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KA026 keyboard project Bluetooth antenna debugging report

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Report Version: 20240329 V1.2

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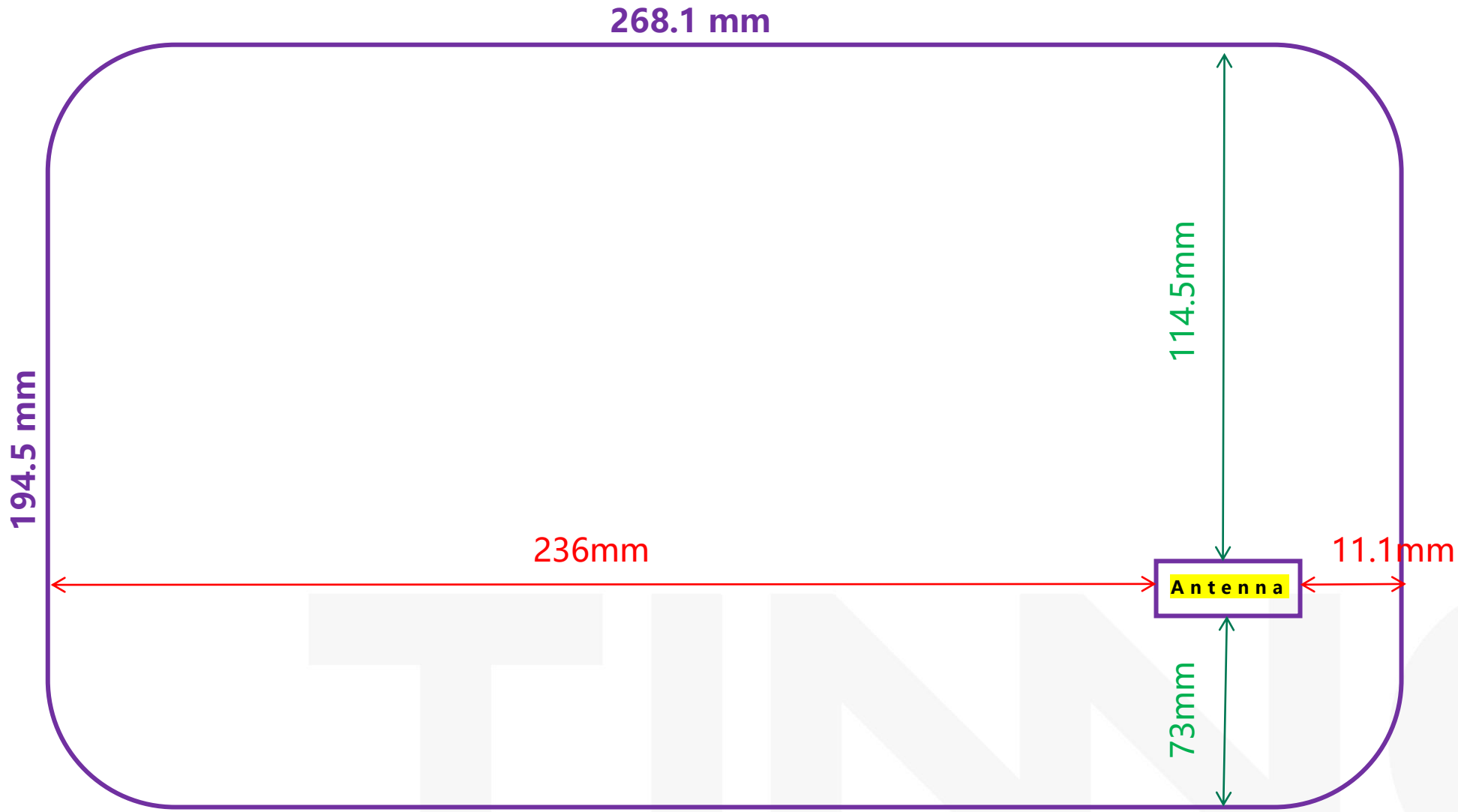
Project Development Introduction

