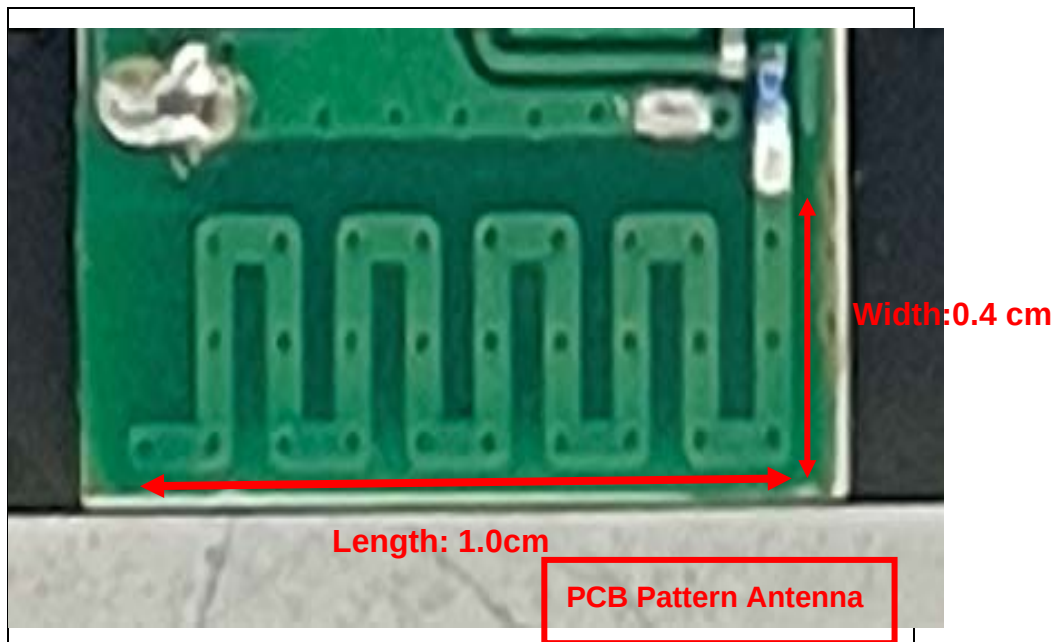
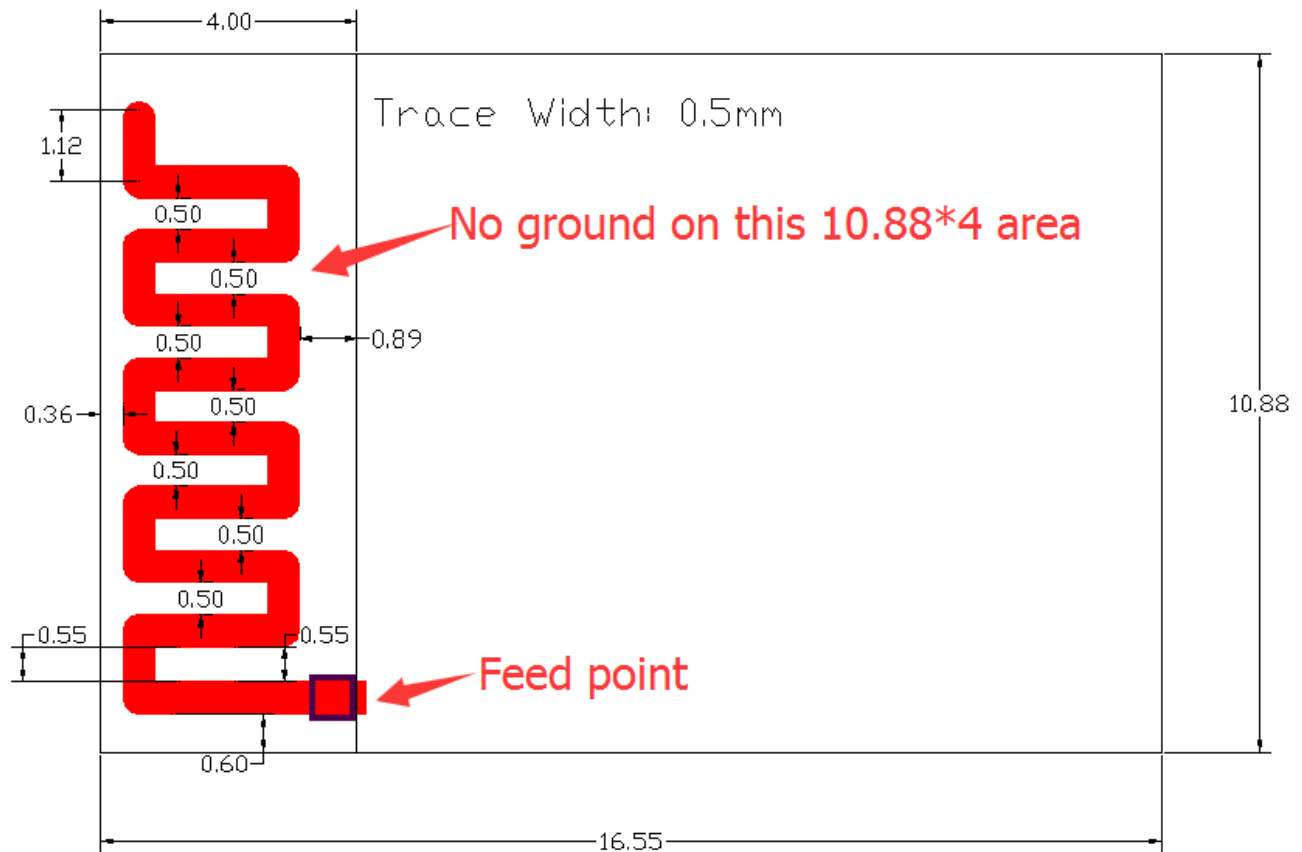


Antenna Information

Item	Contents
Antenna Type	PCB Pattern Antenna
Antenna peak gain	2 400 MHz ~ 2 483.5MHz: -0.49 dBi
Manufacturer / Model name	BDE Technology / BDE-BLEM201P
Address of manufacturer	China Guangzhou Office Creative Building B2-403, 162 Science Ave, Science City Guangzhou 510663, China
Test laboratory	BDE Technology
Length	1.0 cm
Width	0.4 cm

