



**AOS** (Antenna Optimisation Service)

**Customer: Systemloco**

**Project: T1B**

**Report: SZ23-023-R01**

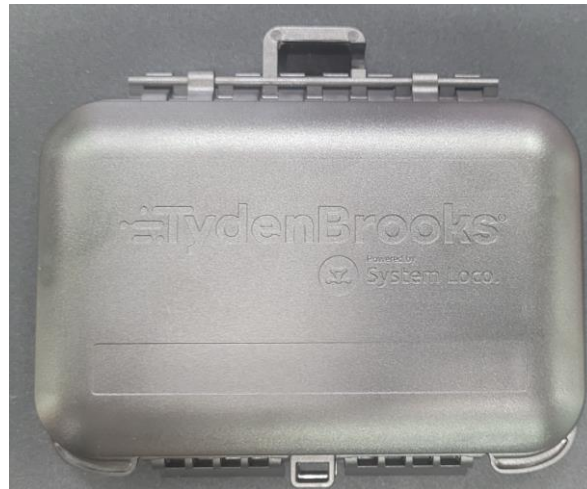
30 MAY 2023



## Introduction

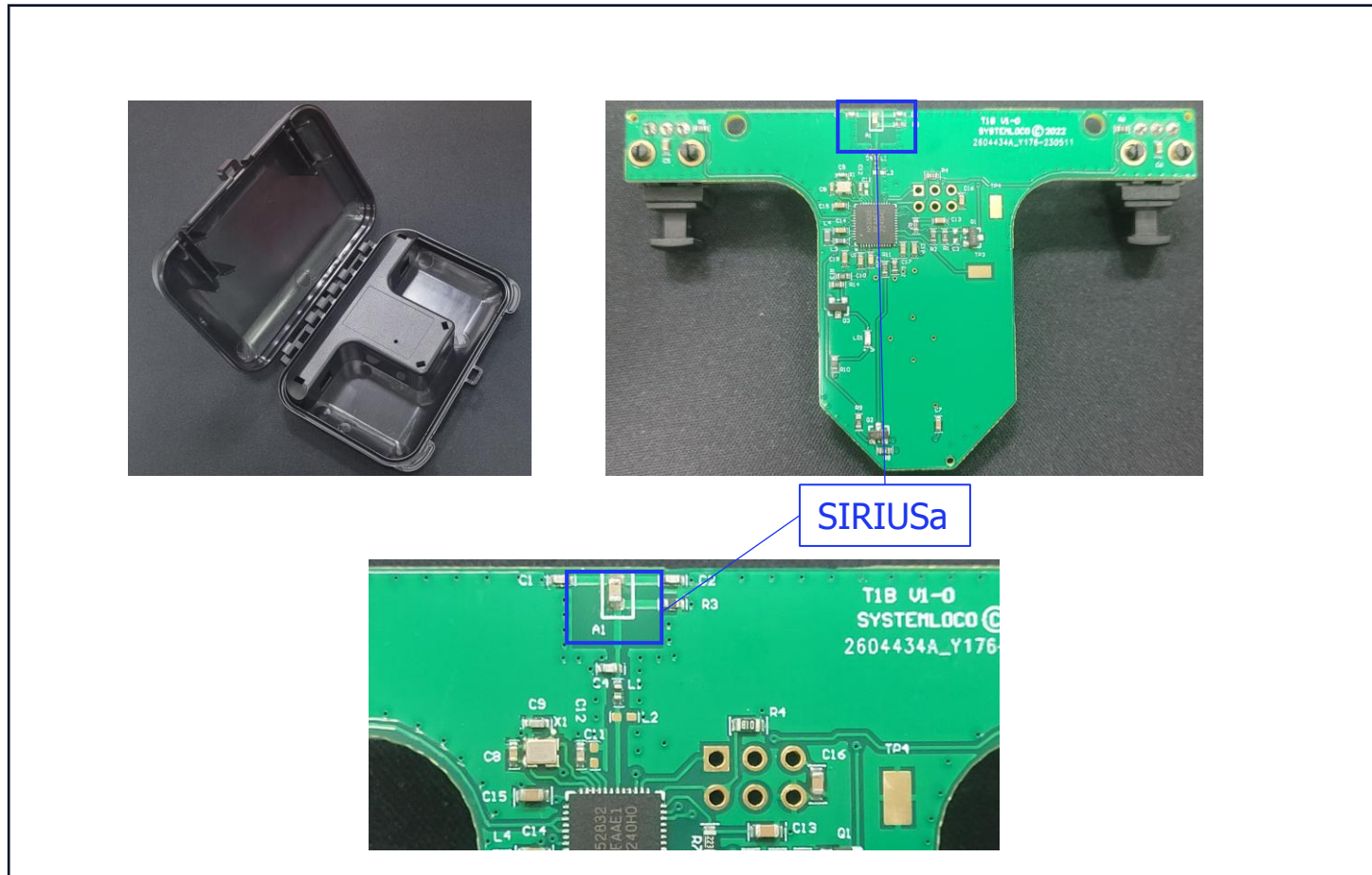
- Systemloco provided the T1B device that utilizes SIRIUSa ceramic antenna.
- This report shows the performance with the optimal matching circuit for the device fully assembled.

