

Test Report- maxwell

Customer: 安普新
Project: maxwell
Antenna: printing
Version: A
Release date: 2025/3/11

Prepared by: Ken Yen
Checked by: Sam Wu
Approved by: Mike Yang

Report Outline

1. Background

2. Measurement Setup

2.1 Reflection coefficient measurement

2.2 Radiation pattern measurement

2.3 Mechanical setting

3. Experimental Results

3.1 S Parameters

3.2 Radiation efficiency and peak gain

Background

Background

客戶樣品 & 資訊

1. 調整Printing 到最佳化.有ANC 無ANC 版本

Measurement Setup

Measurement Setup

Reflection Coefficient Measurement

- a. Equipment : Network Analyzer(Agilent E5071A)
- b. Test items : S-parameters (Impedance, return loss, VSWR)

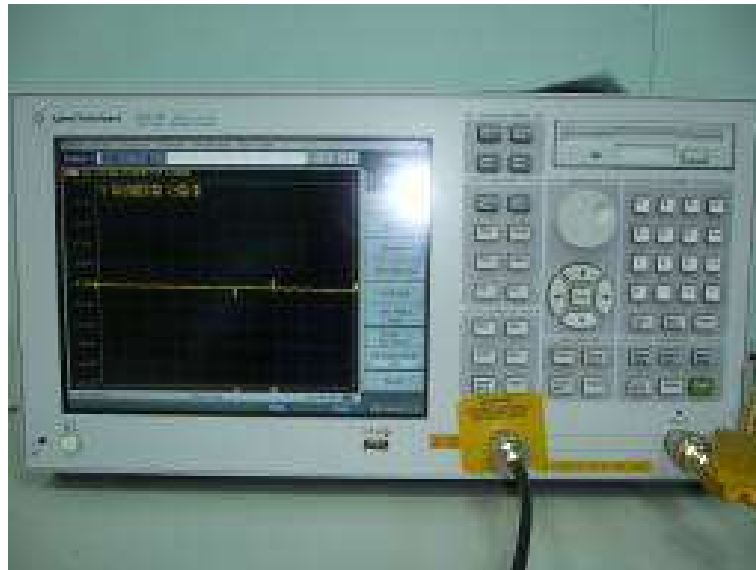


Figure. Network Analyzer(Agilent E5071A)

Measurement Setup

Radiation Pattern Measurement

- a. Equipment : Anechoic Chamber, Network Analyzer (Agilent E5071C), Standard Horn.
- b. Test items : Gain, efficiency, 2D gain pattern, 3D gain pattern