	Frequency band		Antenna type	Matching changes
Antenna	BT	2.4GHz~2.48GHz	PCB antenna	not have
Prototype status	DVT prototype antenna verification		**environmental treatment**	3 environmental treatments

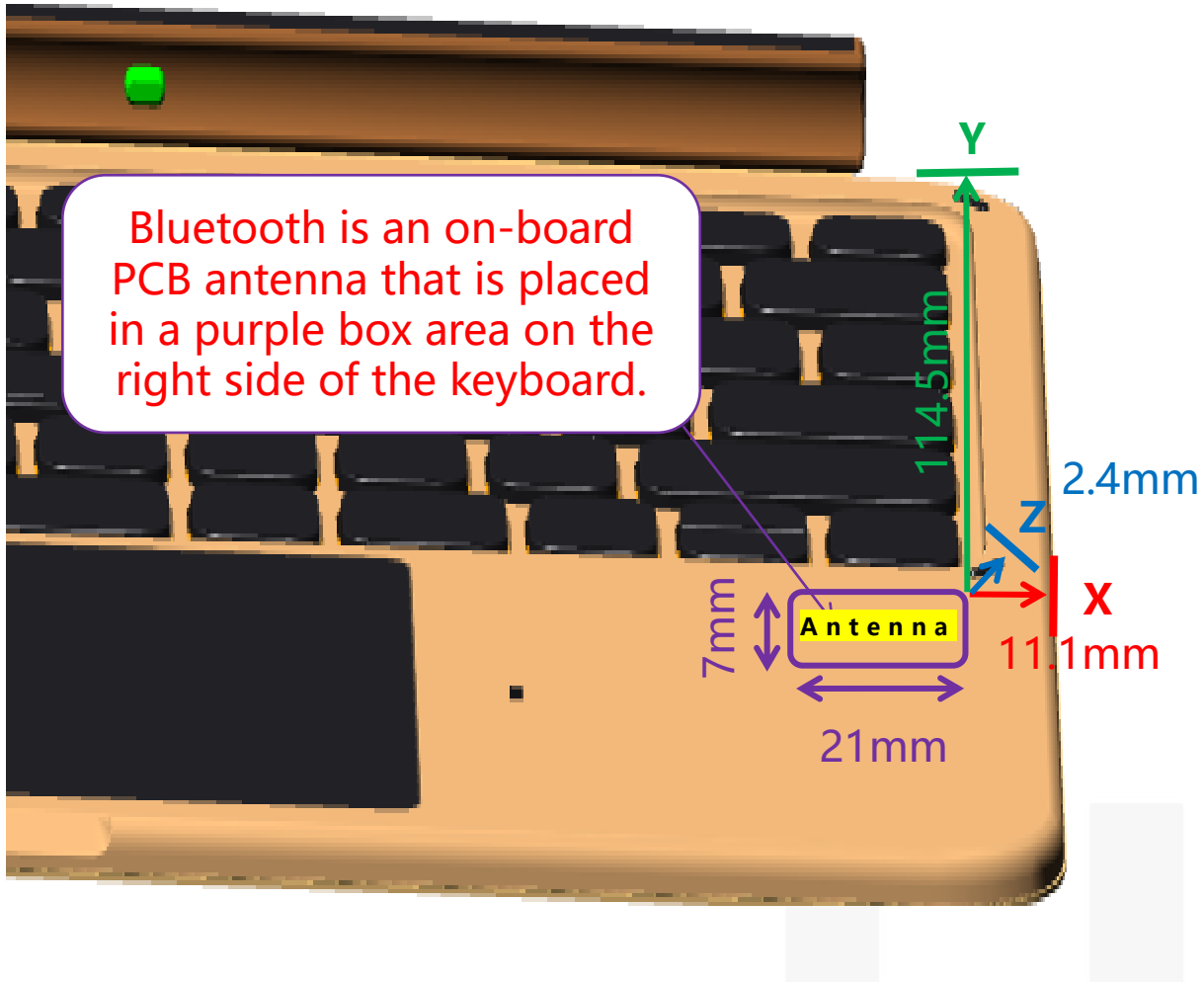
Summary of Report Version

version	date	Content Overview
V1.0	20240201	First board prototype antenna debugging
V1.1	20240229	EVT prototype antenna debugging
V1.2	20240329	DVT prototype antenna verification