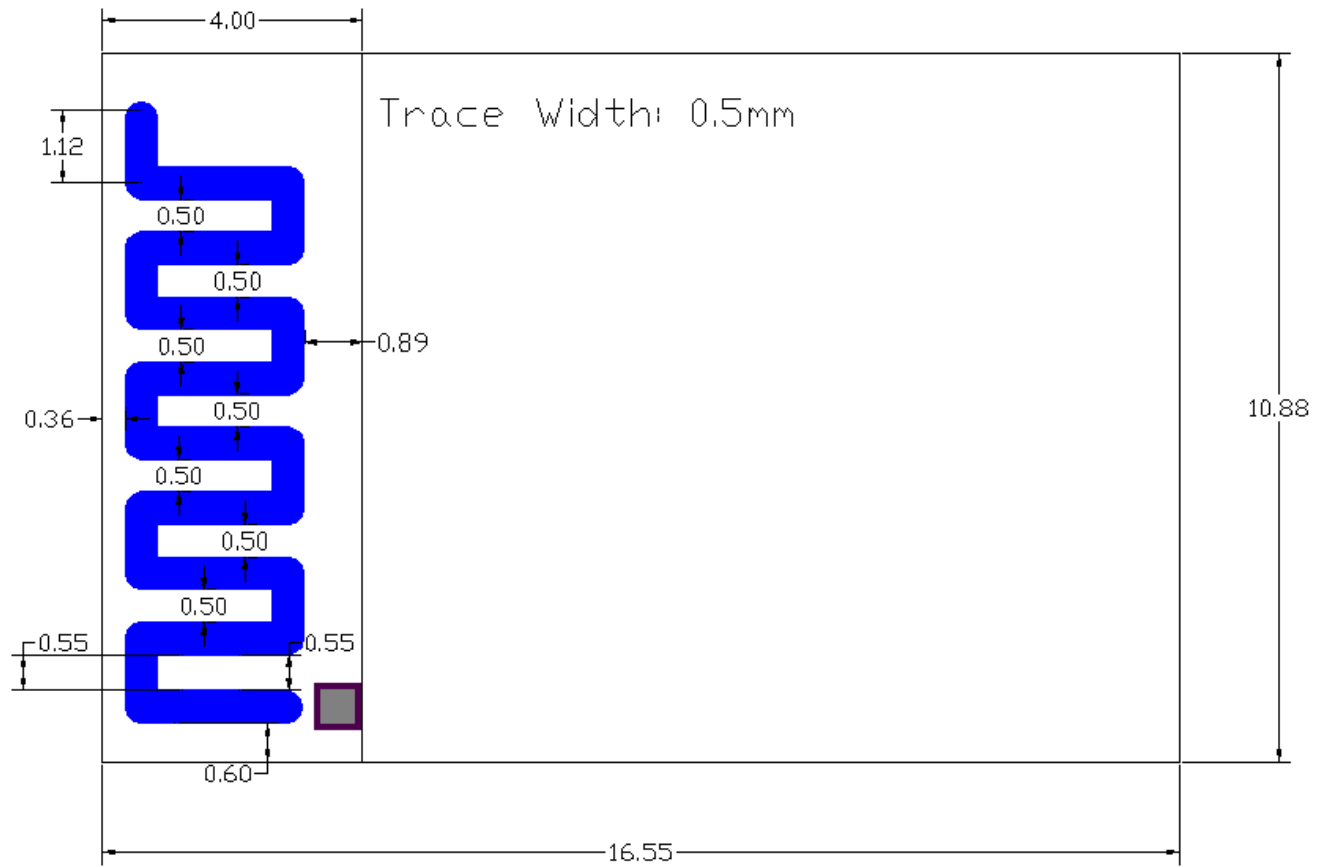


The Dimension of the antenna on BDE-BLEM201P



All dimensions are in mm

Fig.1 Top Layer



All dimensions are in mm

Fig.2 Bottom Layer

Note: The antenna traces of top layer and the bottom layer are connected by multiple vias.

Operator :

Operator Name

Date :

2015-05-08

Customer :

Customer Name

Time :

오전 11:21:00

Description :

Test Descriptions

Antenna Type

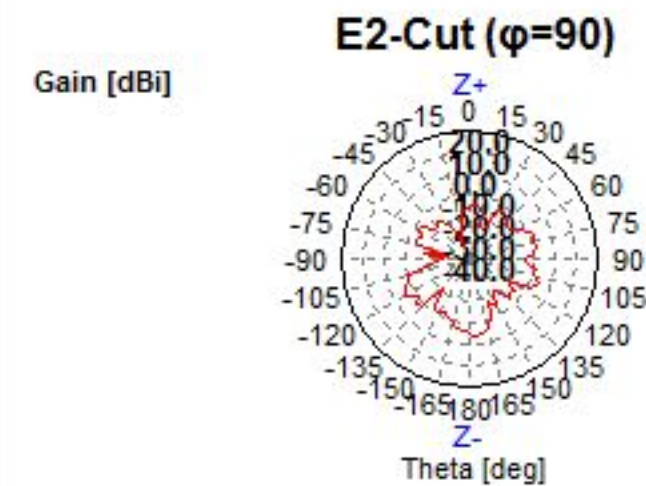
- ☒ Linear Polarization Type
- ☐ Circular Polarization Type