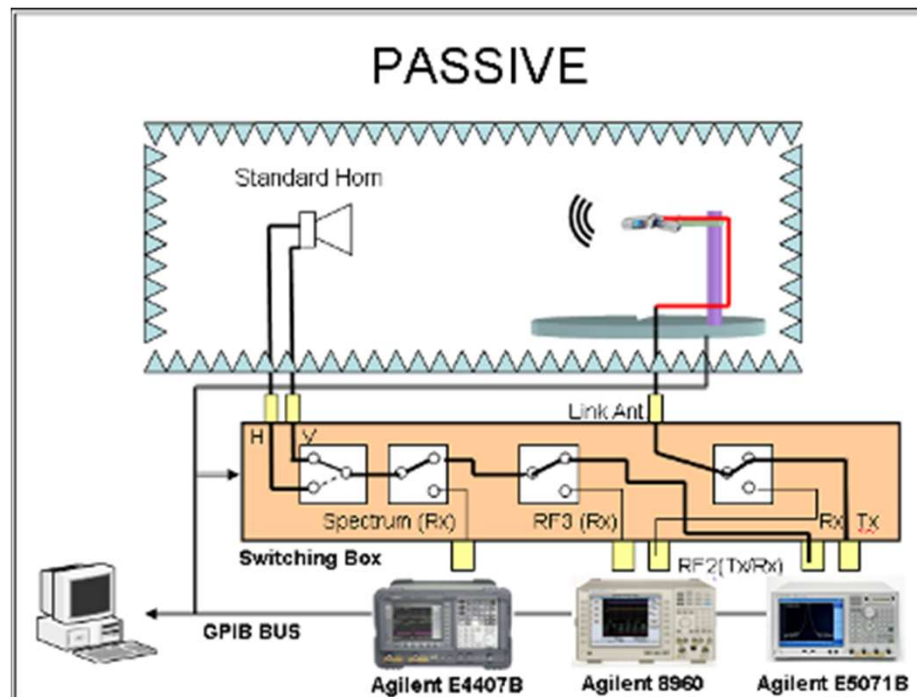


Figure. Scheme of radiation pattern measurement system

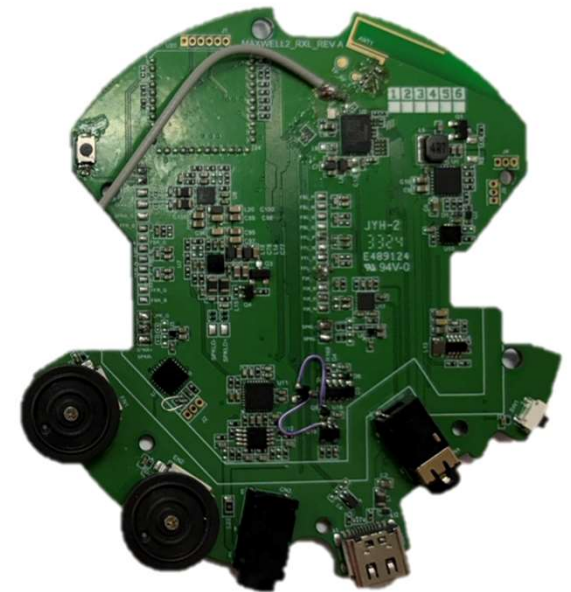
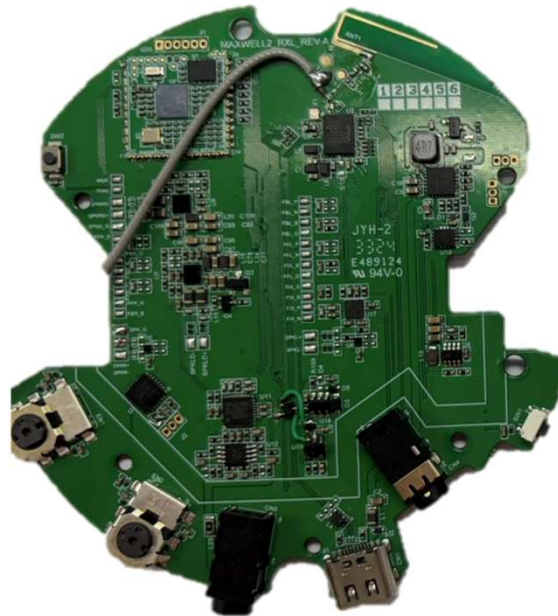
Measurement Setup

