



APPLICATION SPECIFICATION

TITLE

MOLEX DUAL BAND WIFI MIMO ANTENNA

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DOCUMENT NUMBER: AS-2143941000	CREATED / REVISED BY: Liu Hai 2019/12/24	CHECKED BY: Kang Cheng 2019/12/24	APPROVED BY: Andy Zhang 2019/12/24



APPLICATION SPECIFICATION

MOLEX DUAL BAND WIFI MIMO ANTENNA

1.0 SCOPE

This specification describes the antenna application and surrounding. The information in this document is for reference and benchmark purposes only. The user is responsible for validating antenna RF performance based on the user's actual implementation.

Antenna illustrations in this document are generic representations. They are not intended to be an image of any antenna listed in the scope.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Product name: Molex dual band WIFI MIMO antenna

Series Number: 2143941000

2.2 DESCRIPTION

214394 is WIFI MIMO external antenna with adjustable cables and connectors, The installation method is adhesive mounting.

2.3 PRODUCT STRUCTURE INFORMATION

Please refer to PS-2143941000 for full information.



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2143941000 Antenna 3D VIEW

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3.0 APPLICABLE DOCUMENTS

DOCUMENT	NUMBER	DESCRIPTION
Sale Drawing (SD)	SD-2143941000	Mechanical Dimension of the product
Product Specification (PS)	PS-2143941000	Product Specification
Packing Drawing (PK)	PK-2143941000	Product packaging specifications

4.0 ANTENNA PERFORMANCE

4.1 RF TEST CONDITIONS

All measurements are done for antenna with VNA Agilent 5071C and Over-The-Air (OTA) chamber. Cable length is 1m.

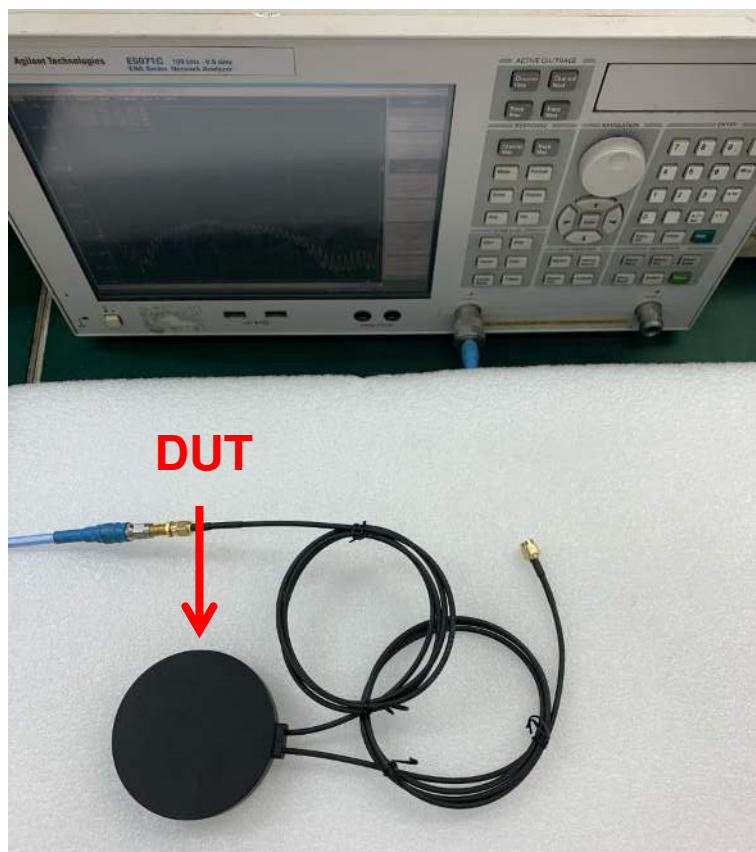


FIGURE 4.1.1 ANTENNA TESTED WITH VNA E5071C IN FREE SPACE

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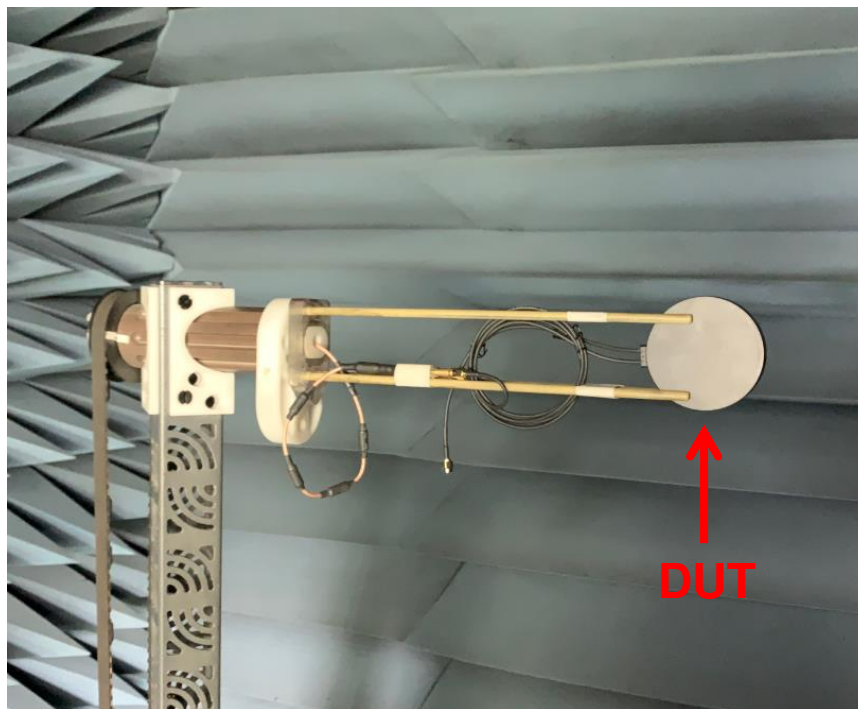


FIGURE4.1.2 ANTENNA TESTED IN OTA CHAMBER IN FREE SPACE

4.2 ANTENNA PERFORMANCE

Description	Equipment	Requirement Port 1		Requirement Port 2	
		2400-2500MHz	5000-6000MHz	2400-2500MHz	5000-6000MHz
Frequency Range	VNA E5071C	2400-2500MHz	5000-6000MHz	2400-2500MHz	5000-6000MHz
Return Loss	VNA E5071C	<-10 dB			
Peak Gain (Max)	OTA Chamber	2.5dBi	2.6dBi	3.1dBi	3.4dBi
Average Total Efficiency	OTA Chamber	>60%	>45%	>70%	>50%
Polarization	OTA Chamber	Linear			
Input Impedance	VNA E5071C	50 ohms			

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4.3 RETURN LOSS PLOT

All measurements in this document are done with 1m cable in free space.

