



UG65 TNP-22 Antenna Test Report

Model Name: UG65 TNP-22

Antenna Type: PCB Antenna

Manufacturer: WHAYU industrial co Ltd.

Address: No. 7, Hupan Road, Dalingshan Town, Dongguan City, Guangdong Province

confidential

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Revision History

Released Date	Version	Revised Records
2022/05/13	1.0	PCB Antenna Test Report

Specification

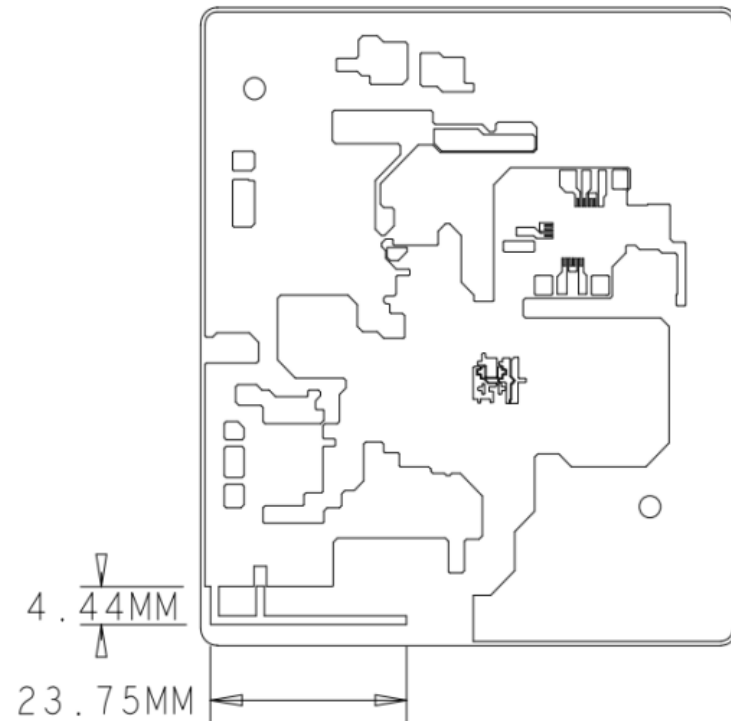
Requirements of Antenna Design

RF Function	Number of ANT	Frequency Band	Remark
PCB Antenna	1	2400-2500 MHz	BT_ANT

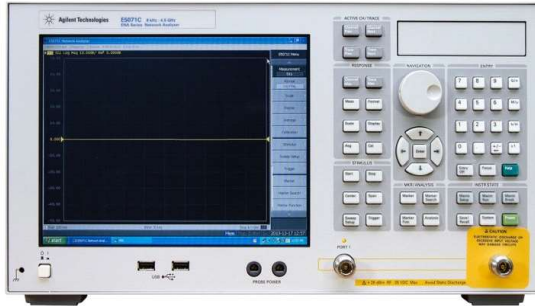
Requirements of Measurement

Test Item		Specification	Remark
Return Loss		10dB Min	
VSWR		2.0:1 Max	
Peak Gain		$\leq 0.06\text{dBi}@2400\text{-}2500\text{MHz}$	TBD
Efficiency		$>17.1\%$	
Radiation Pattern		Scale: +10 ~ -40dBi, Angle step size: 5 degree	