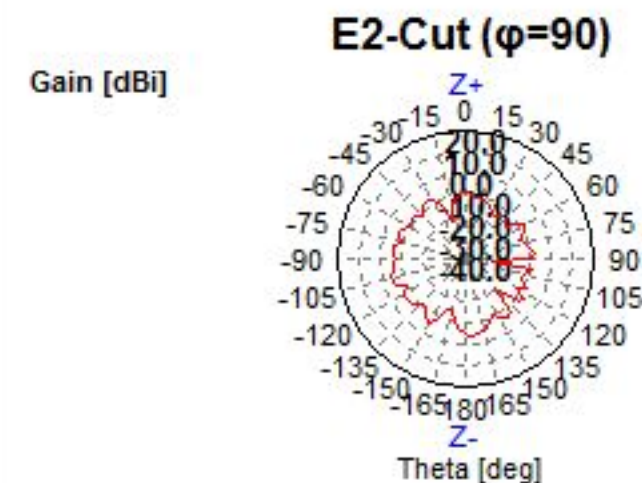
Sphere Type

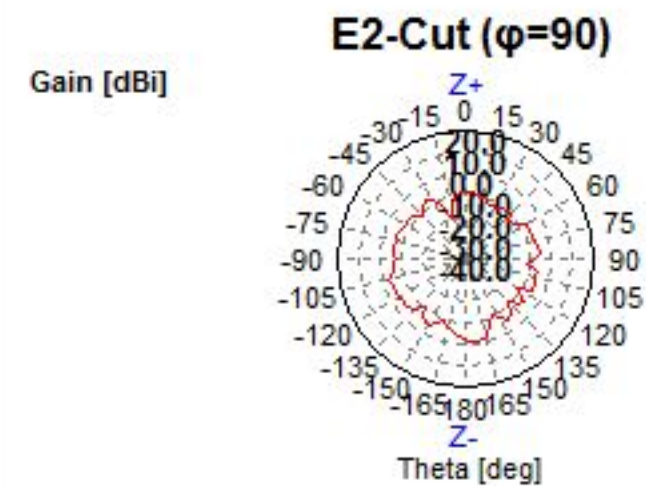
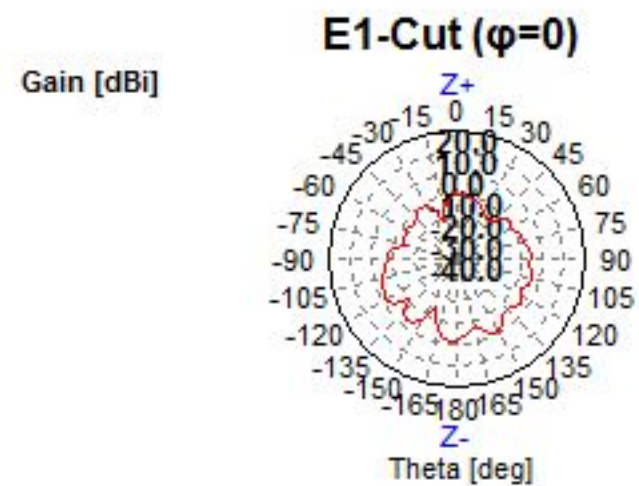
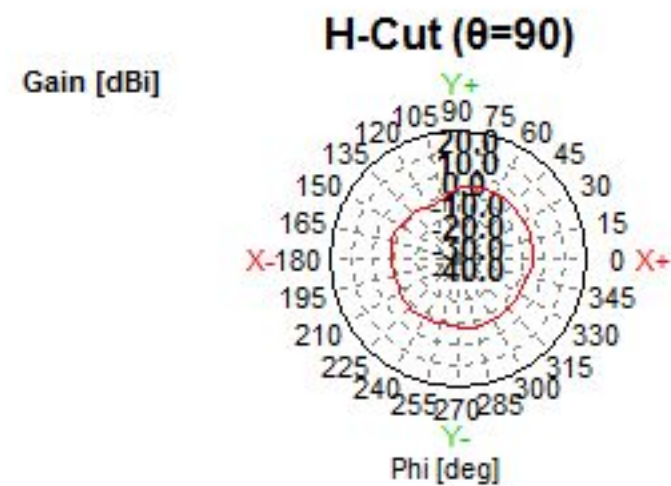
- ☒ Sphere
- ☐ Upper Hemi-Sphere

3D Result Summary :

		θ -Pol(H)					ϕ -Pol(V)					PwrSum				
No	Freq.[GHz]	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
1	2.400	10.23	-9.90	-1.99	120.00	185.00	10.19	-9.92	-1.83	145.00	215.00	20.42	-6.90	-0.49	175.00	115.00
2	2.450	10.64	-9.73	-2.21	120.00	185.00	10.67	-9.72	-1.51	145.00	220.00	21.31	-6.71	-0.68	175.00	90.00
3	2.500	9.45	-10.24	-3.11	110.00	315.00	8.97	-10.47	-2.03	145.00	225.00	18.42	-7.35	-1.98	150.00	10.00





[illegible]

Plot Data

Polarization :

Power-Sum

Frequency :

2,400
2,450
2,500

[GHz]

- Graph Option

Style

☒ Polar ☐ Rectangular

Zoom

H-Cut

E1-Cut

E2-Cut

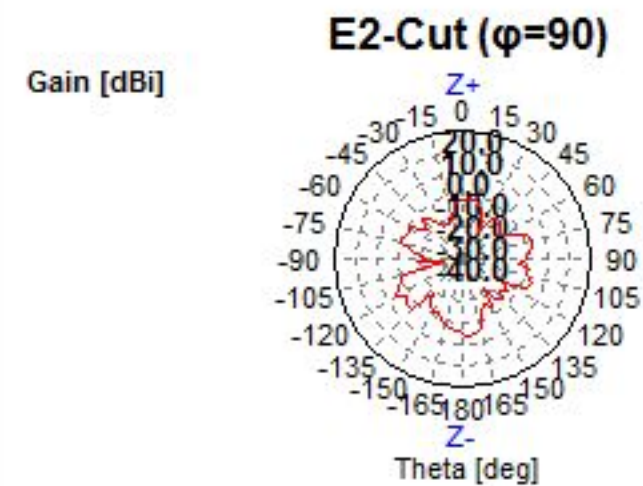
Scale

Max : 20

Min :

Apply

Apply



Plot Data

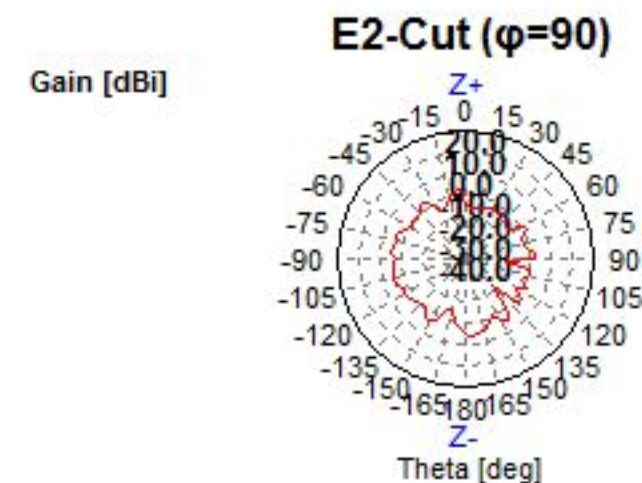
Polarization :

ϕ -pol(V)

Frequency :

2,400
2,450
2,500

[GHz]