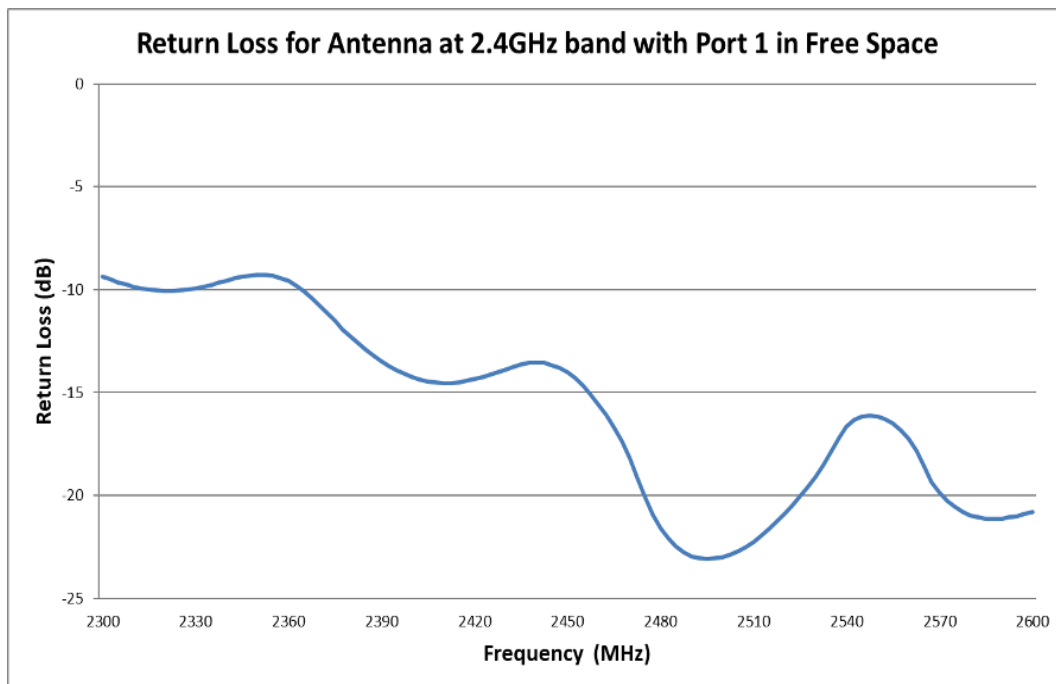


FIGURE 4.3.1 RETURN LOSS OF ANTENNA AT 2.4GHZ BAND WITH PORT 1 IN FREE SPACE

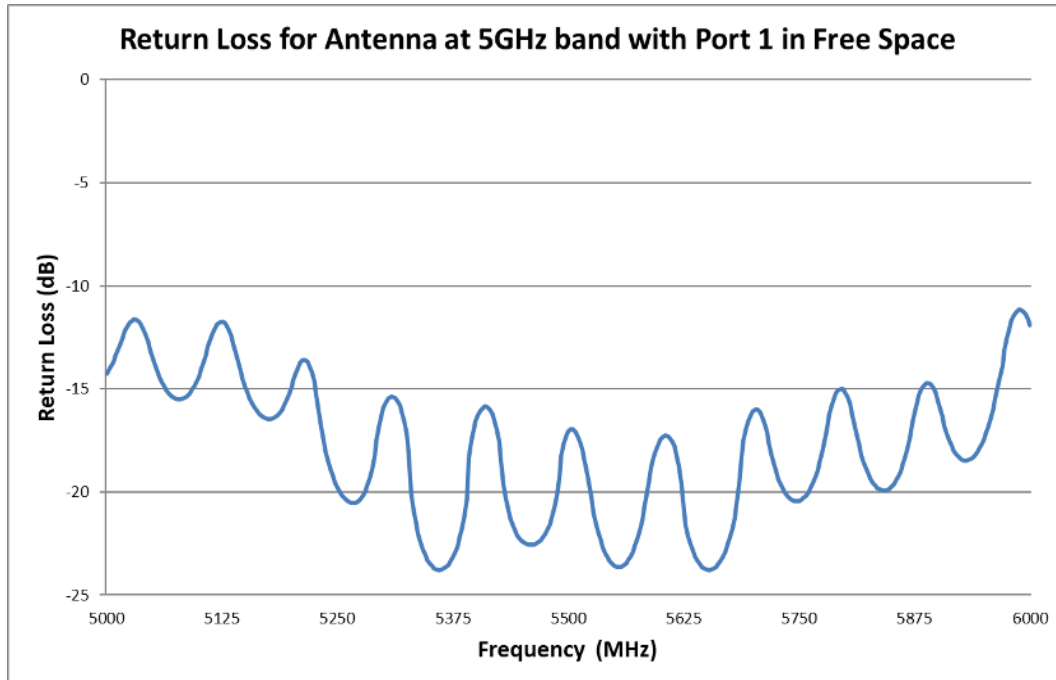


FIGURE 4.3.2 RETURN LOSS OF ANTENNA AT 5GHZ BAND WITH PORT 1 IN FREE SPACE

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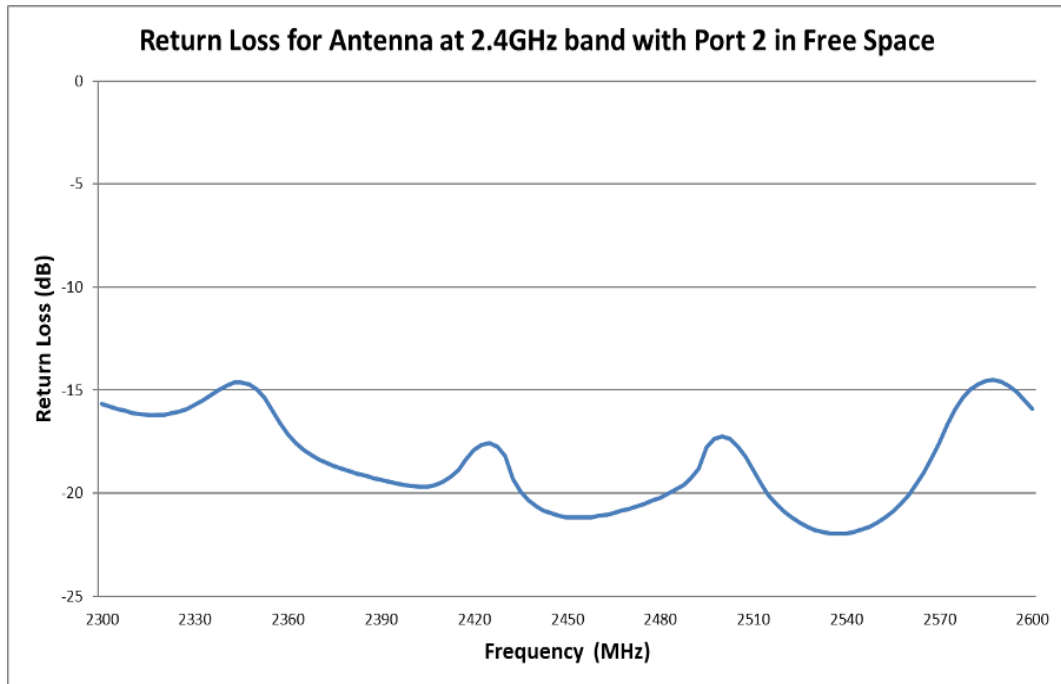


FIGURE 4.3.3 RETURN LOSS OF ANTENNA AT 2.4GHZ BAND WITH PORT 2 IN FREE SPACE

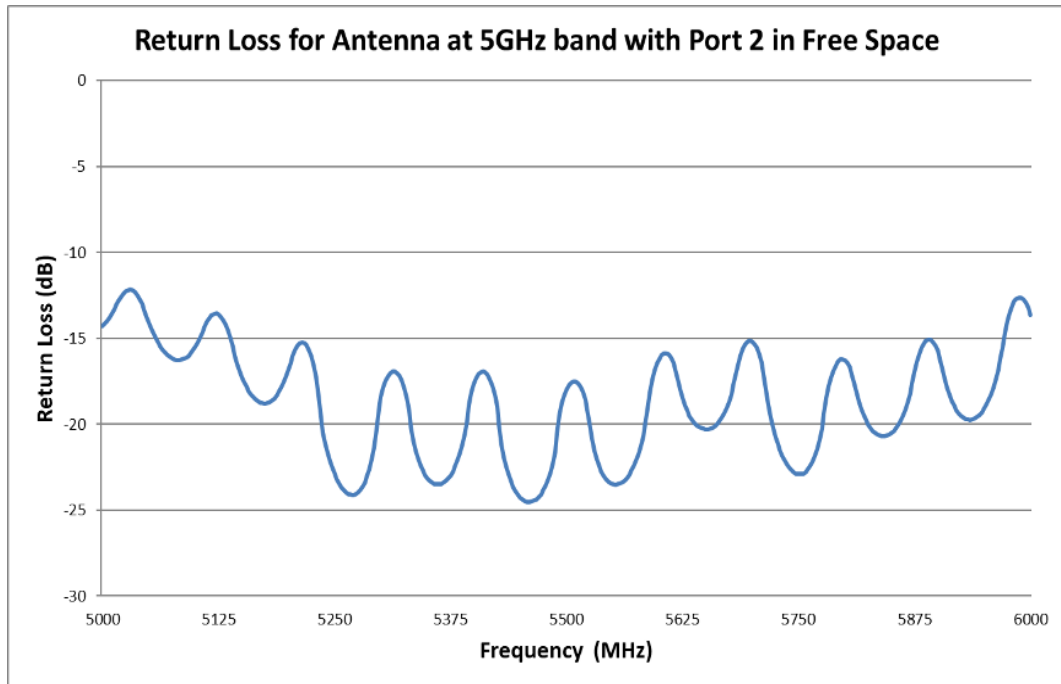


FIGURE 4.3.4 RETURN LOSS OF ANTENNA AT 5GHZ BAND WITH PORT 2 IN FREE SPACE

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4.4 ISOLATION

All measurements in this document are done with 1m cable in free space.