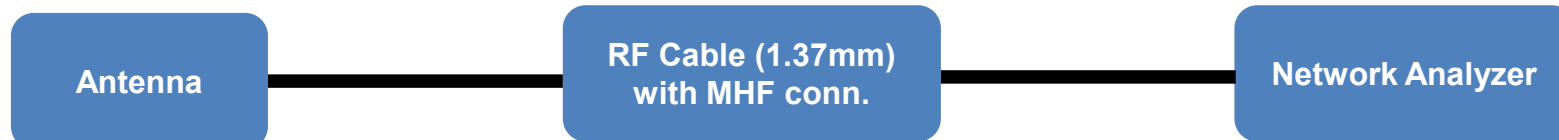
Antenna Placement & Solution



Test Setup for Return Loss Test

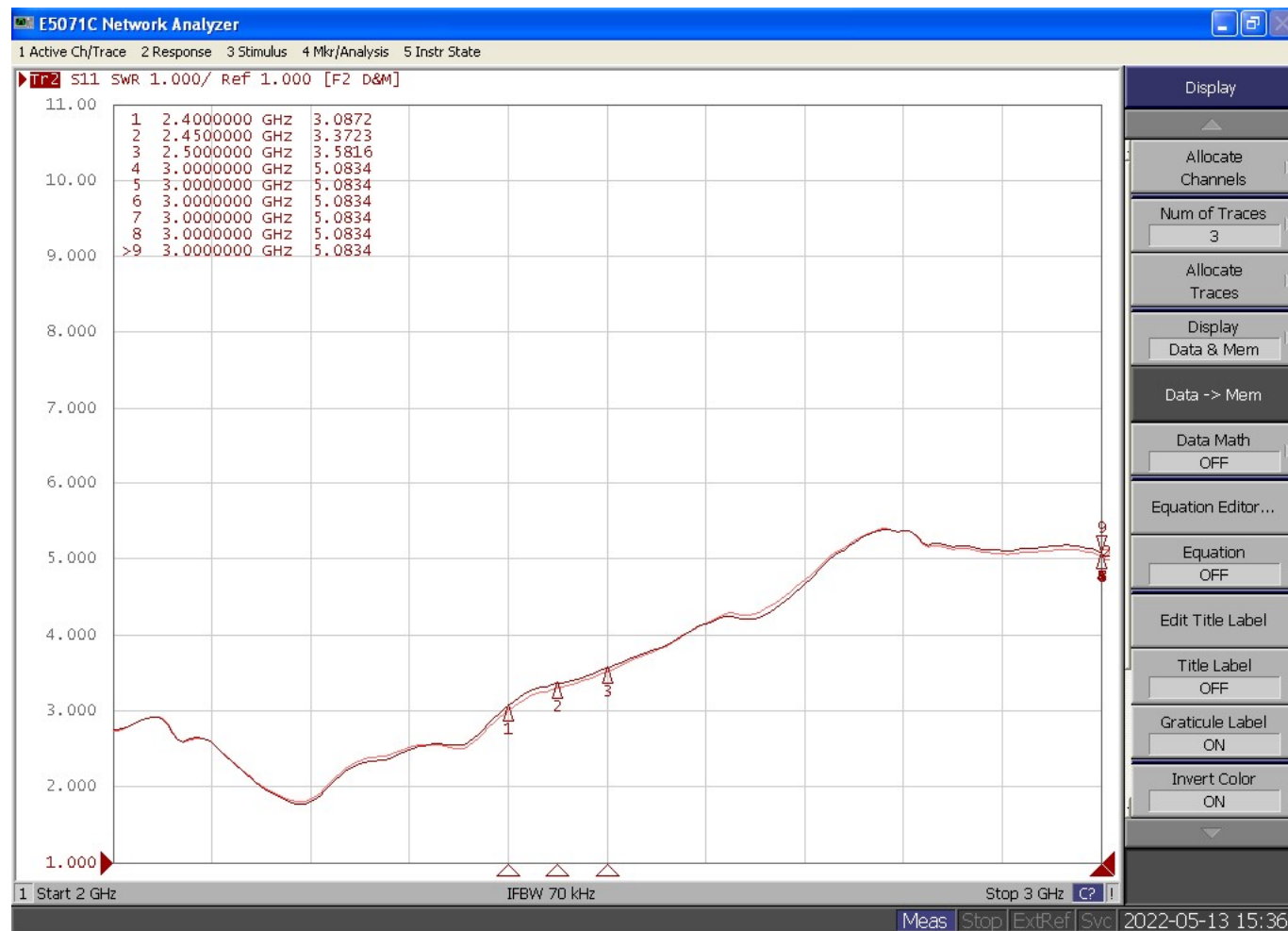