Mechanical setting

Placement of antenna

有ANC

無ANC

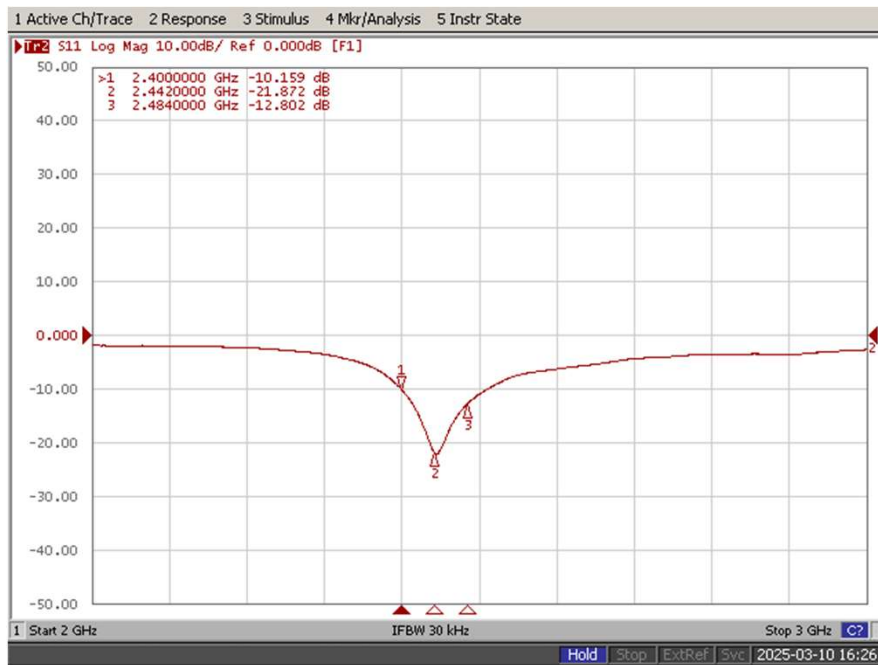


Experimental results

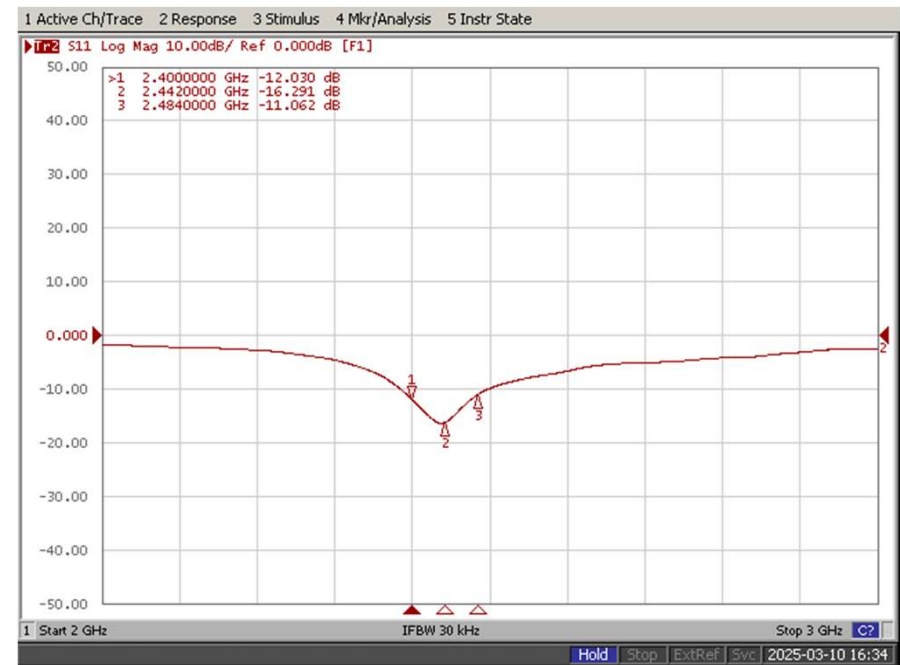
Experimental results

S-Parameters-無ANC 板

Free space

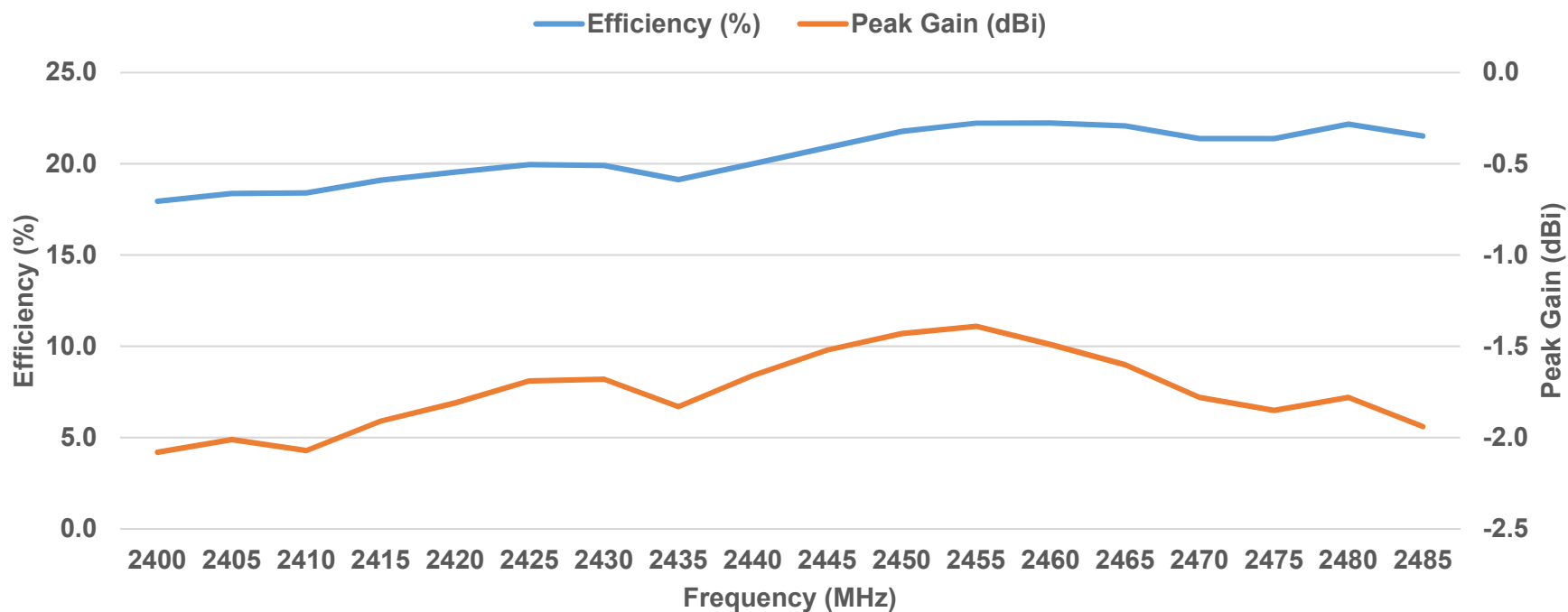


head



Experimental results