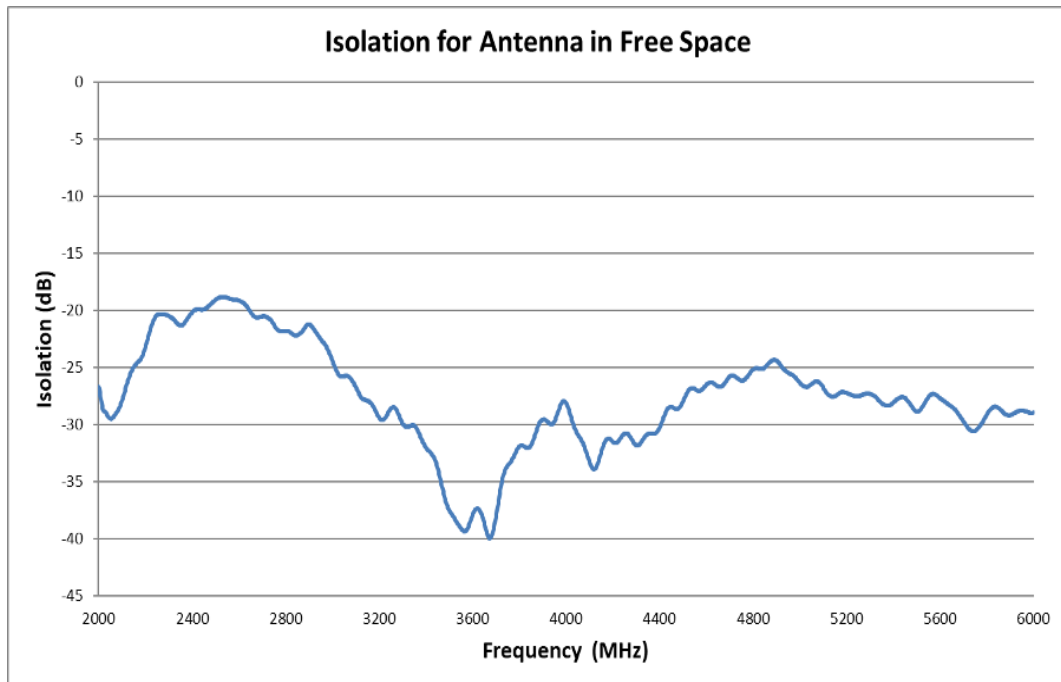


FIGURE 4.4 ISOLATION OF ANTENNA IN FREE SPACE

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4.5 EFFICIENCY PLOT

All measurements in this document are done with 1m cable in free space.

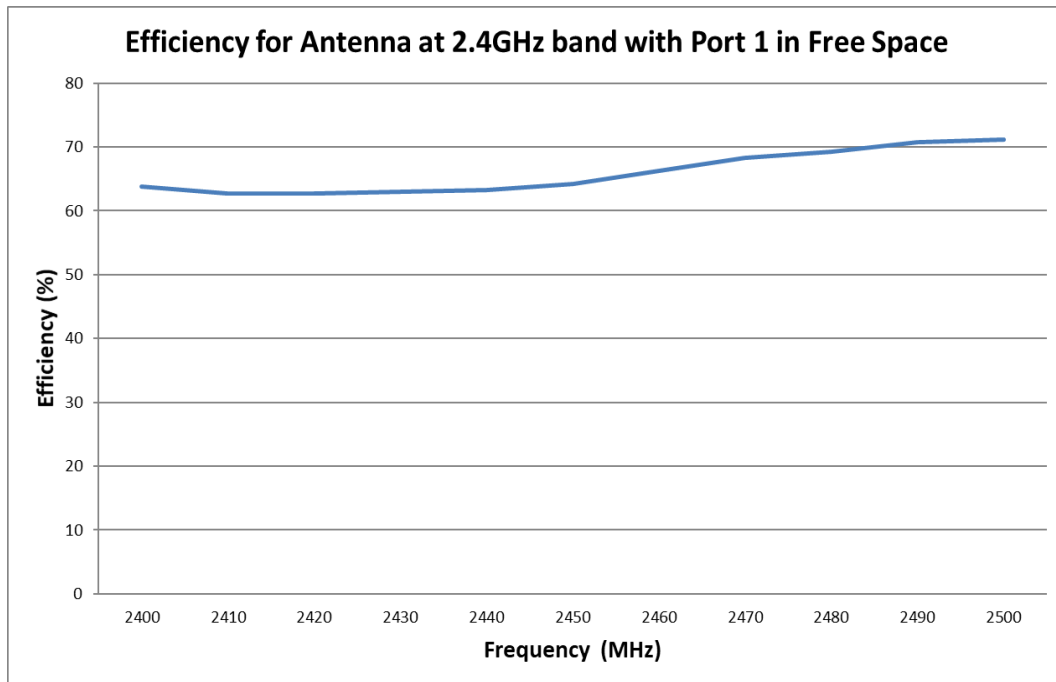


FIGURE 4.5.1 EFFICIENCY OF ANTENNA AT 2.4GHZ BAND WITH PORT 1 IN FREE SPACE

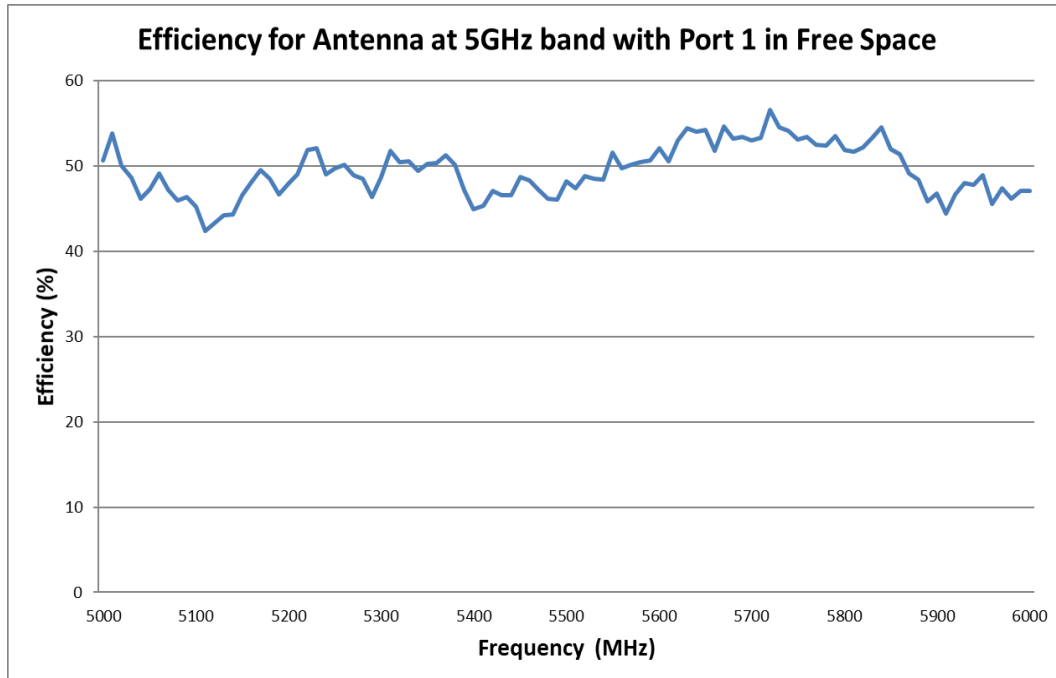


FIGURE 4.5.2 EFFICIENCY OF ANTENNA AT 5GHZ BAND WITH PORT 1 IN FREE SPACE

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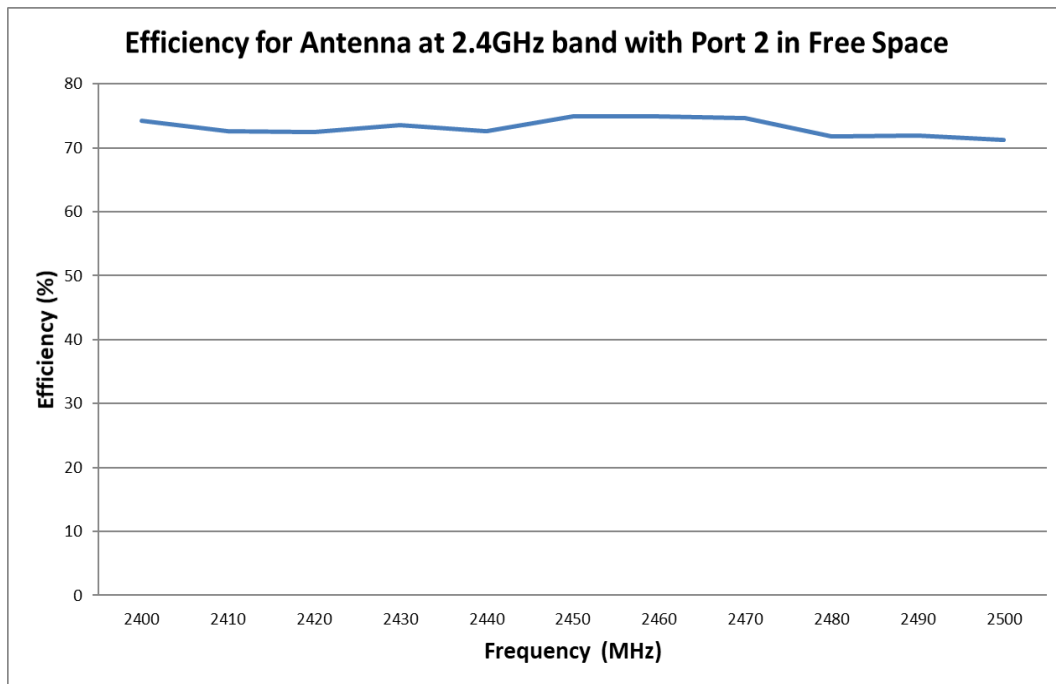