Equipment	Brand	Model
Network Analyzer	Keysight	E5071C

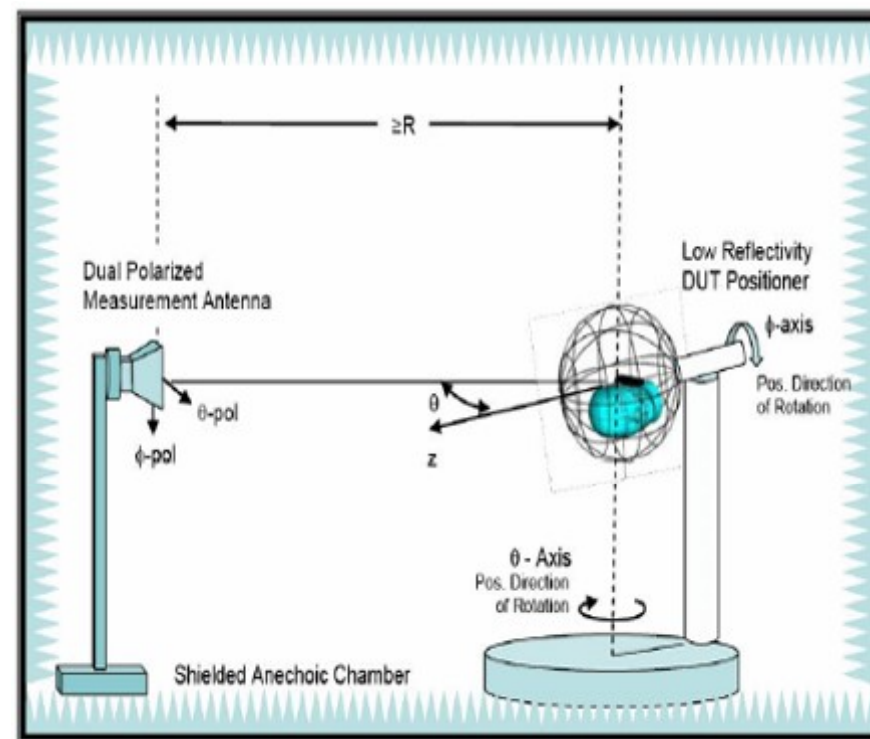
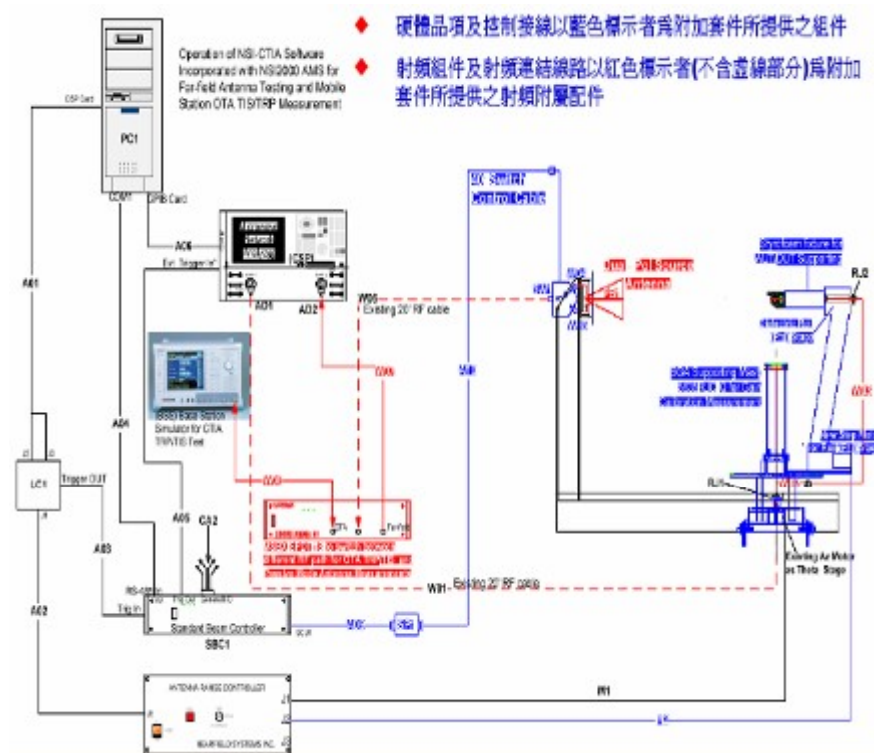