Apply

Plot Data

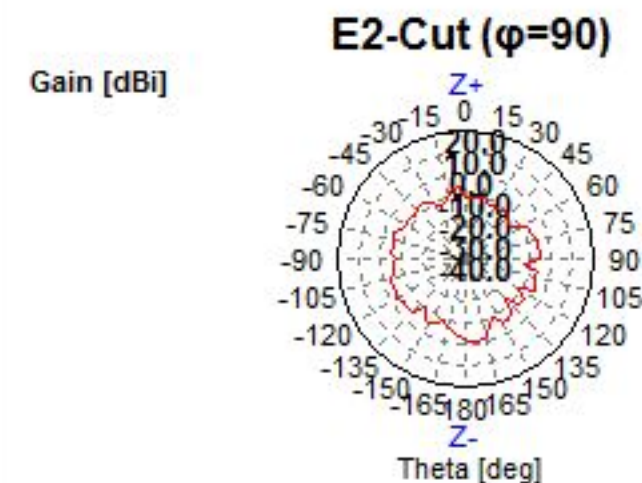
Polarization :

Power-Sum ▼

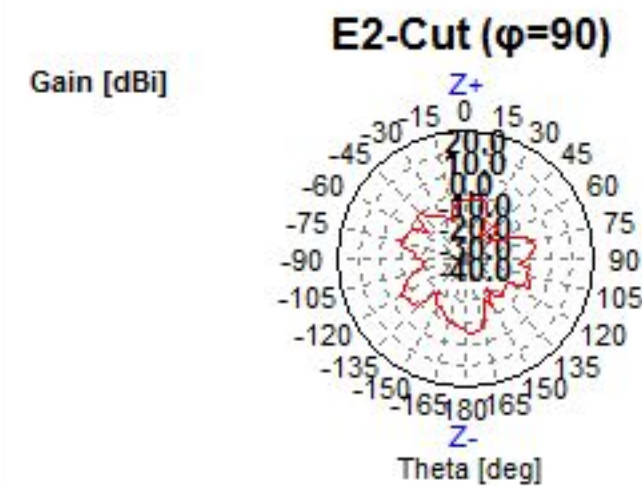
Frequency :

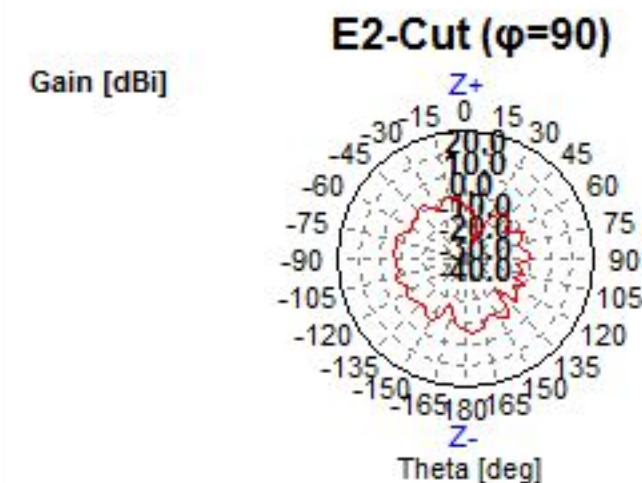
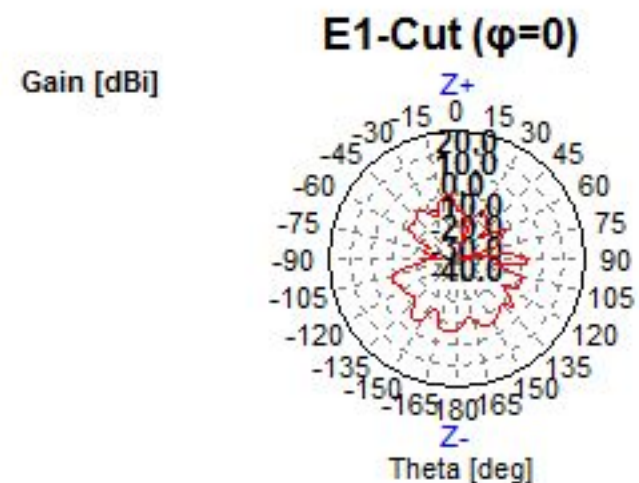
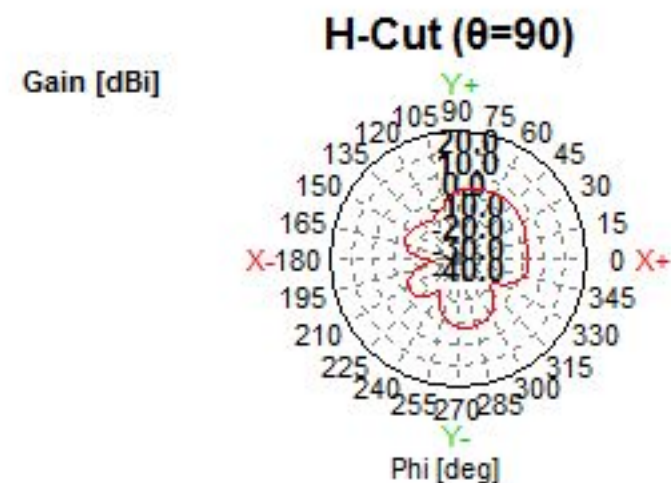
2,400
2,450
2,500

[GHz]



Apply



[illegible]

Plot Data

Polarization :

 $\varphi\text{-pol}(V)$

Frequency :

2,400
2,450
2,500

[GHz]