FIGURE 4.5.3 EFFICIENCY OF ANTENNA AT 2.4GHZ BAND WITH PORT 2 IN FREE SPACE

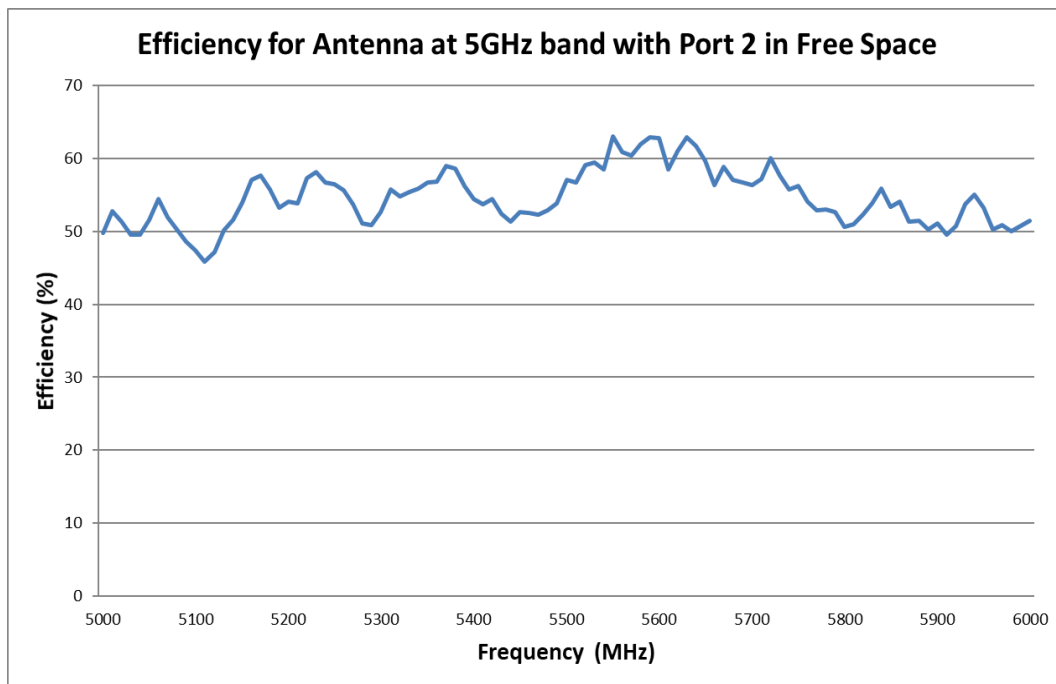


FIGURE 4.5.4 EFFICIENCY OF ANTENNA AT 5GHZ BAND WITH PORT 2 IN FREE SPACE

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4.6 PEAK GAIN PLOT

All measurements in this document are done with 1m cable in free space.

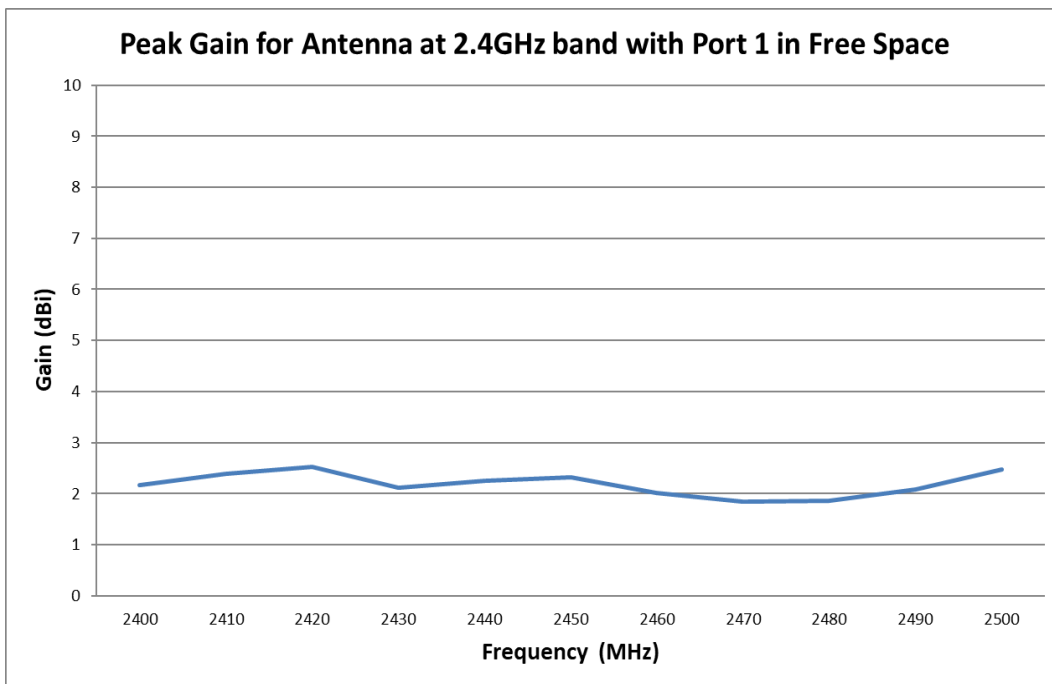


FIGURE 4.6.1 PEAK GAIN OF ANTENNA AT 2.4GHZ BAND WITH PORT 1 IN FREE SPACE

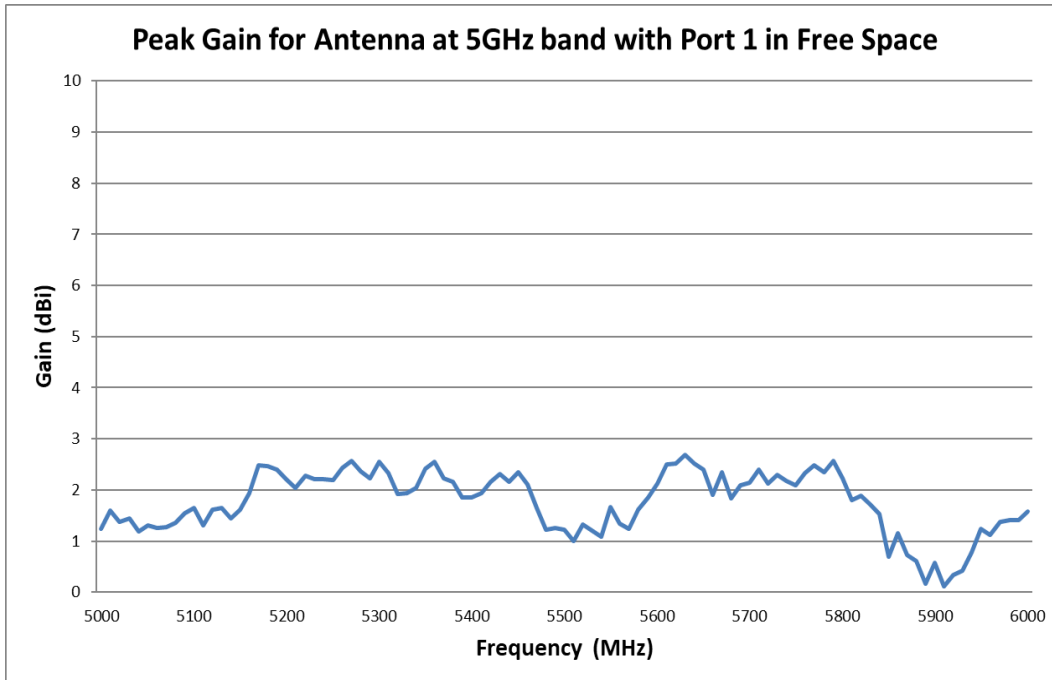


FIGURE 4.6.2 PEAK GAIN OF ANTENNA AT 5GHZ BAND WITH PORT 1 IN FREE SPACE

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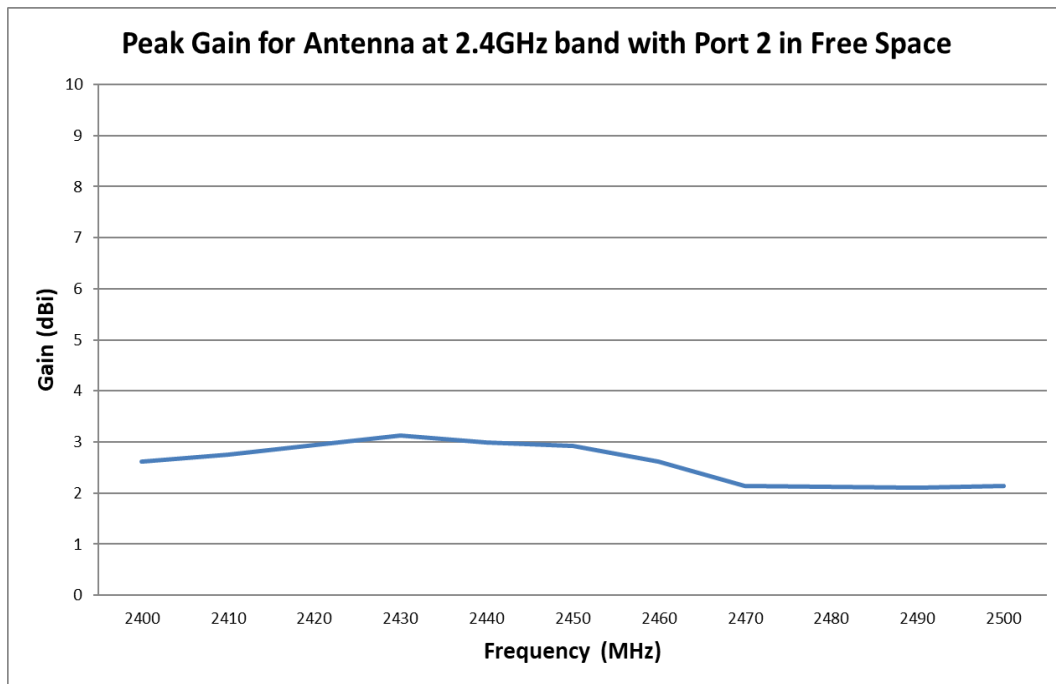