Antenna Requirements	
Application	Wi-Fi
Frequency Range (MHz)	2400 - 2500
Solution used	SIRIUSa



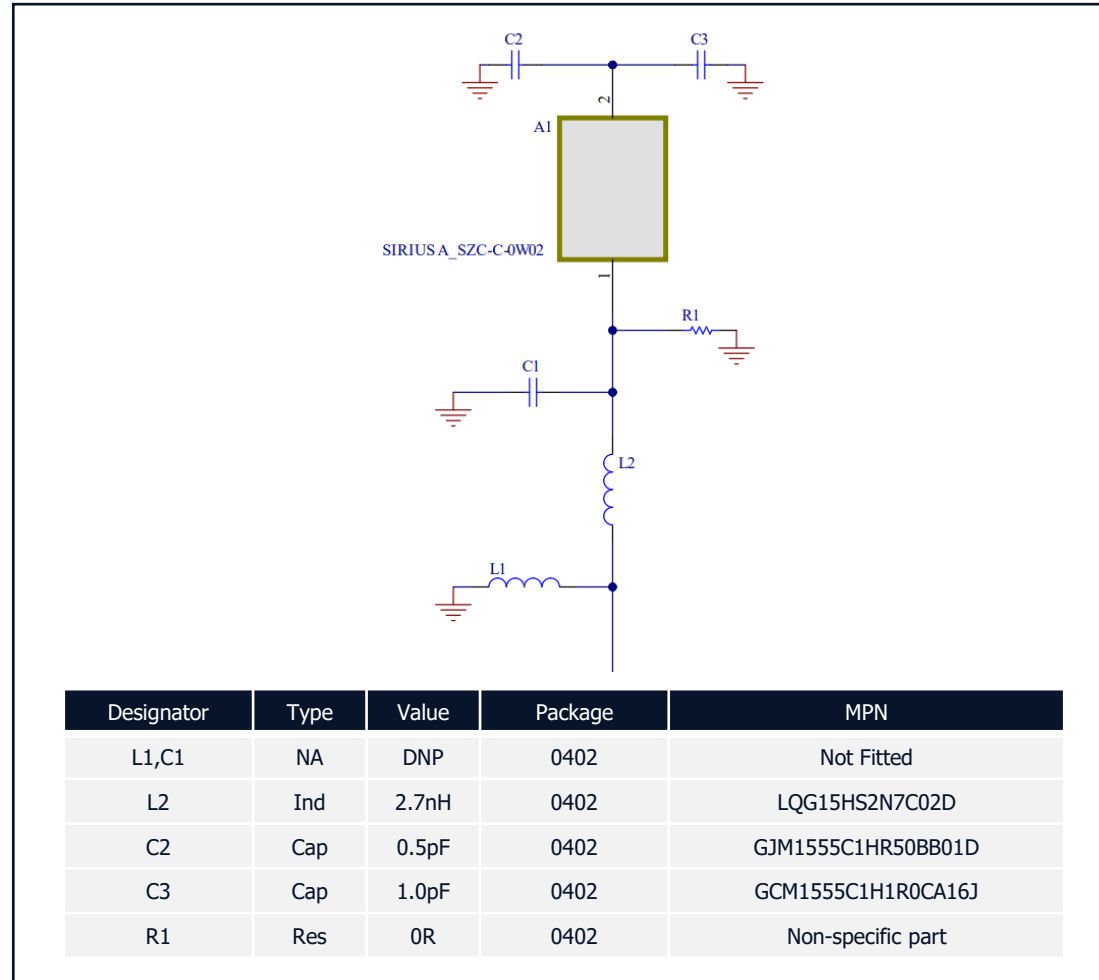
## Test Setup

- The antenna was matched for the full assembled device.

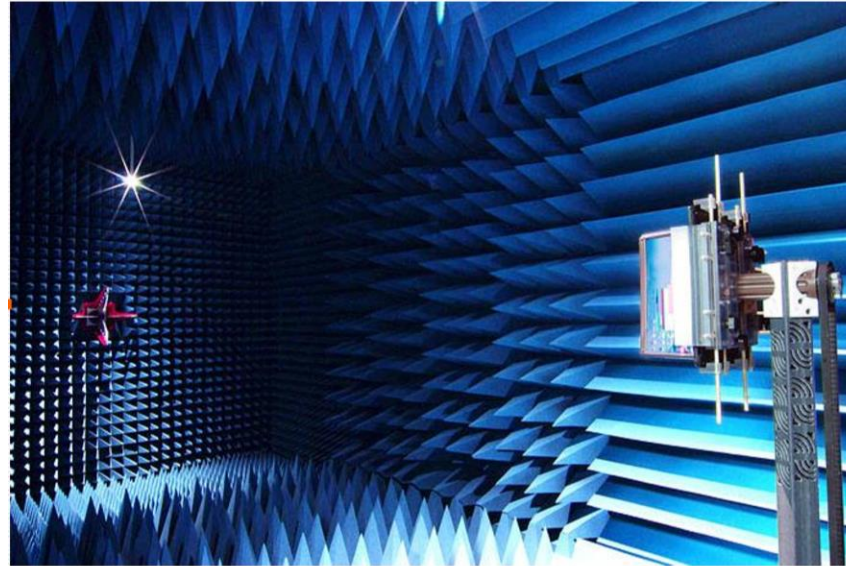


## Matching Circuits

- The optimal matching circuit for SIRIUSa within the fully assembled device.



Equipment	Model/Type	Calibration due date
Network Analyser	Rhode&Schwarz ZNB-8	02/2024
Calibration Kit	Rhode&Schwarz ZV-Z132	02/2024
Chamber	AMS-8500	CTIA Approved IST