Graph Option

Style

☒ Polar ☐ Rectangular

Zoom

H-Cut

E1-Cut

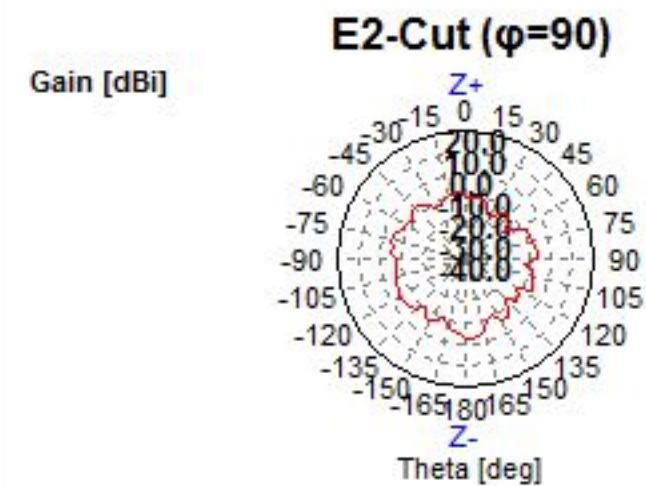
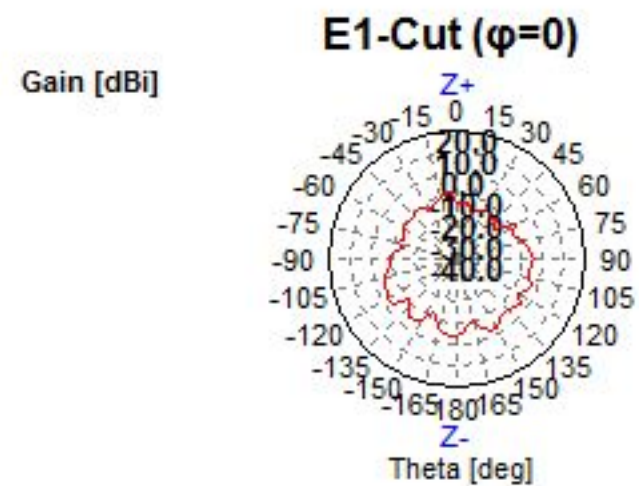
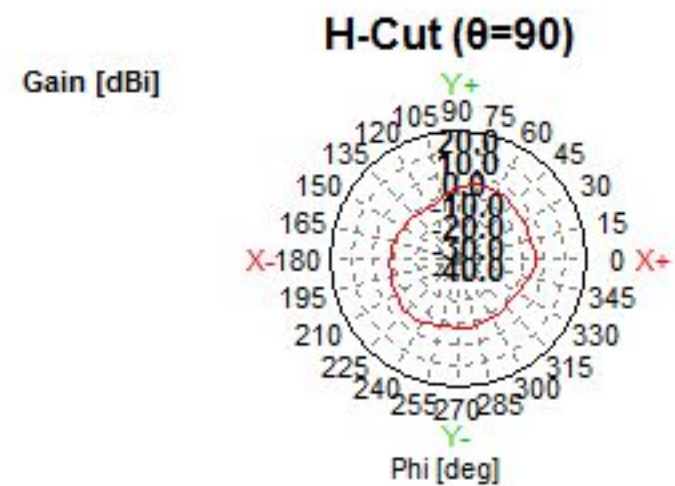
E2-Cut

Scale

Max : 20

Min :

Apply

[illegible]

Plot Data

Polarization :

Power-Sum

Frequency :

2,400
2,450
2,500

[GHz]

Graph Option

Style

☒ Polar ☐ Rectangular

Zoom

H-Cut

E1-Cut

E2-Cut

Scale

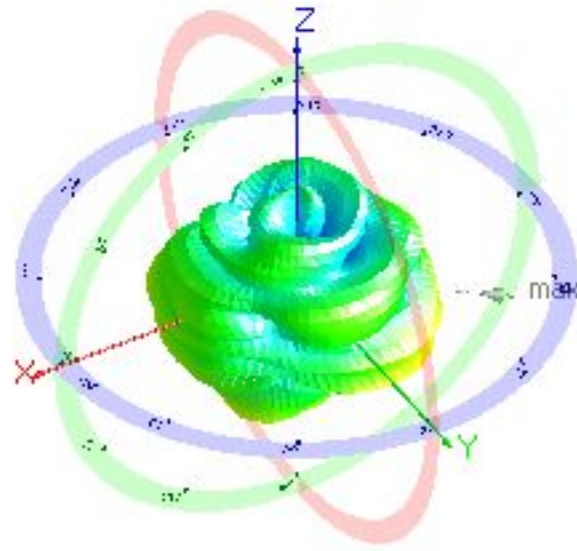
Max : 20

Min : -40

Apply

zm

2.400GHz



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

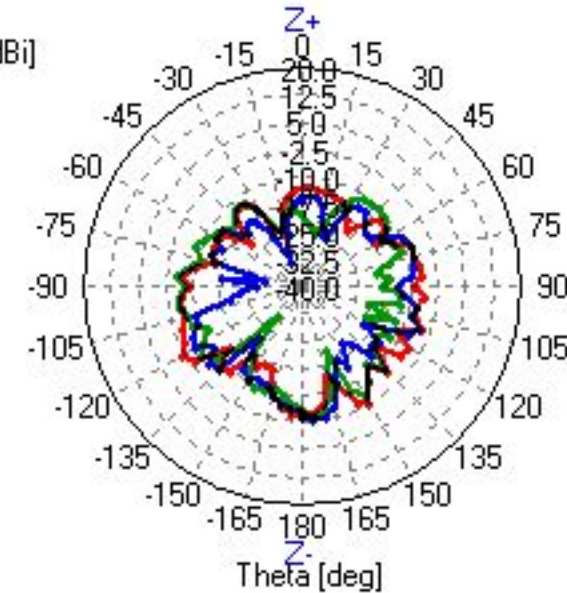
max -1.99

-43.65

R<->P

Theta-Cut

[dBi]



$\phi = 0.0$ deg

$\phi = 45.0$ deg

$\phi = 90.0$ deg

Plot Data

Polarization :

 θ -pol(H)

Frequency :

2.400 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

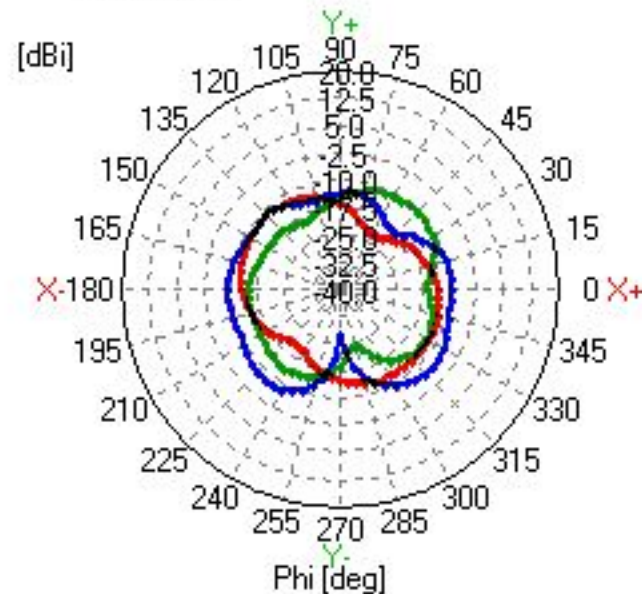
Min : -40

Apply

R<->P

Phi-Cut

[dBi]