FIGURE 4.6.3 PEAK GAIN OF ANTENNA AT 2.4GHZ BAND WITH PORT 2 IN FREE SPACE

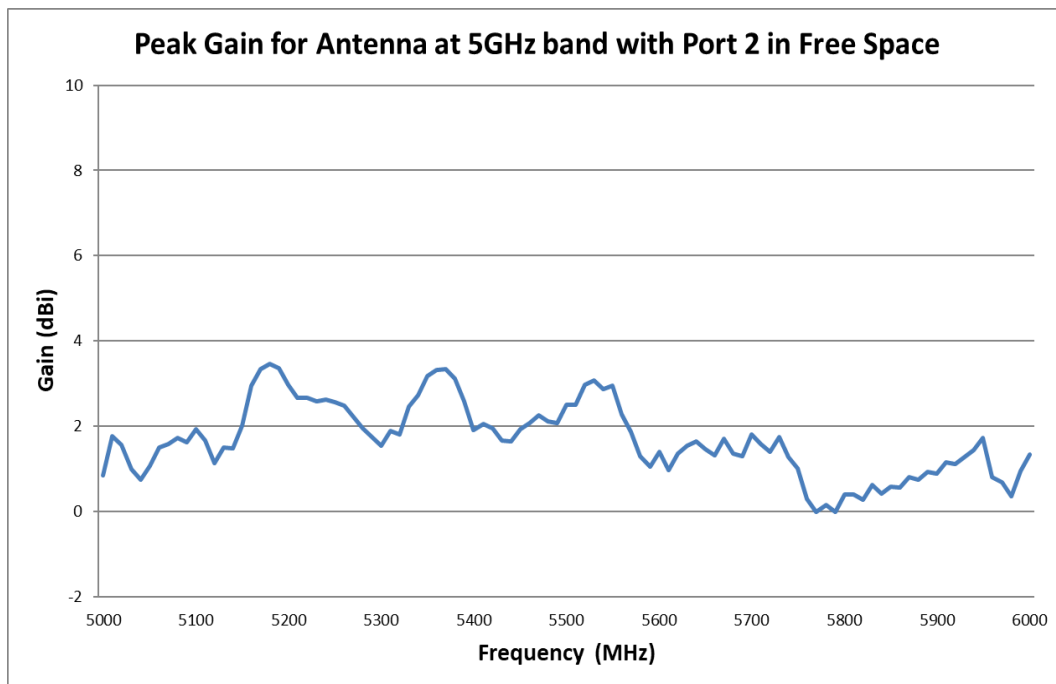


FIGURE 4.6.4 PEAK GAIN OF ANTENNA AT 5GHZ BAND WITH PORT 2 IN FREE SPACE

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4.7 RADIATION PATTERN

All measurements in this document are done with 1m cable in free space.