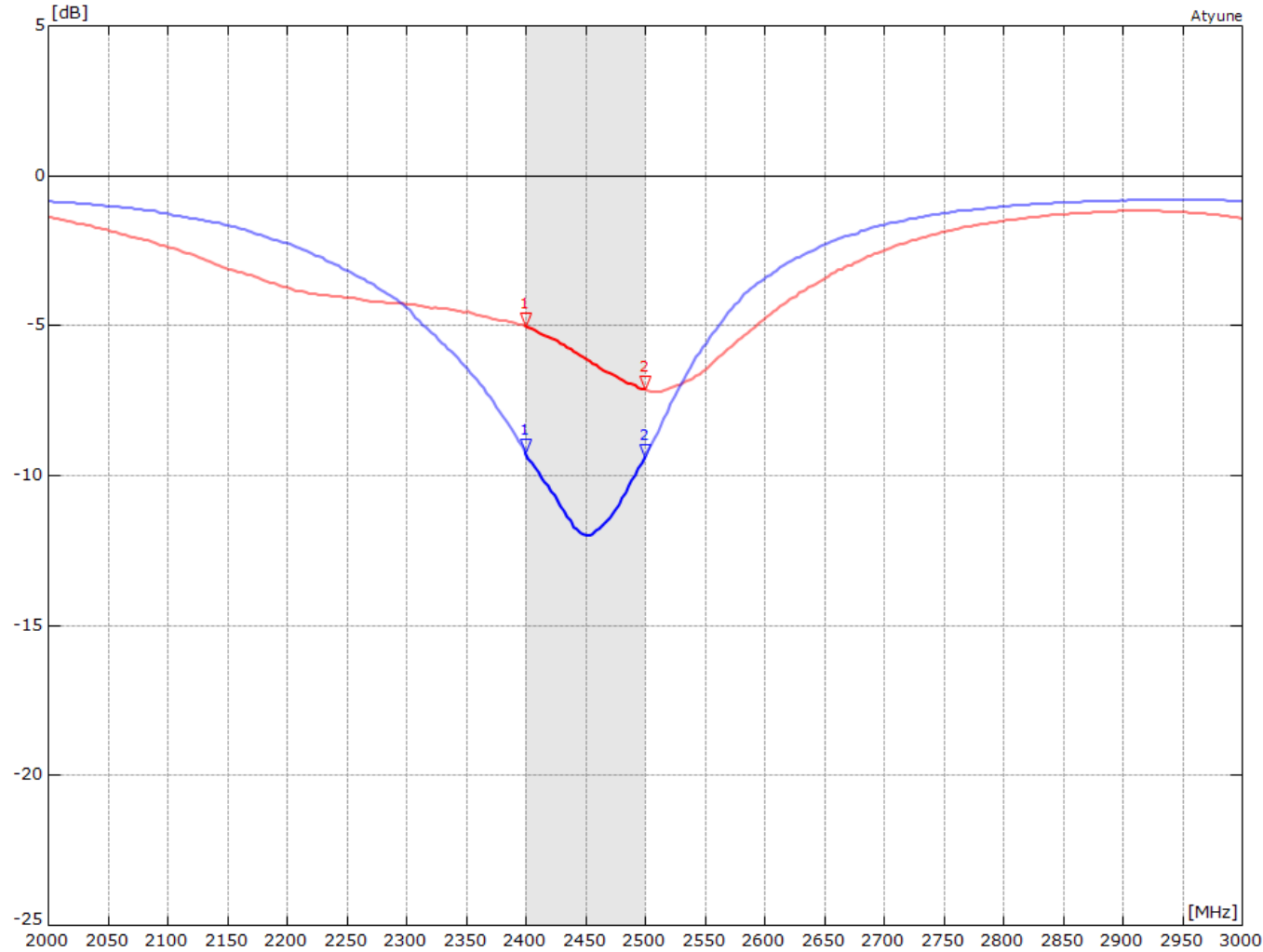


## SIRIUSa

Frequency Range (MHz)	2400-2500
Peak Efficiency (%)	75.5
Avg Efficiency (%)	68.9
Peak Gain (dBi)	2.13

<b>Part Number</b>	SZC-C-0W02
<b>Name</b>	SIRIUSa
<b>Dimensions</b>	1.6 x 0.8 x 0.8 (mm)
<b>Required Clearance area</b>	6.0 x 5.0 (mm)
<b>Weight</b>	<0.1g
<b>Antenna Type</b>	Surface Mount Device