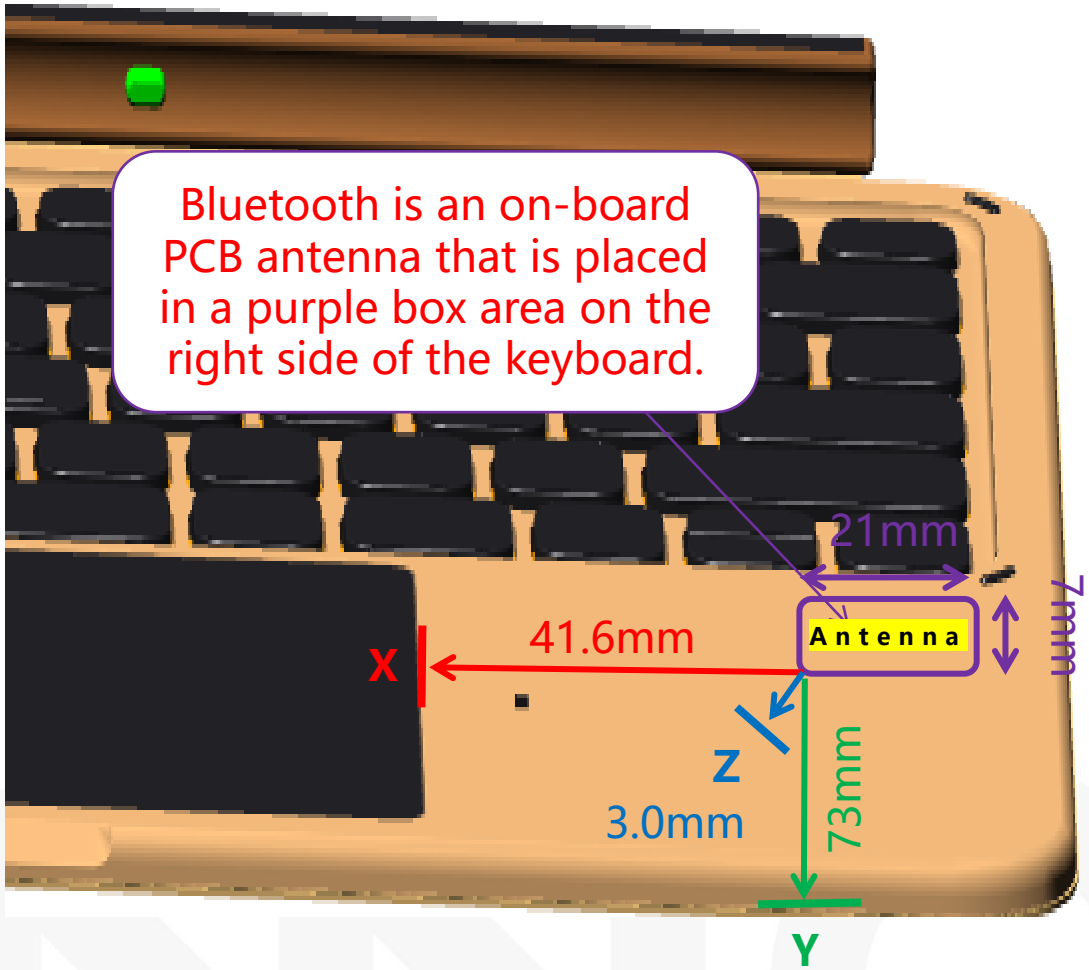
Dimensions of the whole machine



Antenna position diagram