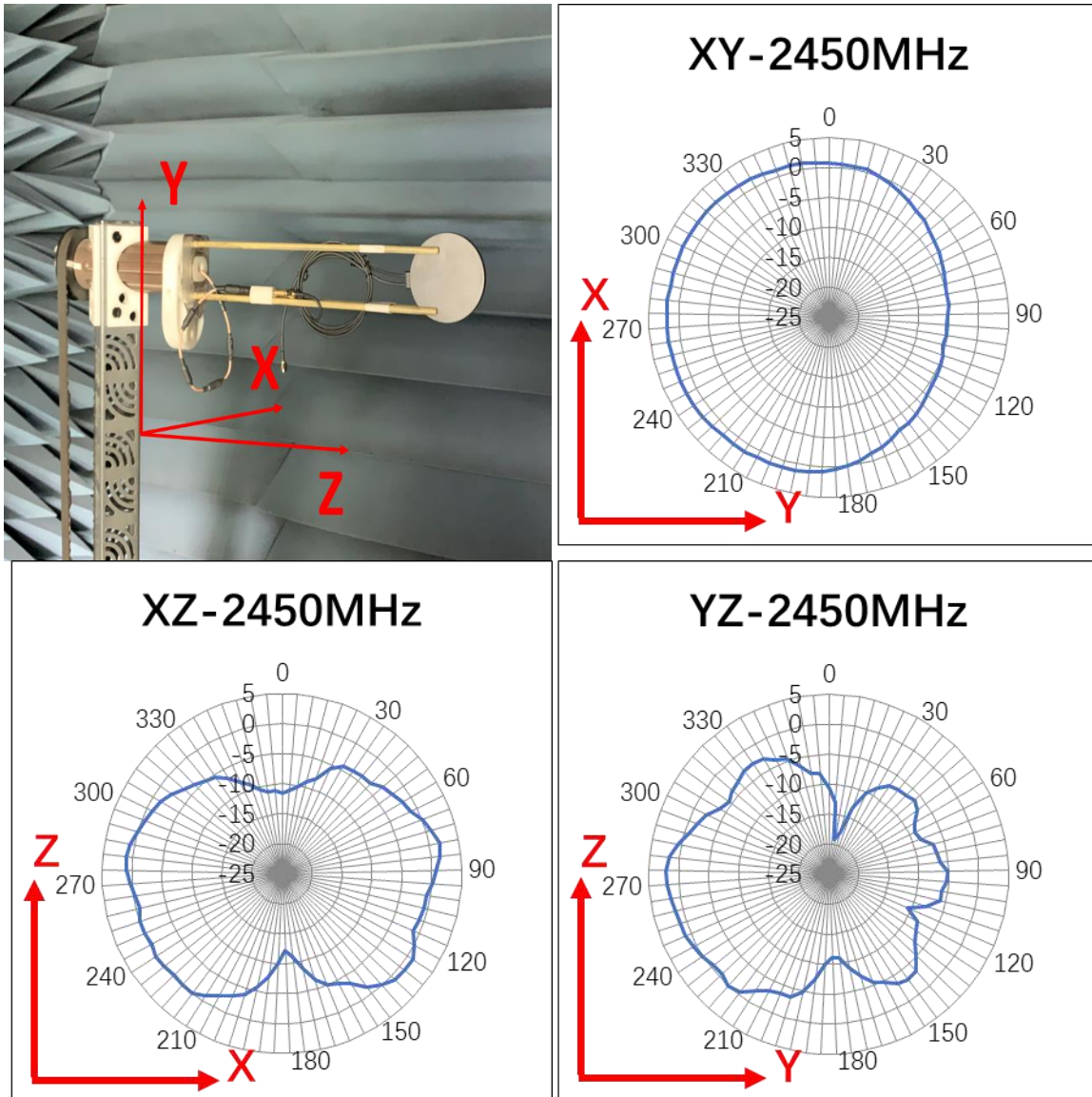


FIGURE 4.7.1 2D RADIATION PATTERN OF ANTENNA WITH PORT 1 AT 2450MHZ IN FREE SPACE

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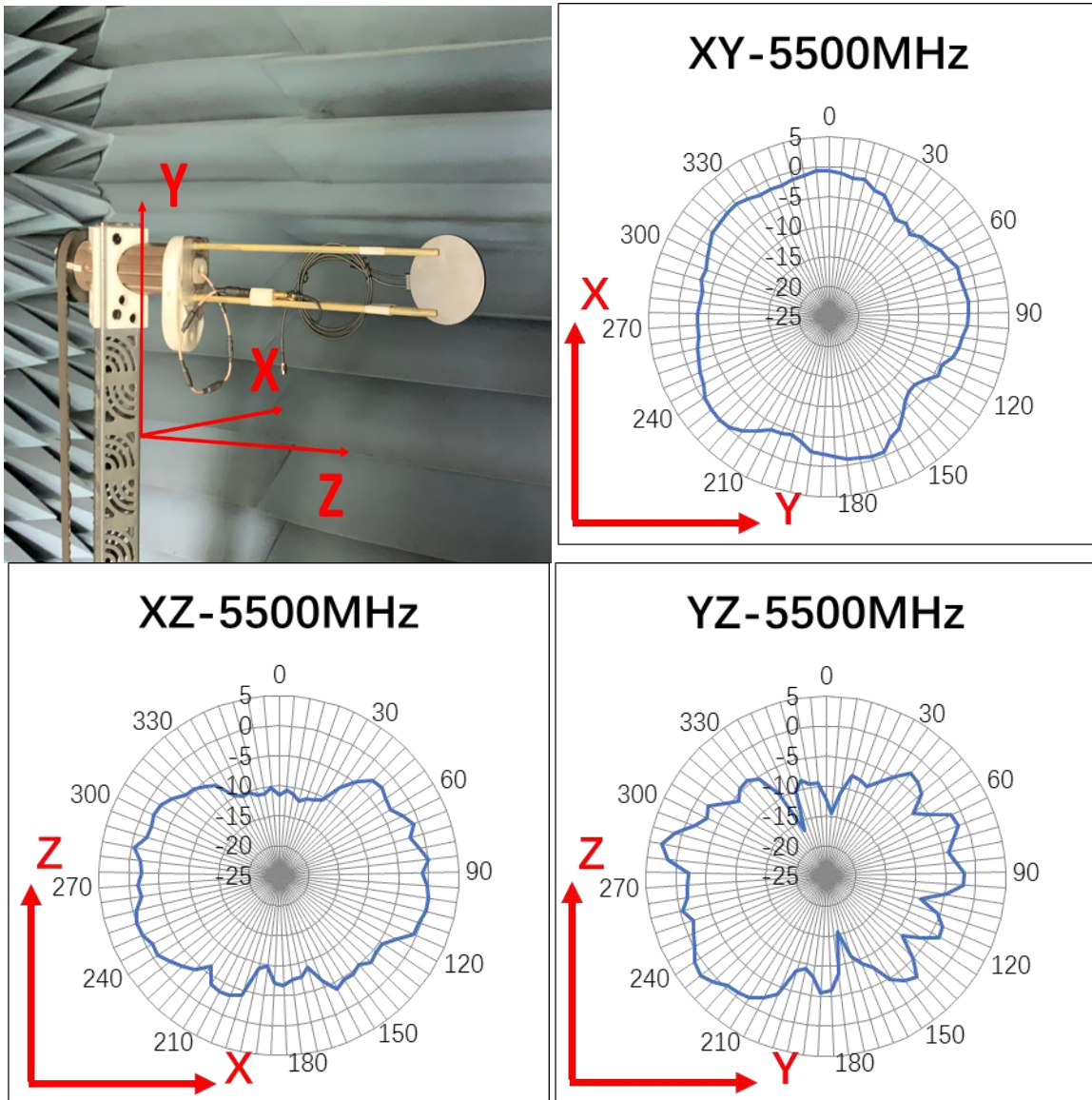


FIGURE 4.7.2 2D RADIATION PATTERN OF ANTENNA WITH PORT 1 AT 5500MHZ IN FREE SPACE

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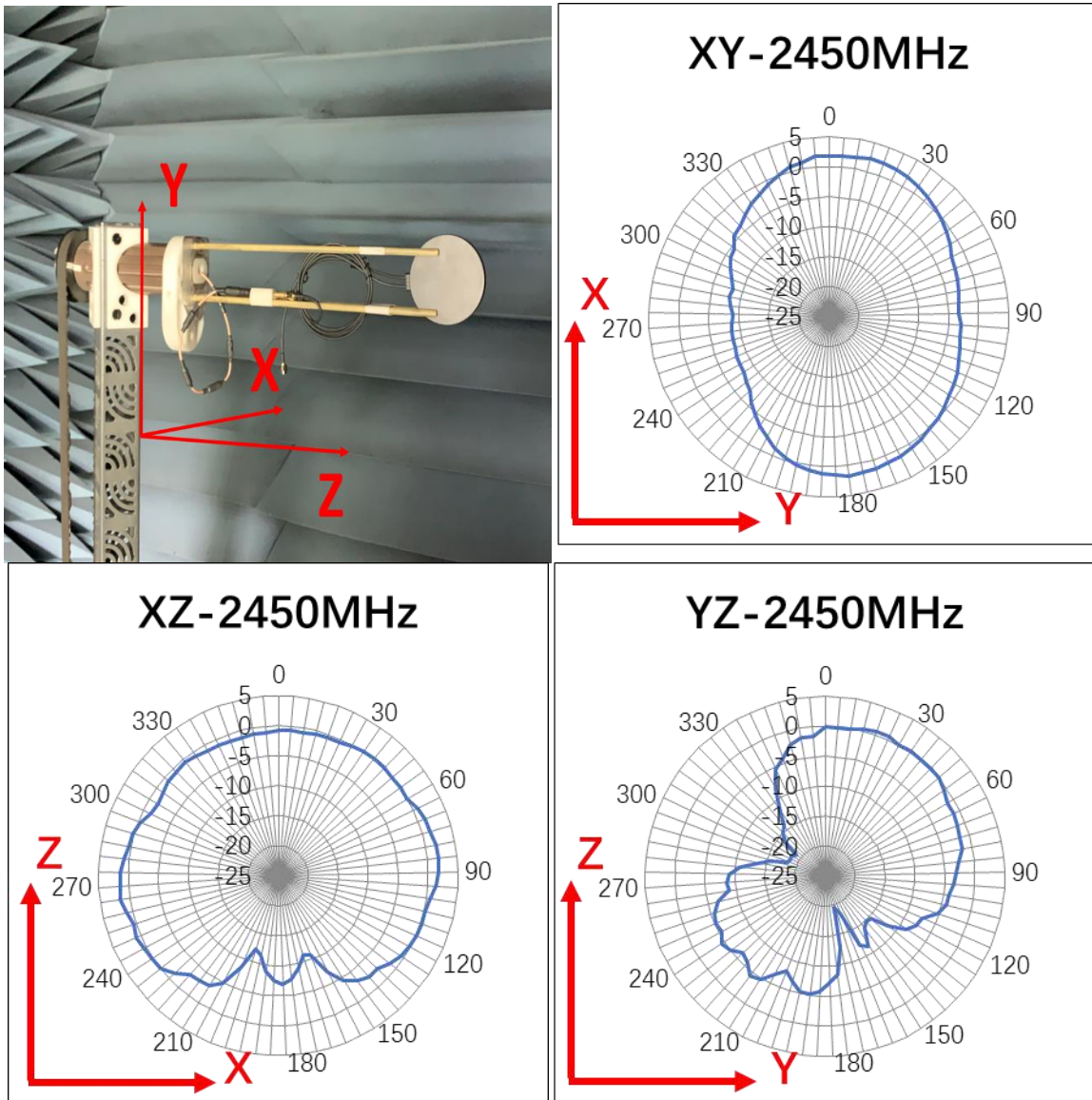