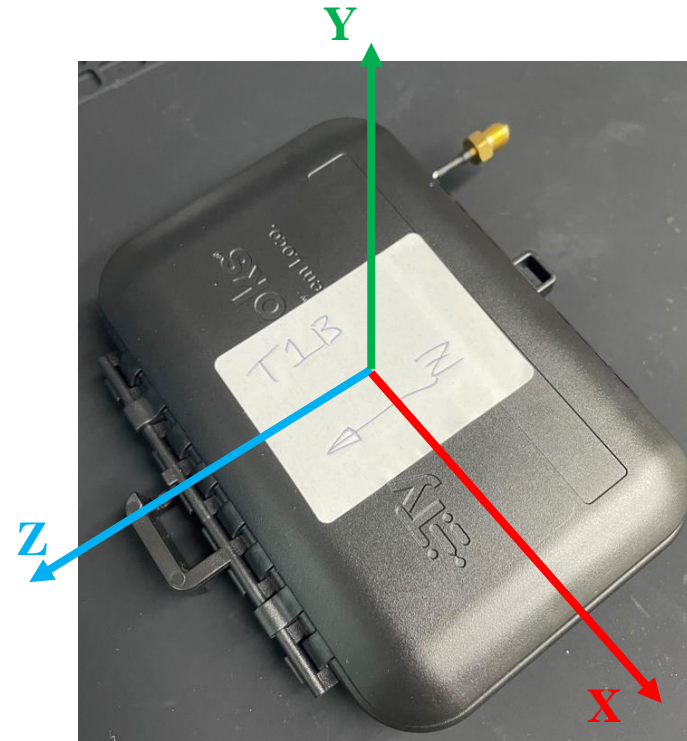
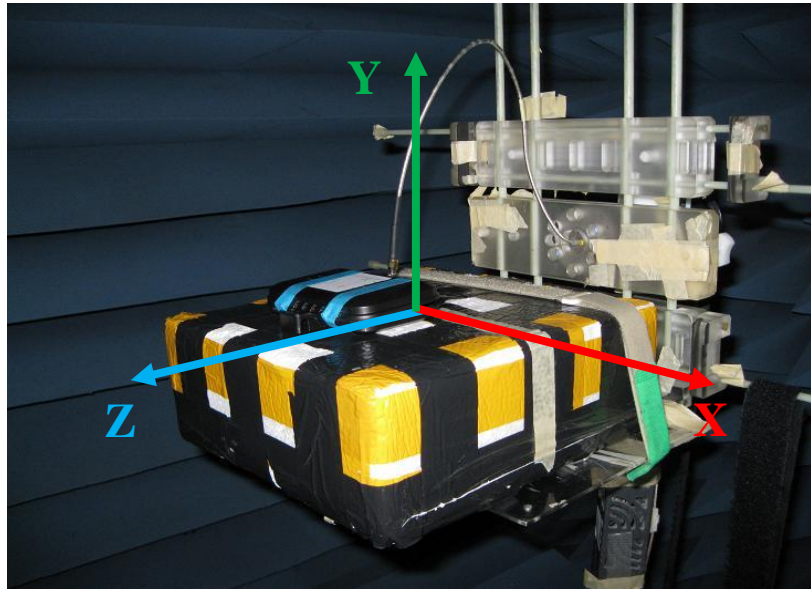
MARKERS:	MHz	dB
benchmark.s1p - S11		
—	1: 2400	-4.99
—	2: 2500	-7.11
SZC-C-0W02-2.7nHseri -0.5pFleft -1pFright.s1p - S11		
—	1: 2400	-9.21
—	2: 2500	-9.40