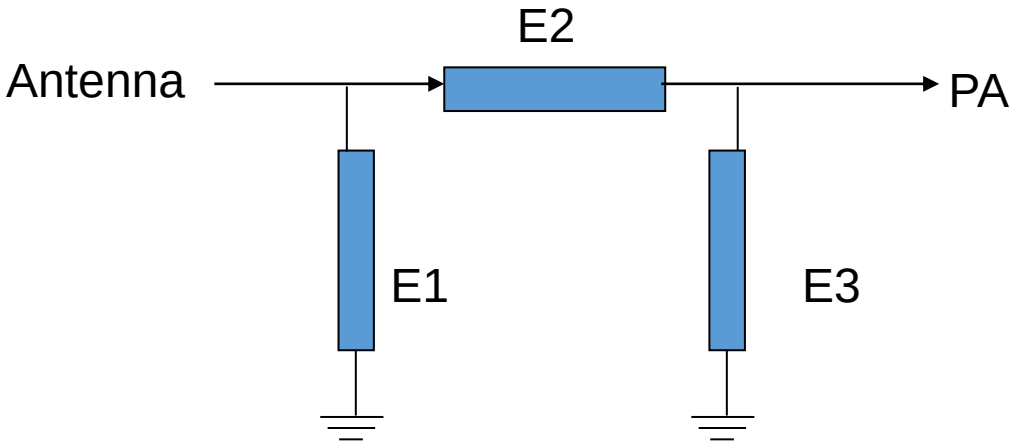


Top Face



Bottom Face

BT antenna matching circuit