FIGURE 4.7.3 2D RADIATION PATTERN OF ANTENNA WITH PORT 2 AT 2450MHZ IN FREE SPACE

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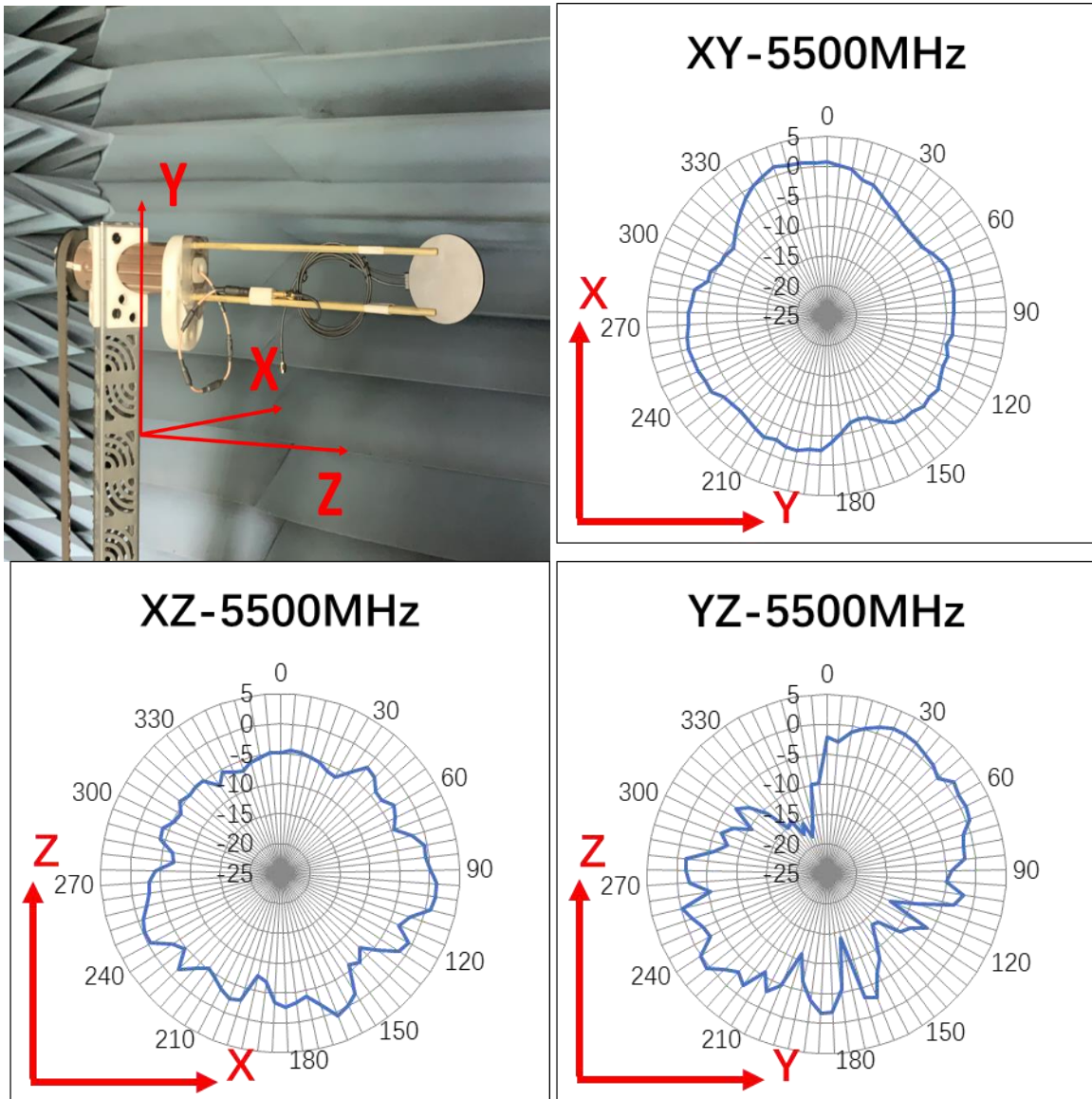


FIGURE 4.7.4 2D RADIATION PATTERN OF ANTENNA WITH PORT 2 AT 5500MHZ IN FREE SPACE

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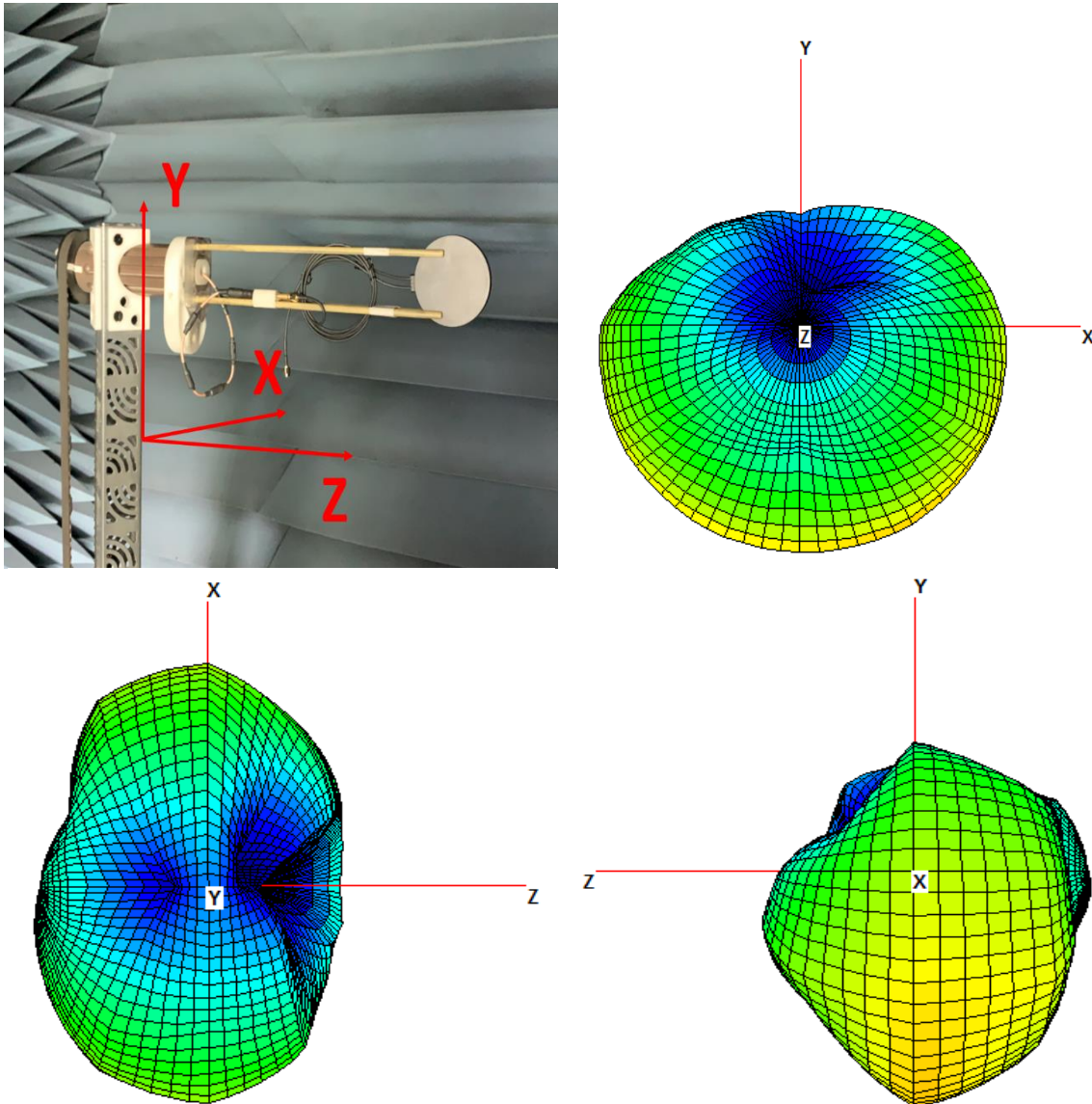


FIGURE 4.7.5 3D RADIATION PATTERN OF ANTENNA WITH PORT 1 AT 2450MHZ IN FREE SPACE

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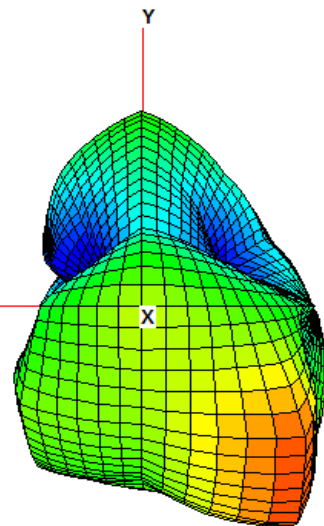
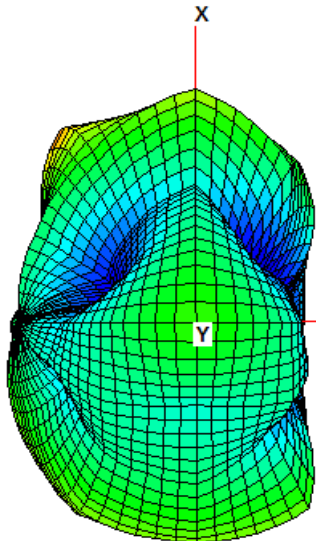
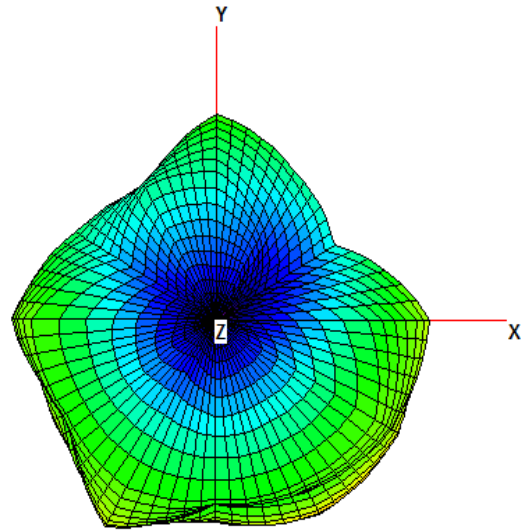
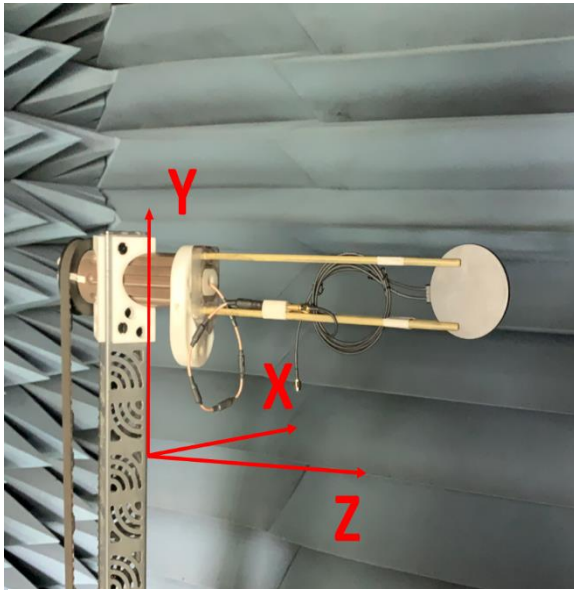