$\Theta = 0.0$ deg

$\Theta = 45.0$ deg

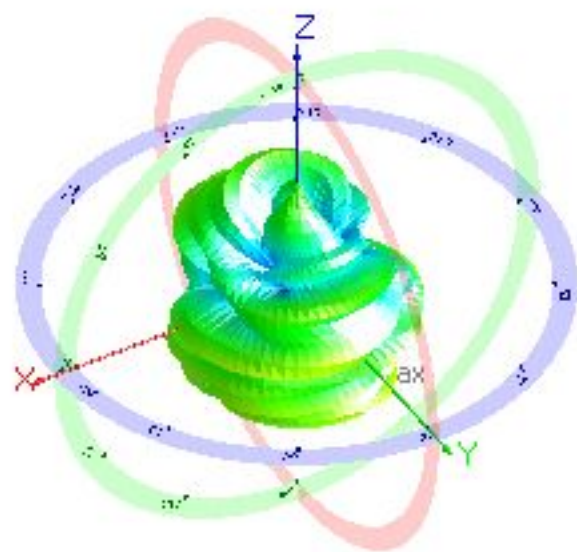
$\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
1	2.400	10.23	-9.90	-1.99	120.00	185.00

zm

zm

2.400GHz



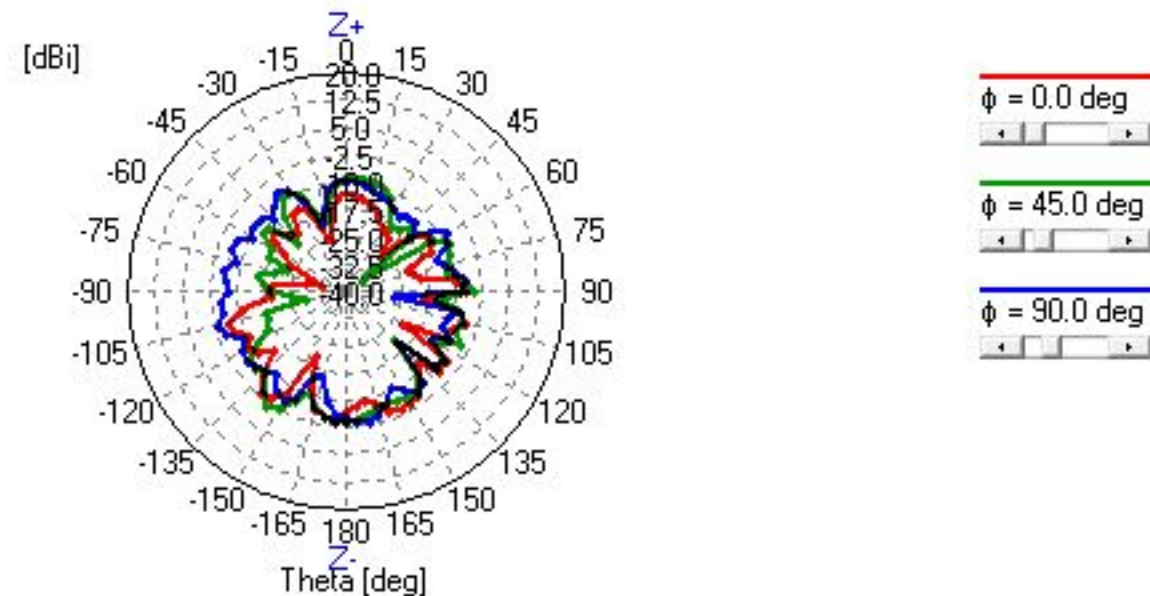
[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00
-44.75

max
-1.83

R<->P

Theta-Cut



$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

Plot Data

Polarization :

 ϕ -pol(V)

Frequency :