VSWR Test

PCB_ANT (2400-2500 MHz)

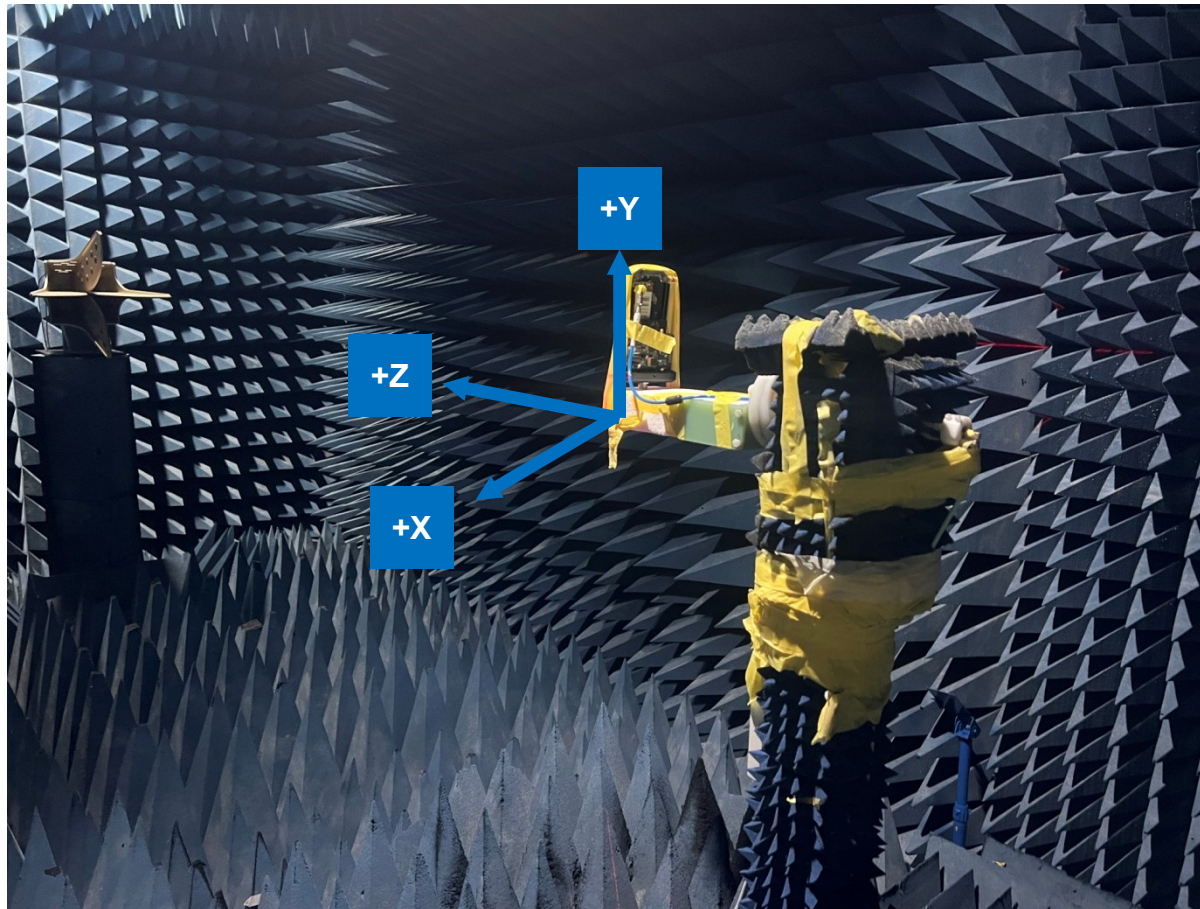


Chamber Information



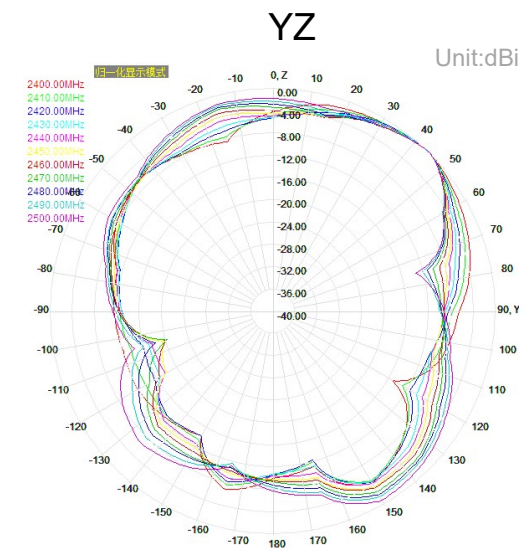
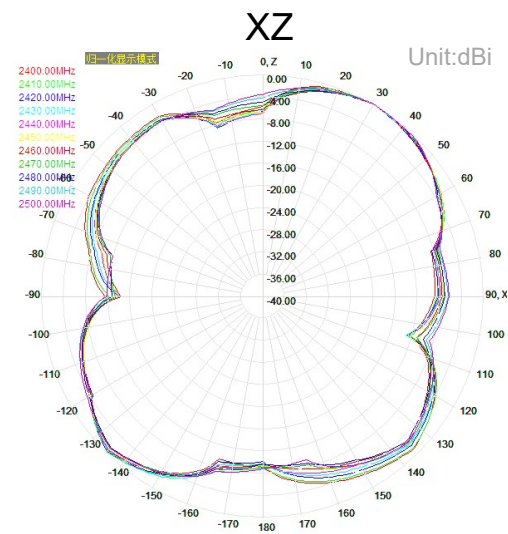