FIGURE 4.7.6 3D RADIATION PATTERN OF ANTENNA WITH PORT 1 AT 5500MHZ IN FREE SPACE

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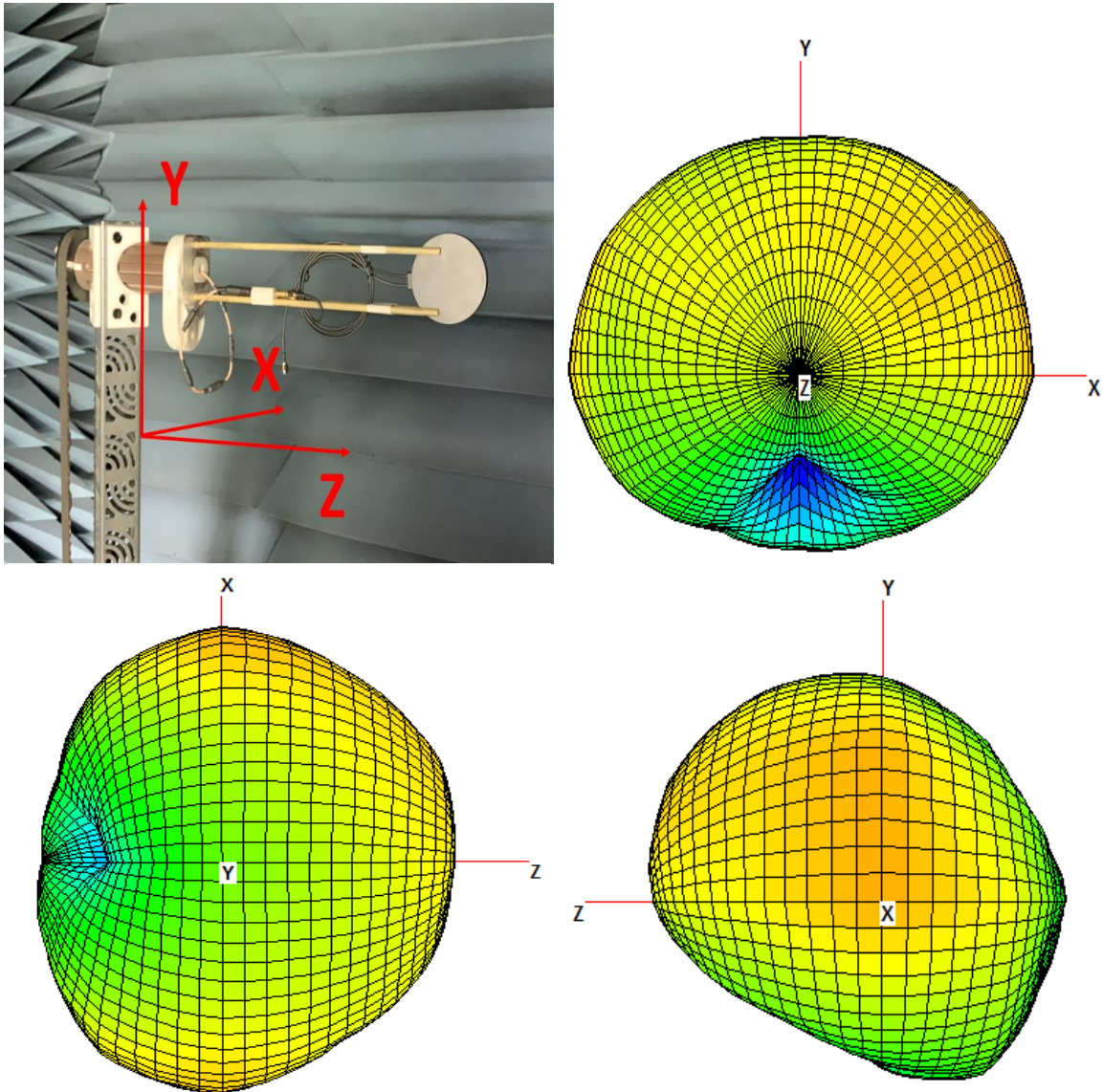


FIGURE 4.7.7 3D RADIATION PATTERN OF ANTENNA WITH PORT 2 AT 2450MHZ IN FREE SPACE

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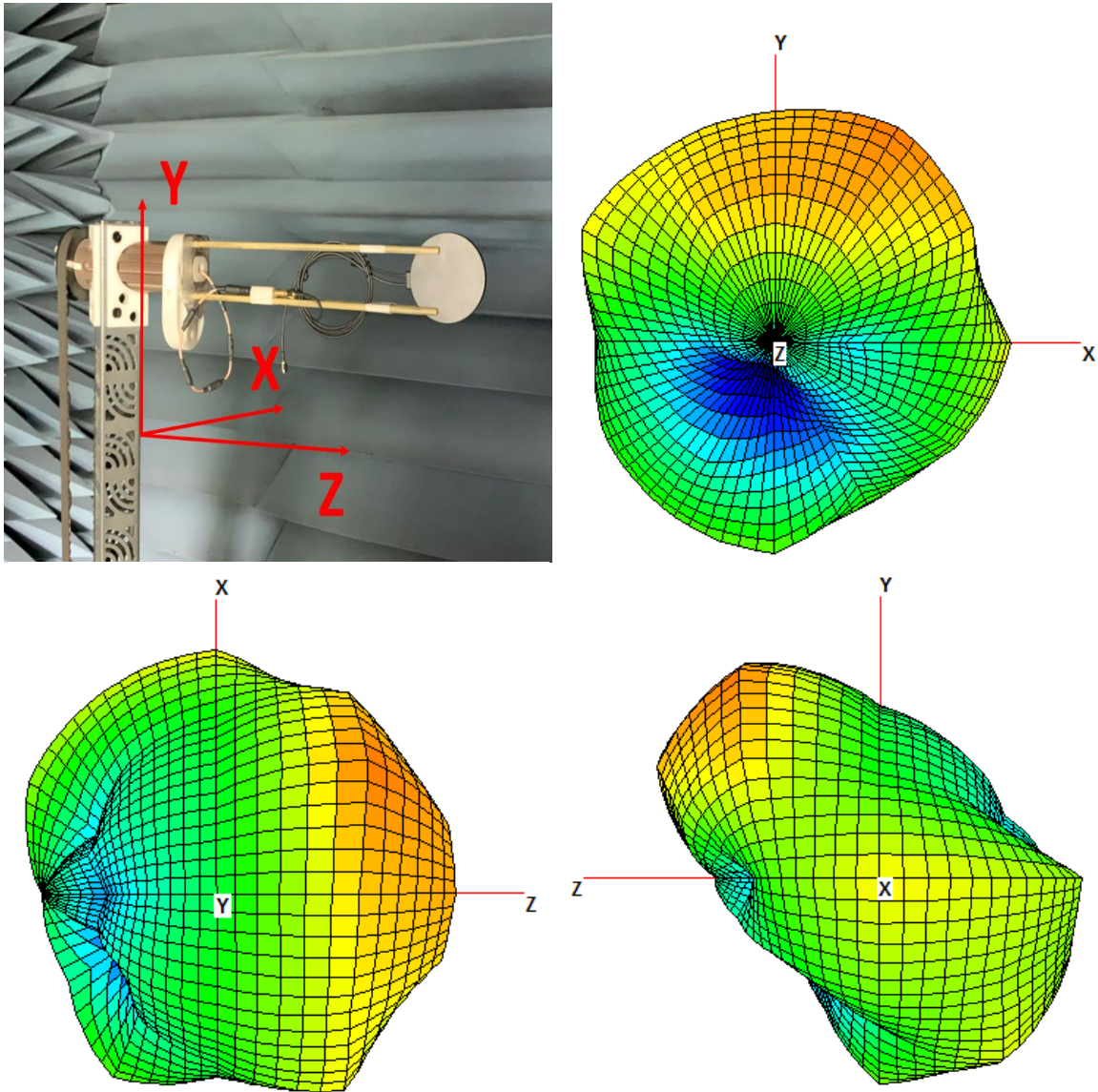


FIGURE 4.7.8 3D RADIATION PATTERN OF ANTENNA WITH PORT 2 AT 5500MHZ IN FREE SPACE

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CHANGE HISTORY			
REV	DATE	DESCRIPTION	PAGES CHANGED
A	2019/12/24	First Release	NA

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