2.400 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

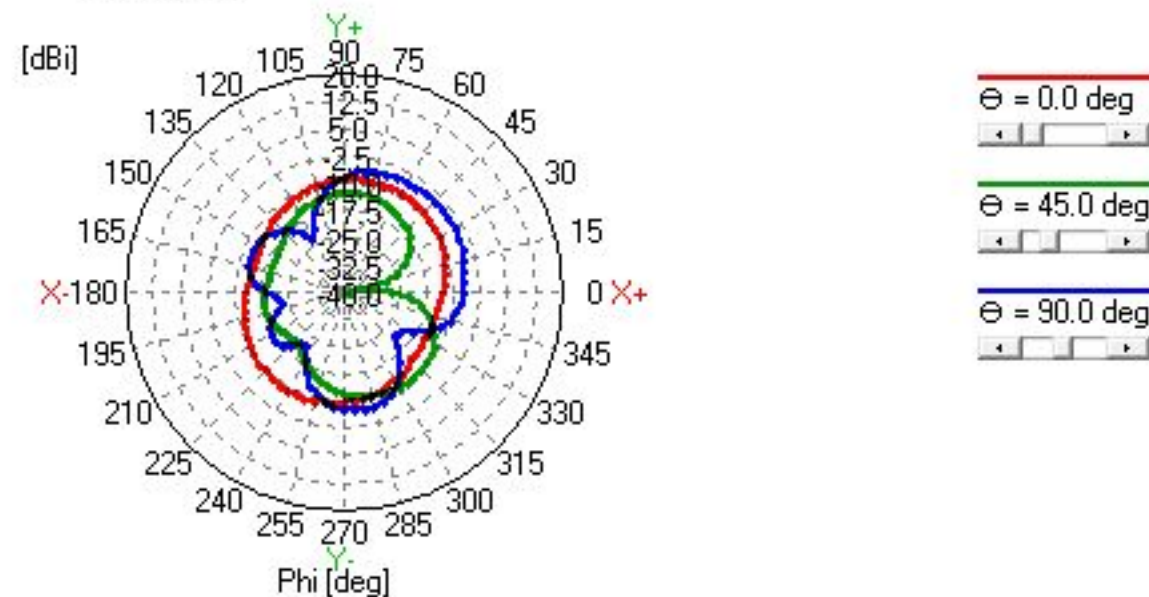
Max : 20

Min : -40

Apply

R<->P

Phi-Cut



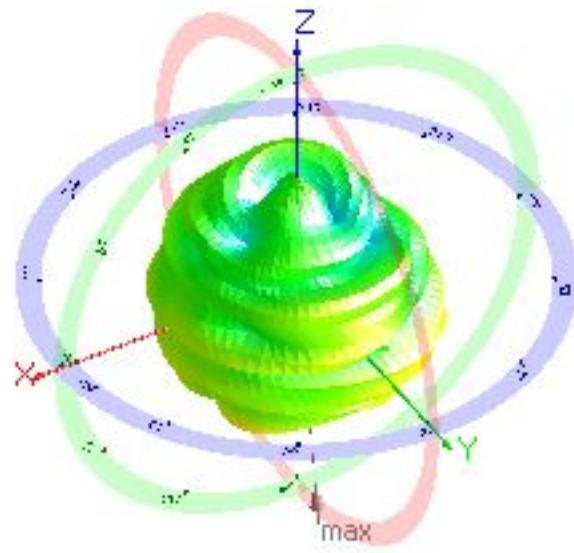
$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
1	2.400	10.19	-9.92	-1.83	145.00	215.00

zm

zm

2.400GHz



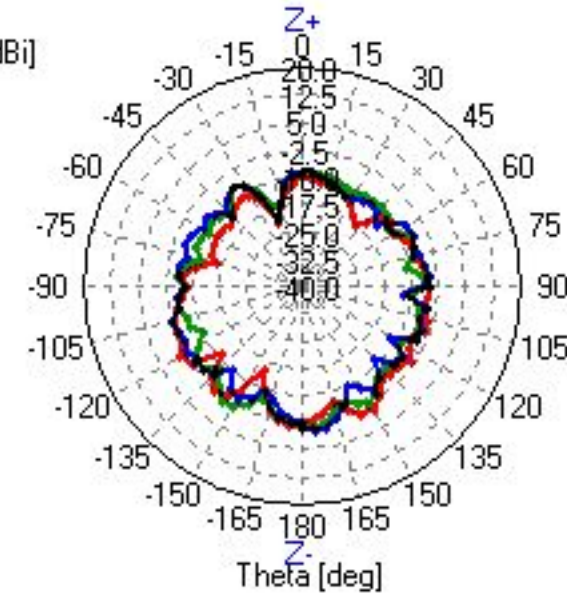
[dBi]

20.00
12.50
-0.49 max
-10.00
-17.50
-22.63 min
-32.50
-40.00

R<->P

Theta-Cut

[dBi]

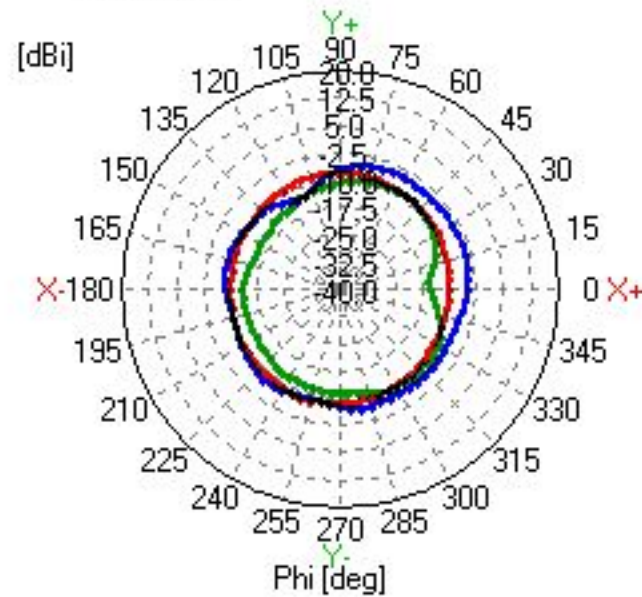


$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

R<->P

Phi-Cut

[dBi]



$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
1	2.400	20.42	-6.90	-0.49	175.00	115.00

zm

Plot Data

Polarization :

Powr-Sum

Frequency :

2.400 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

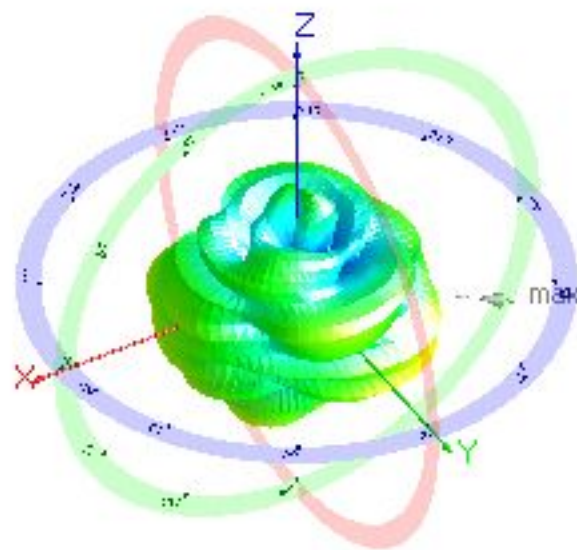
Max : 20

Min : -40

Apply

zm

2.450GHz



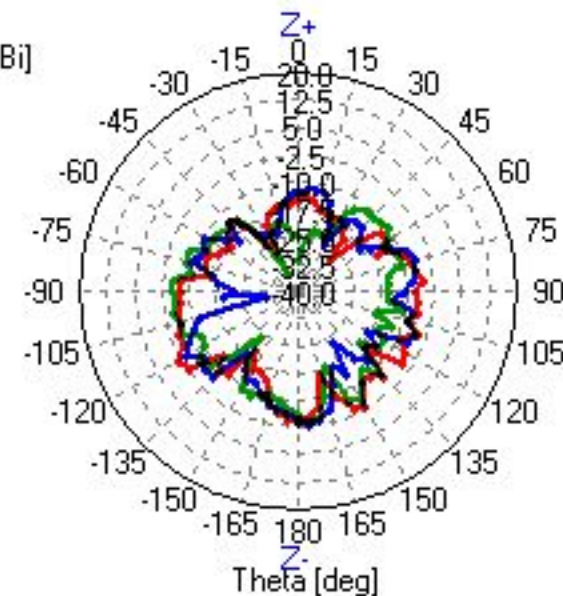
[dBi]

20.00
12.50
-2.21
-10.00
-17.50
-32.50
-40.00
-46.56

R<->P

Theta-Cut

[dBi]



$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

Plot Data

Polarization :

 θ -pol(H)

