan (R.O.C.)	

Description	Manufacturer	Model
Network Analyzer	Keysight	E5071C

3. Test Setup

See separate appendix document for pictures of the test setup in this filing.

4. Antenna Type

Antenna #	Type
Ant4	IFA
Ant3	Loop

5. WLAN/BT Antennas

Ant	Band	Frequency Band	Peak Gain(dBi)
Ant4	WiFi/BT 2.4 GHz	2402 MHz	0.2
		2412 MHz	0.9
		2437 MHz	1.6
		2462 MHz	0.8
		2480 MHz	-0.3
Ant3	WiFi/BT 2.4 GHz	2402 MHz	-2.3
		2412 MHz	-2.1
		2437 MHz	-1.5
		2462 MHz	-1.6
		2480 MHz	-2.2
Ant4	UNII-1	5180 MHz	-5.2
	UNII-2A	5280 MHz	-3.9
	UNII-2C	5500 MHz	-4.3
	UNII-3	5820 MHz	-3.7
	UNII-4	5887 MHz	-0.5
	UNII-5	6175 MHz	-0.5
	UNII-6	6475 MHz	-0.4
	UNII-7	6700 MHz	-2.5
	UNII-8	7000 MHz	-3.6
Ant3	UNII-1	5180 MHz	-1.7
	UNII-2A	5280 MHz	-2.2
	UNII-2C	5500 MHz	-2.8
	UNII-3	5820 MHz	-3.8
	UNII-4	5887 MHz	-2.1
	UNII-5	6175 MHz	-2.5
	UNII-6	6475 MHz	-2.8
	UNII-7	6700 MHz	-2.8
	UNII-8	7000 MHz	-2.4