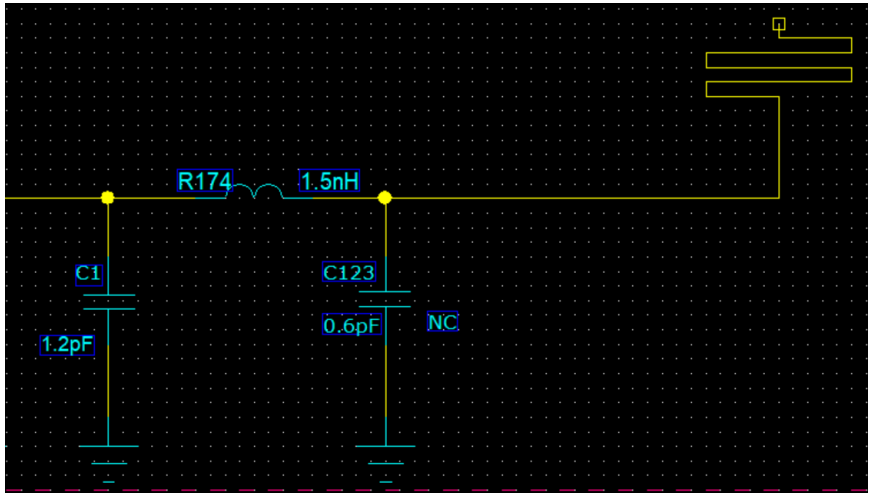
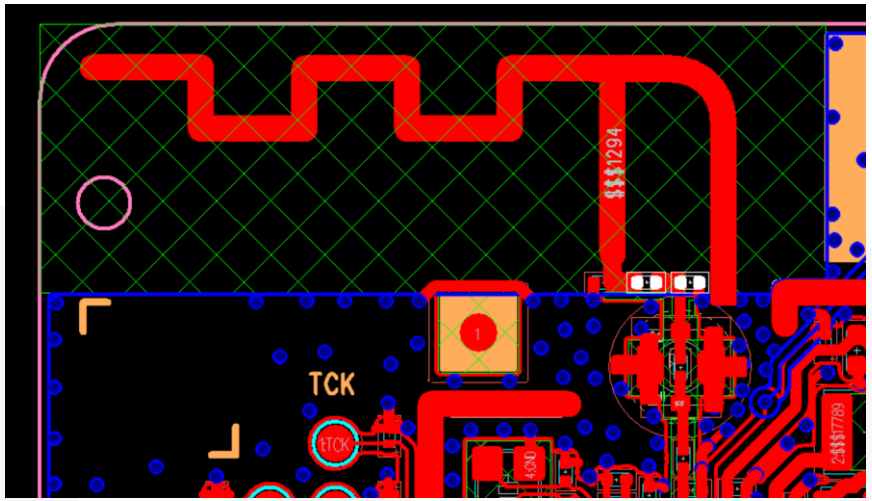
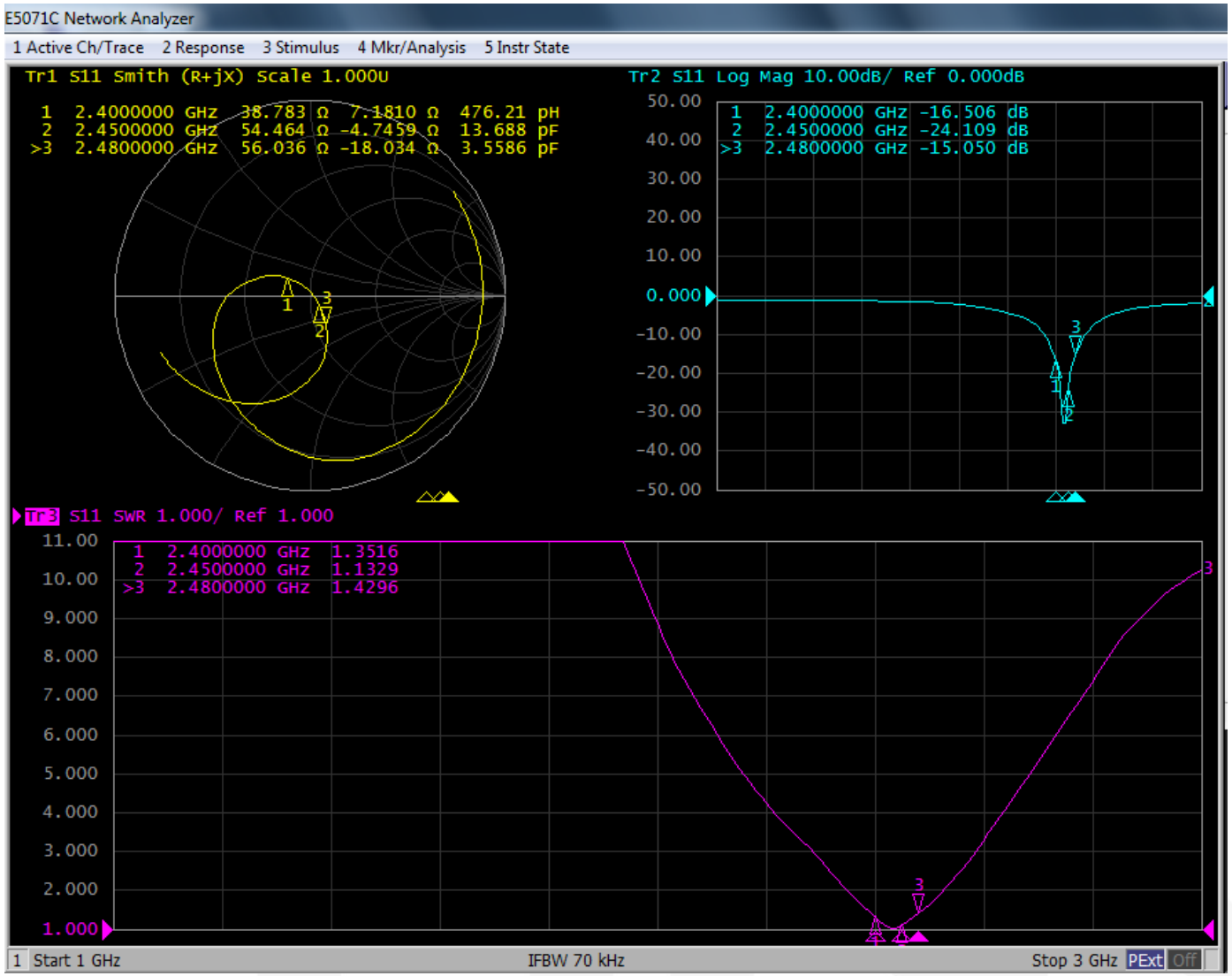