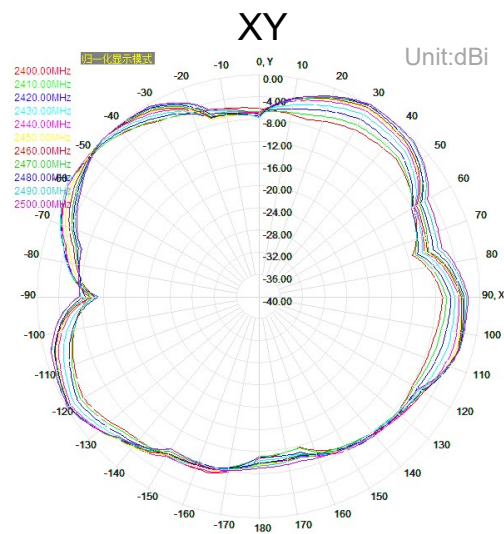
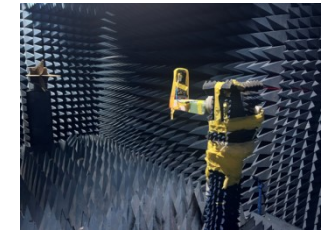
Chamber	Brand	Model	Location
WavePro	WavePro	FFC-700	China, Dongguan