Radiation efficiency and peak gain-無ANC 板

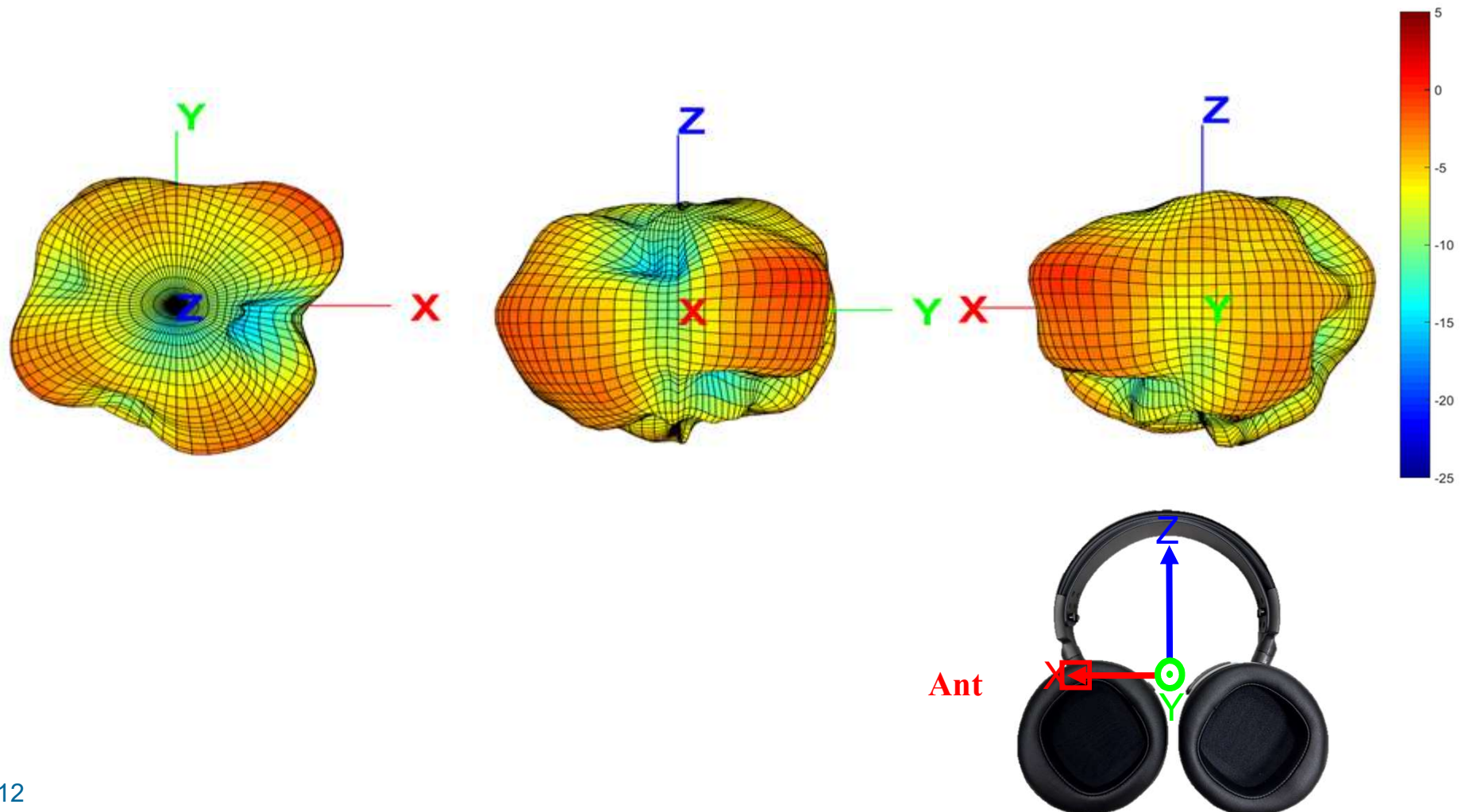


2400-2485 MHz

Frequency (MHz)	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485
Efficiency (dB)	-7.5	-7.4	-7.4	-7.2	-7.1	-7.0	-7.0	-7.2	-7.0	-6.8	-6.6	-6.5	-6.5	-6.6	-6.7	-6.7	-6.5	-6.7