Figure number	Matching Value
C123	N/A
R174	**1.5 nH**
C1	**1.2 pF**



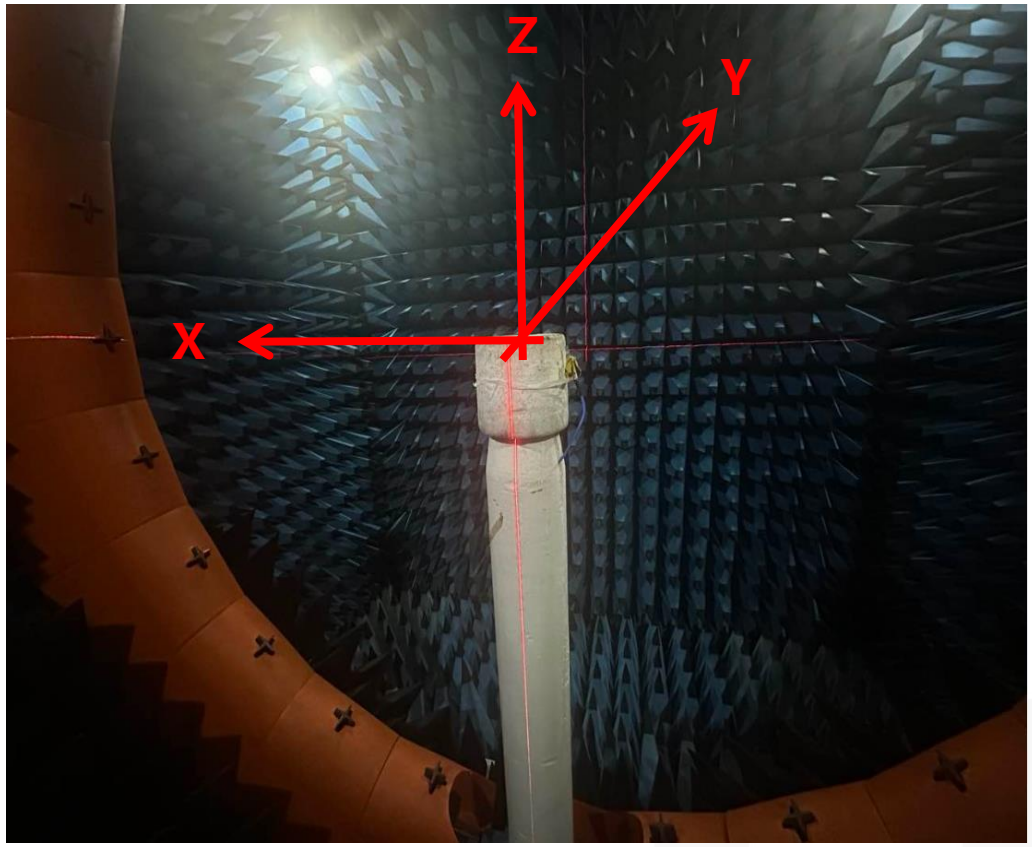
BT antenna S parameters

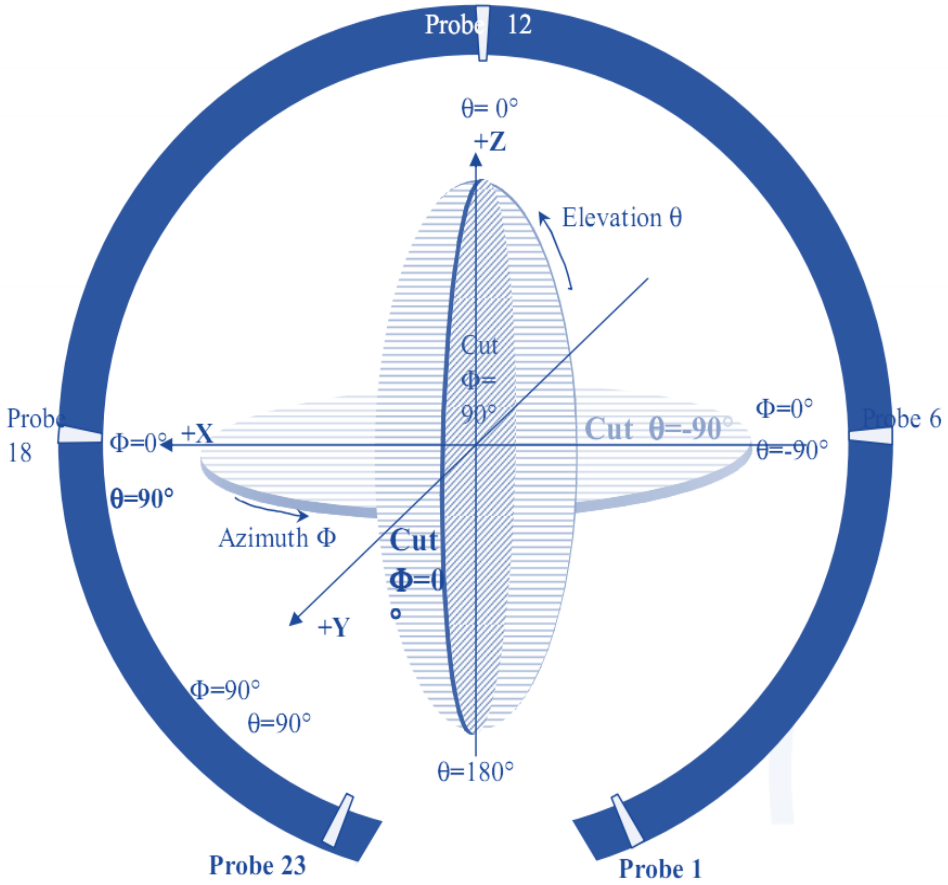


BT antenna S parameters

Passive efficiency of DVT (BT) antenna			
Frequency MHz	Efficiency (%)	Efficiency (dB)	Gain
2400	45.17%	-3.45	0.83
2410	45.22%	-3.45	0.83
2420	45.47%	-3.42	0.84
2430	45.59%	-3.41	0.85
2440	45.53%	-3.42	0.85
2450	45.25%	-3.44	0.83
2460	44.80%	-3.49	0.81
2470	44.50%	-3.52	0.79
2480	43.95%	-3.57	0.77
Avg	45.05%	-3.46	0.82