SIRIUSa – S11 as received  
 SIRIUSa - Matched



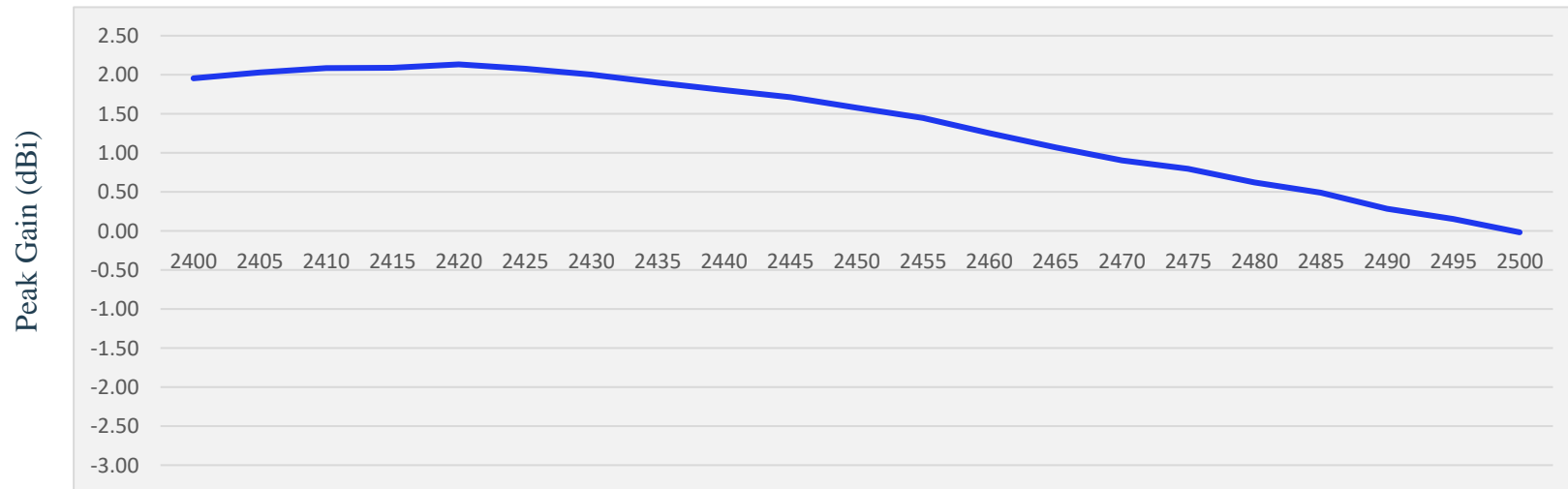
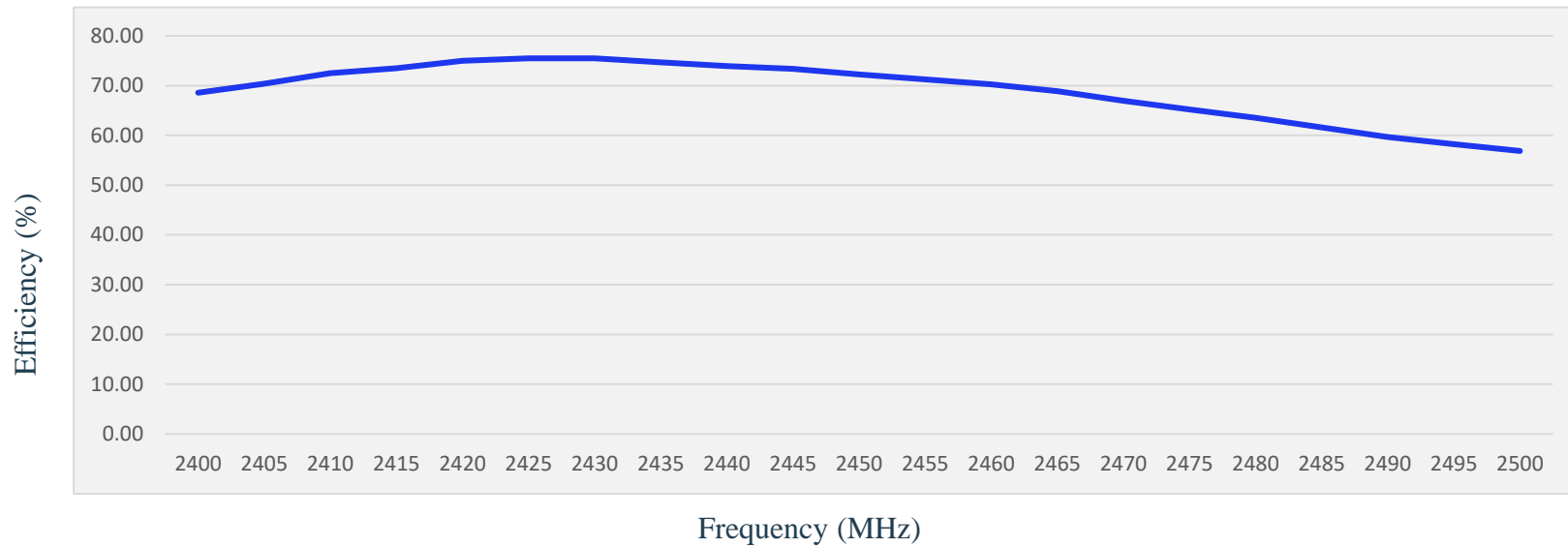
## Chamber Test Setup