Efficiency (%)	18.0	18.4	18.4	19.1	19.5	20.0	19.9	19.1	20.0	20.9	21.8	22.2	22.2	22.1	21.4	21.4	22.2	21.5
Peak Gain (dBi)	-2.1	-2.0	-2.1	-1.9	-1.8	-1.7	-1.7	-1.8	-1.7	-1.5	-1.4	-1.4	-1.5	-1.6	-1.8	-1.9	-1.8	-1.9

Experimental results

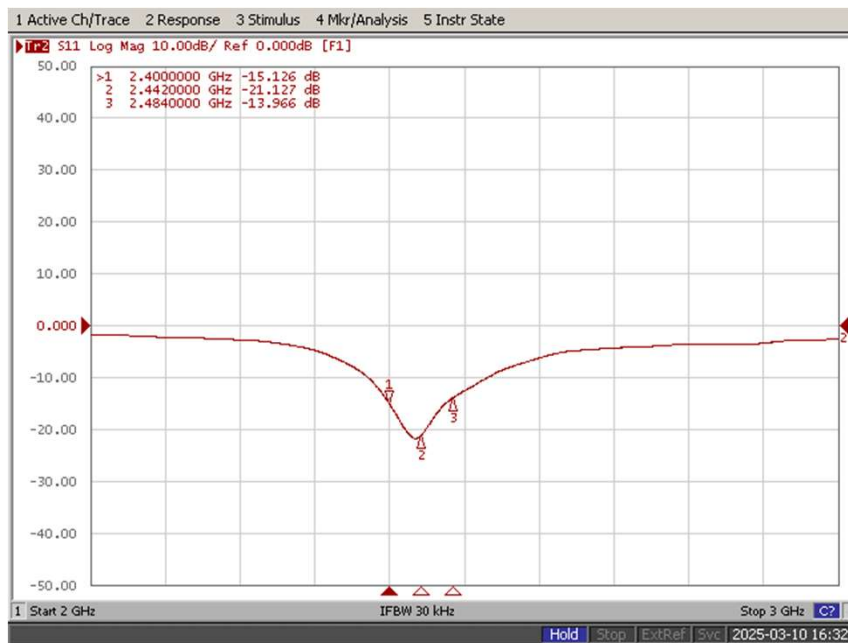
3D Gain Pattern (Radiation Pattern @ 2442 MHz) (unit: dBi)-無ANC 板