Antenna testing position layout diagram

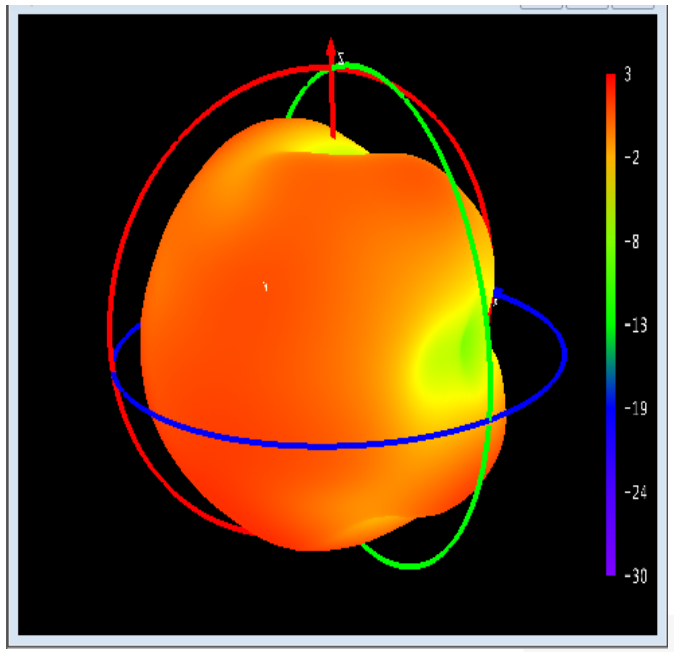


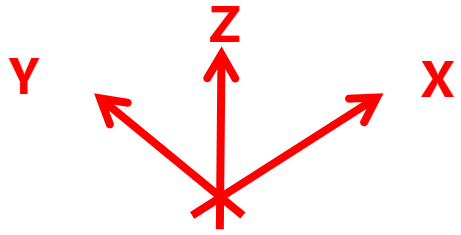


Darkroom coordinates

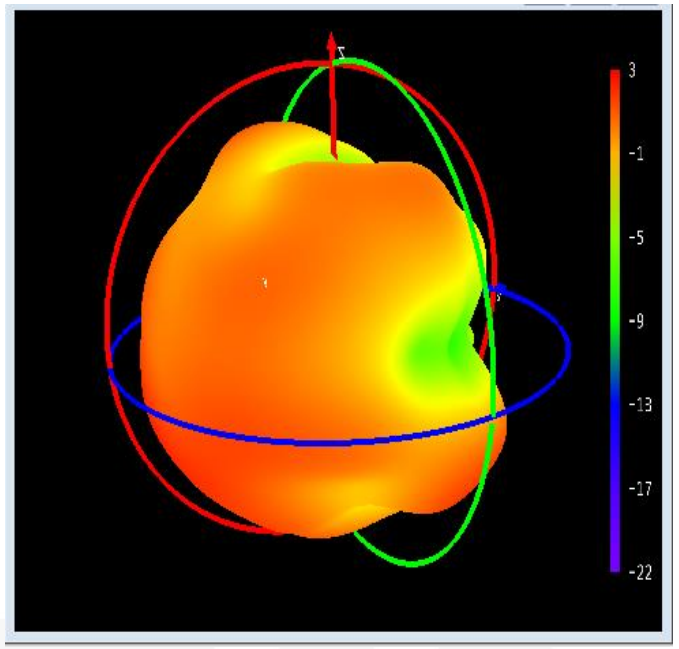
Passive data 3D directional map

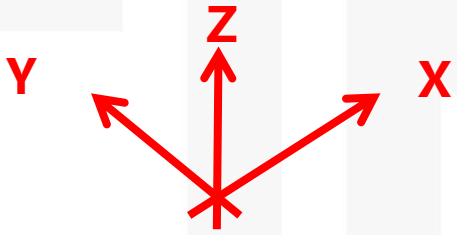
2.4GHz



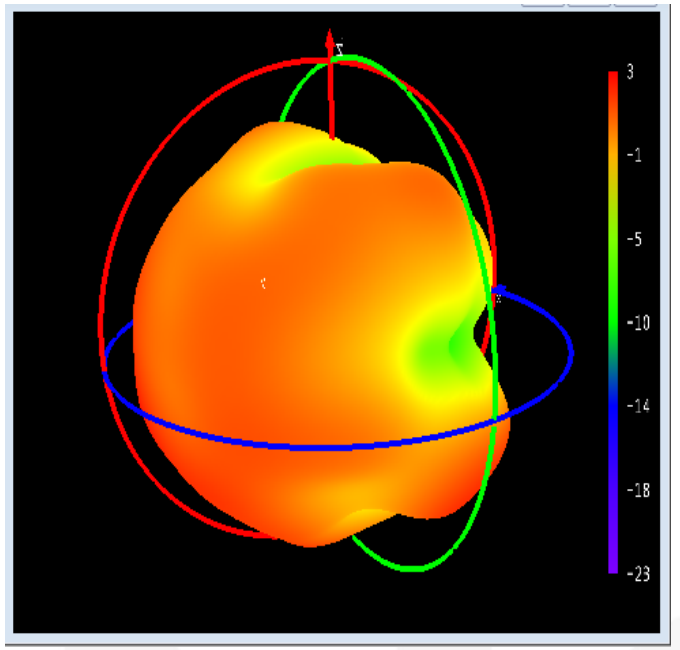


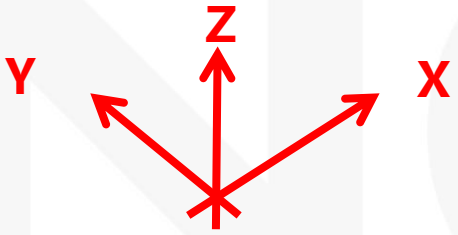
2.44GHz





2.48GHz





Summary

The data reported in this antenna report was validated using the KA026 DVT prototype, and the passive efficiency of the antenna is greater than 40%, meeting the standard.

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THANKS

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