- The device was placed in the chamber as shown. The antenna under test used the required RF choke to prevent cable radiation which can give false high performance and incorrect radiation pattern data.

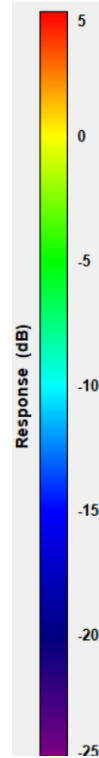
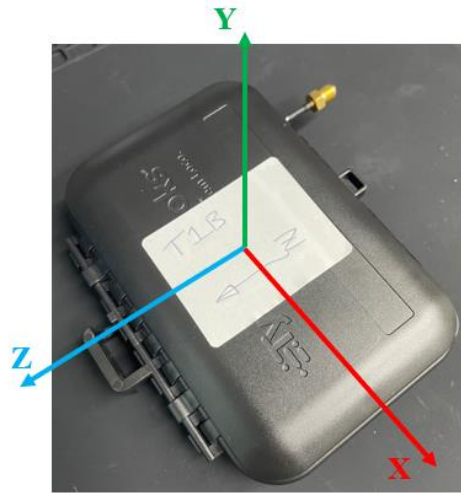




## Antenna Efficiency / Peak Gain

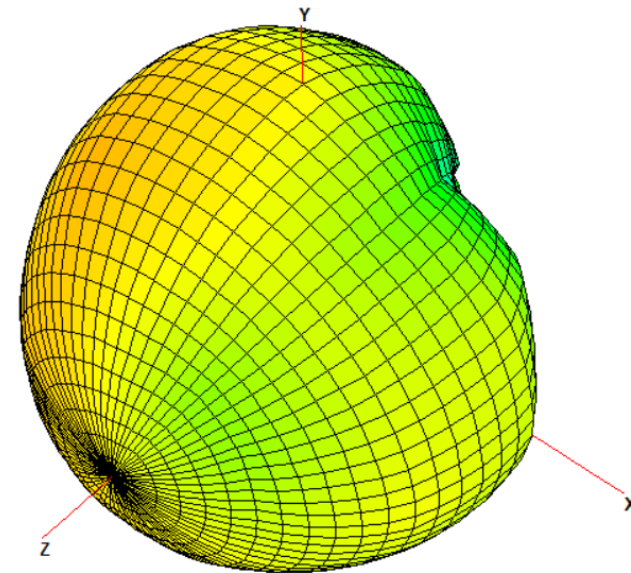


## 3D Radiation Pattern



SIRIUSa

Pattern at 2450MHz





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