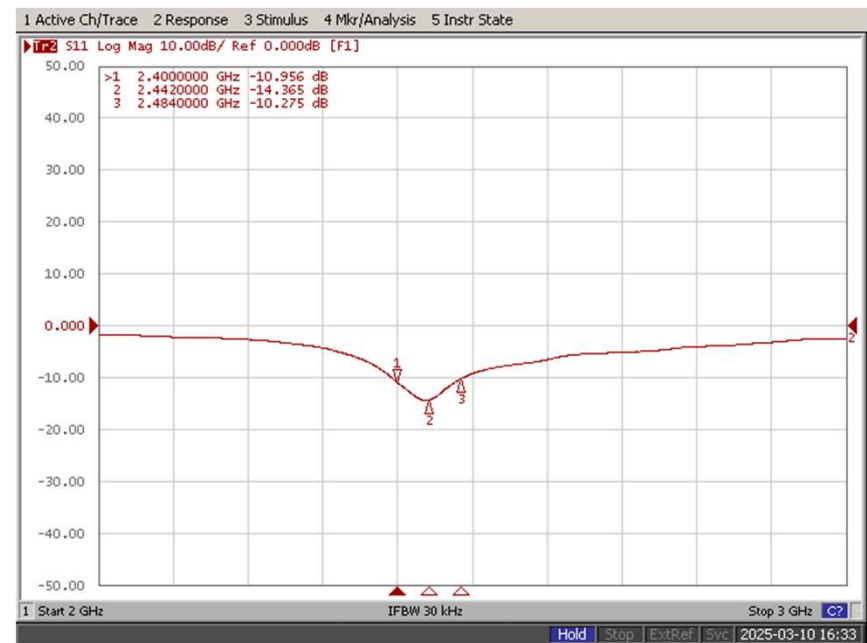
Experimental results

S-Parameters-ANC 板

Free space

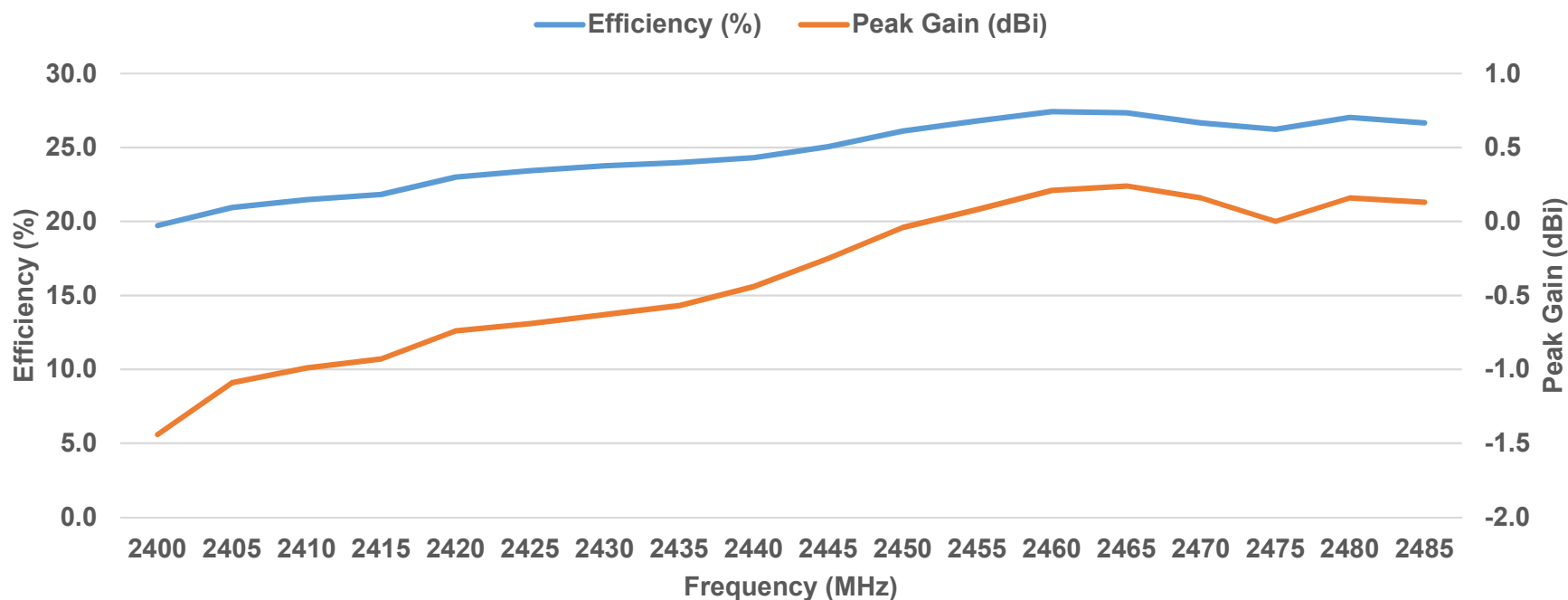


head



Experimental results

Radiation efficiency and peak gain-ANC 板

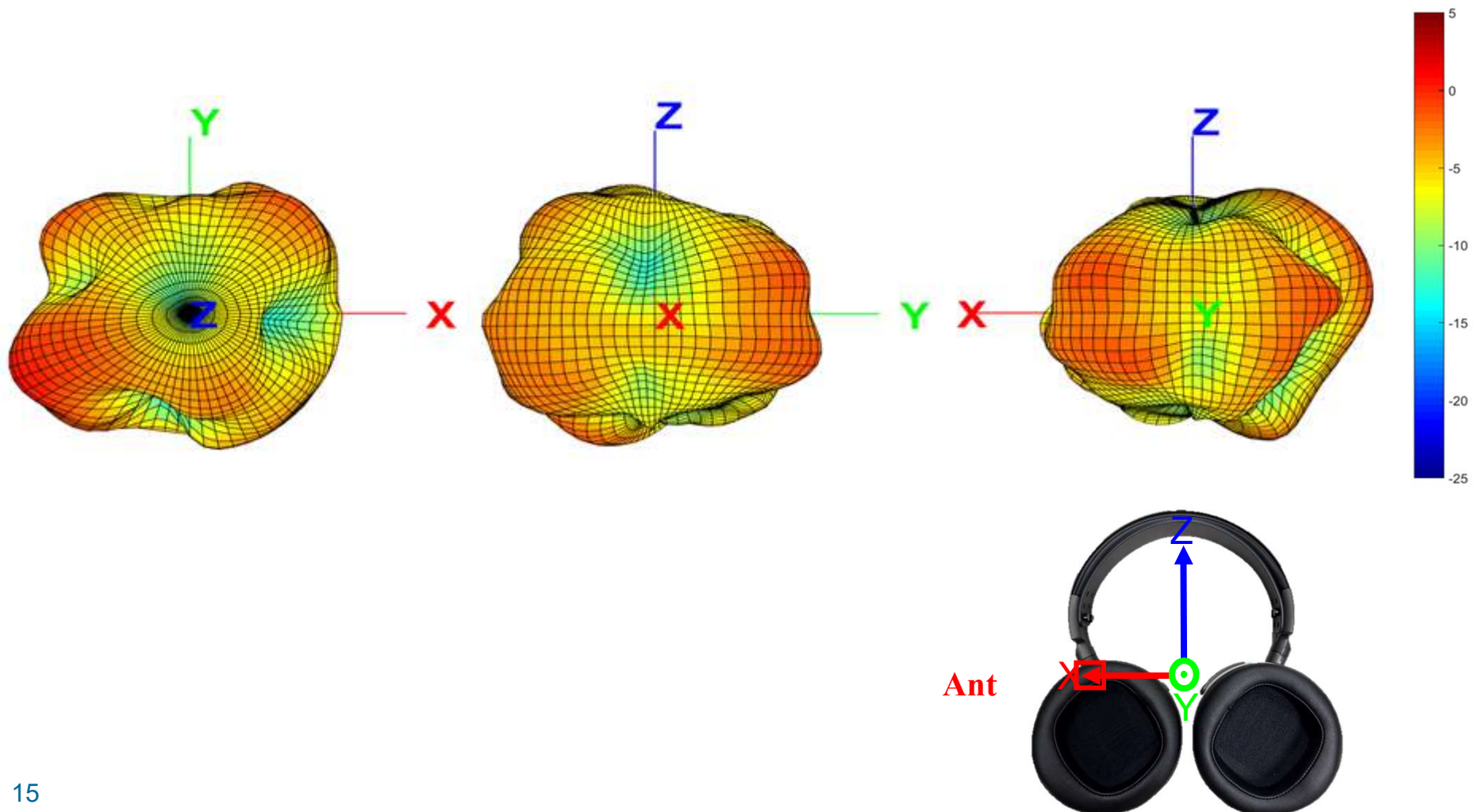


2400-2485 MHz

Frequency (MHz)	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485