Test Setup for OTA Measurement



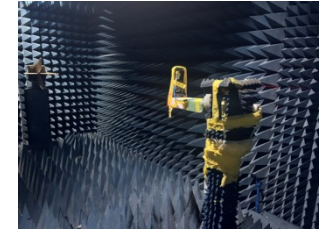
2D Radiation Pattern

PCB_ANT

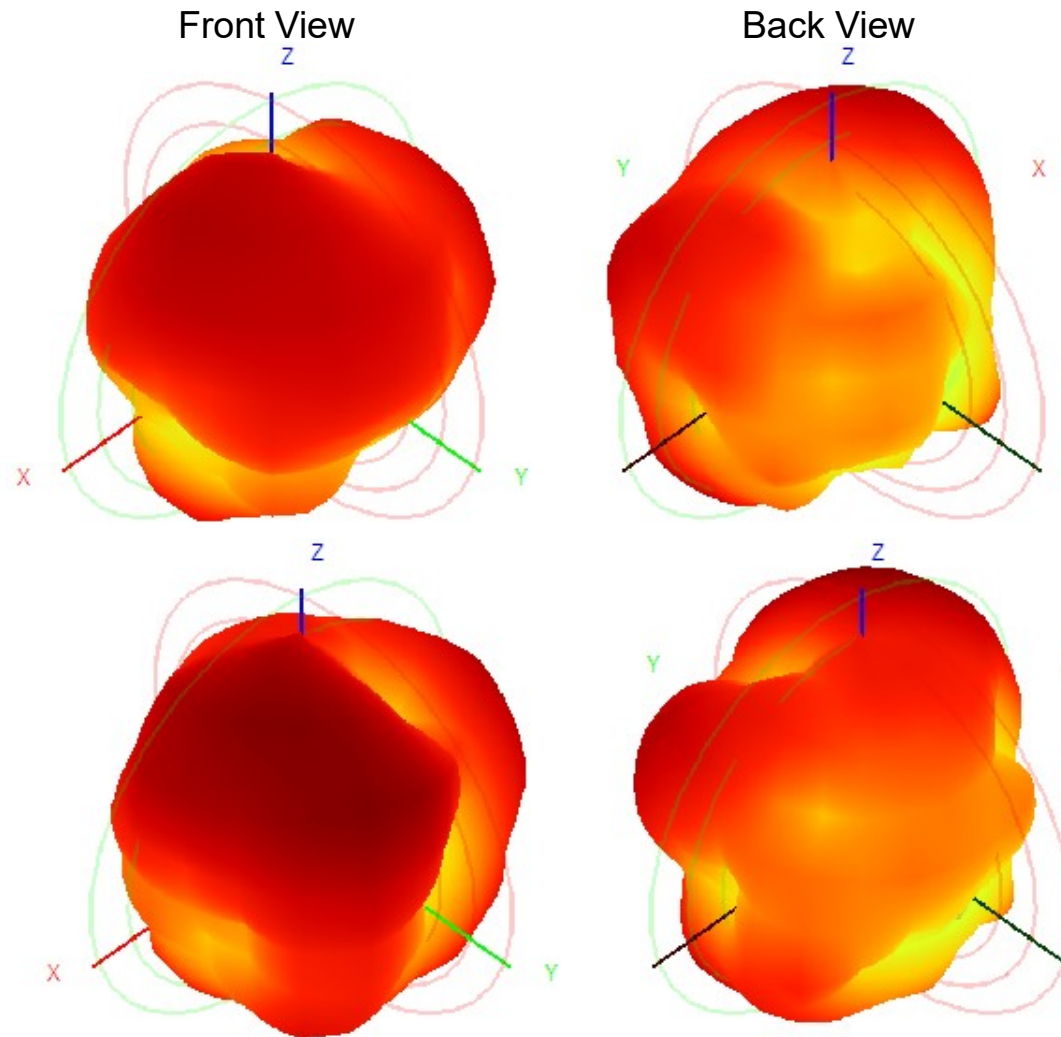


3D Radiation Pattern

PCB_ANT



2400 MHz



Results Summary

VSWR (2400-2500MHz)

Frequency (MHz)	PCB_ANT
2400	3.08
2450	3.37
2500	3.58

Results Summary

Peak Gain & Efficiency

Frequency (MHz)	ANT	
	Peak Gain (dBi)	Efficiency (%)
2400.0	0.06	20.13
2410.0	0.05	20.38
2420.0	-0.22	19.32
2430.0	-0.28	20.13
2440.0	-0.91	18.26
2450.0	-0.97	19.44
2460.0	-1.22	18.76
2470.0	-1.29	18.23
2480.0	-1.26	18.00
2490.0	-1.47	17.19
2500.0	-1.45	17.57