Efficiency (dB)	-7.1	-6.8	-6.7	-6.6	-6.4	-6.3	-6.2	-6.2	-6.1	-6.0	-5.8	-5.7	-5.6	-5.6	-5.7	-5.8	-5.7	-5.7
Efficiency (%)	19.7	20.9	21.5	21.8	23.0	23.4	23.8	24.0	24.3	25.1	26.1	26.8	27.4	27.4	26.7	26.2	27.0	26.7
Peak Gain (dBi)	-1.4	-1.1	-1.0	-0.9	-0.7	-0.7	-0.6	-0.6	-0.4	-0.3	0.0	0.1	0.2	0.2	0.2	0.0	0.2	0.1

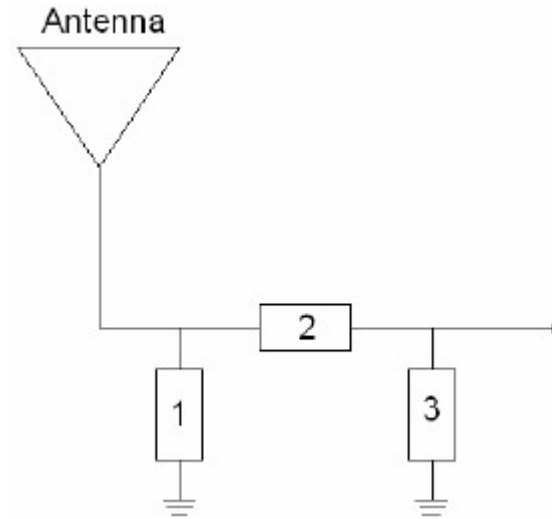
Experimental results

3D Gain Pattern (Radiation Pattern @ 2442 MHz) (unit: dBi)-ANC 板



Experimental results

Matching Circuit



System Matching Circuit Component			
Location	Description	Vendor	P/N
1	2.7nH, (0402)	MURATA	LQG15HS2N7S02D
2	1nH, (0402)	MURATA	LQG15HS1N0S02D
3	NA	-	-