Frequency :

2.450 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

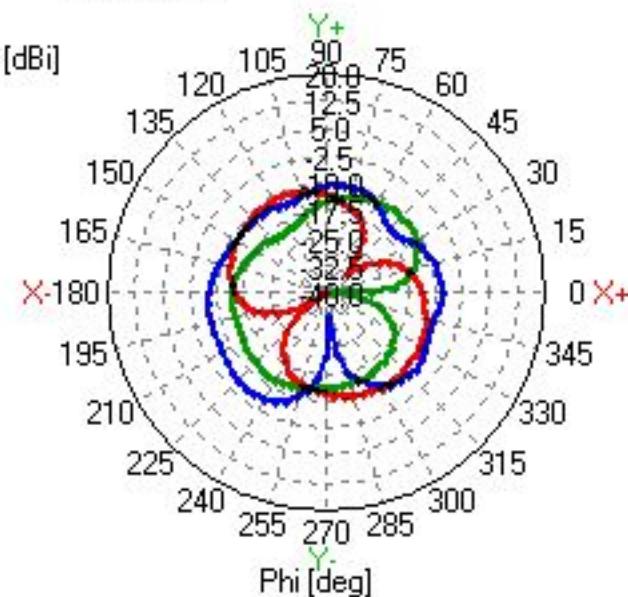
Min : -40

Apply

R<->P

Phi-Cut

[dBi]



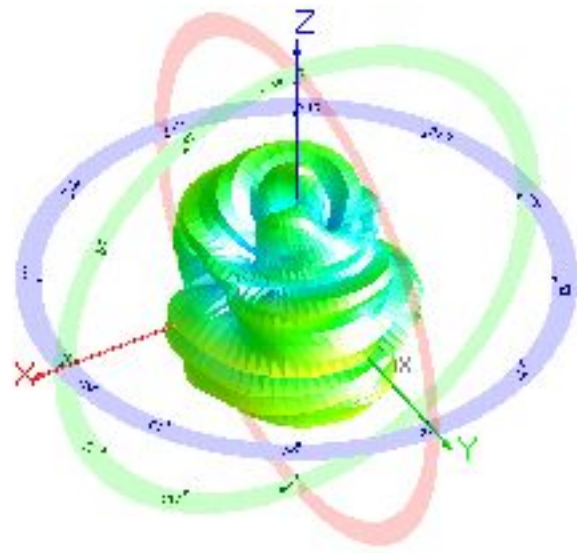
$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
2	2.450	10.64	-9.73	-2.21	120.00	185.00

zm

zm

2.450GHz



[dBi]

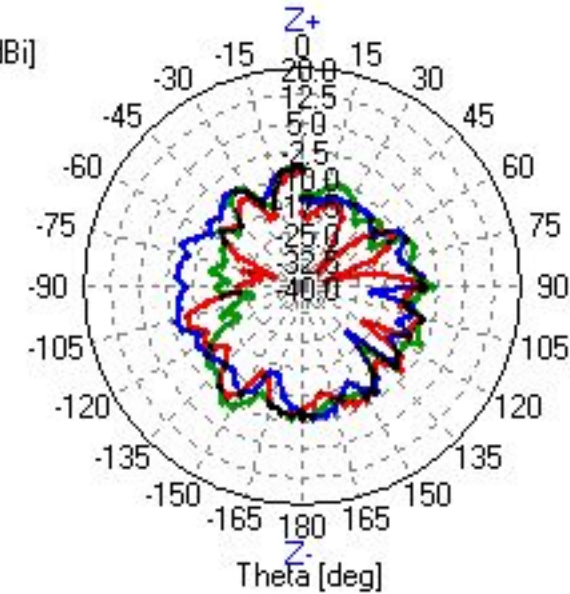
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
-1.51
-45.98

R<->P

Theta-Cut

[dBi]



$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

Plot Data

Polarization :

 ϕ -pol(V)

Frequency :

2.450 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

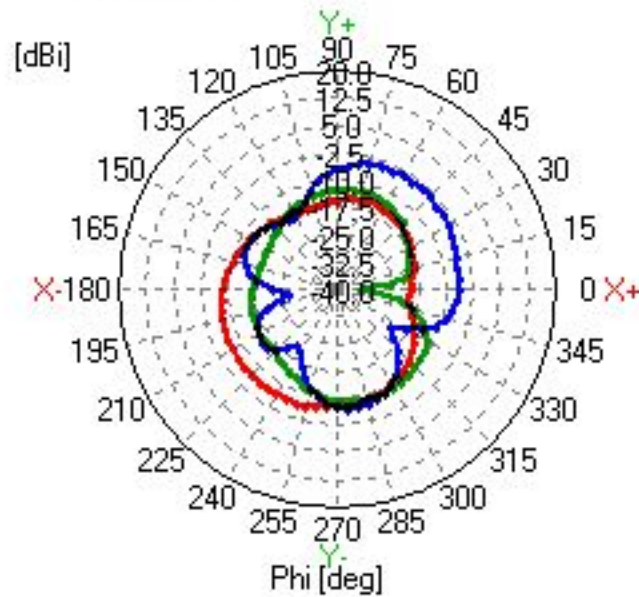
Min : -40

Apply

R<->P

Phi-Cut

[dBi]



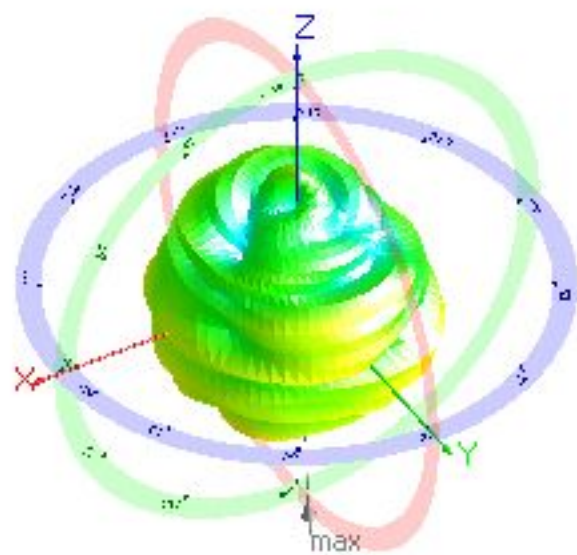
$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
2	2.450	10.67	-9.72	-1.51	145.00	220.00

zm

zm

2.450GHz

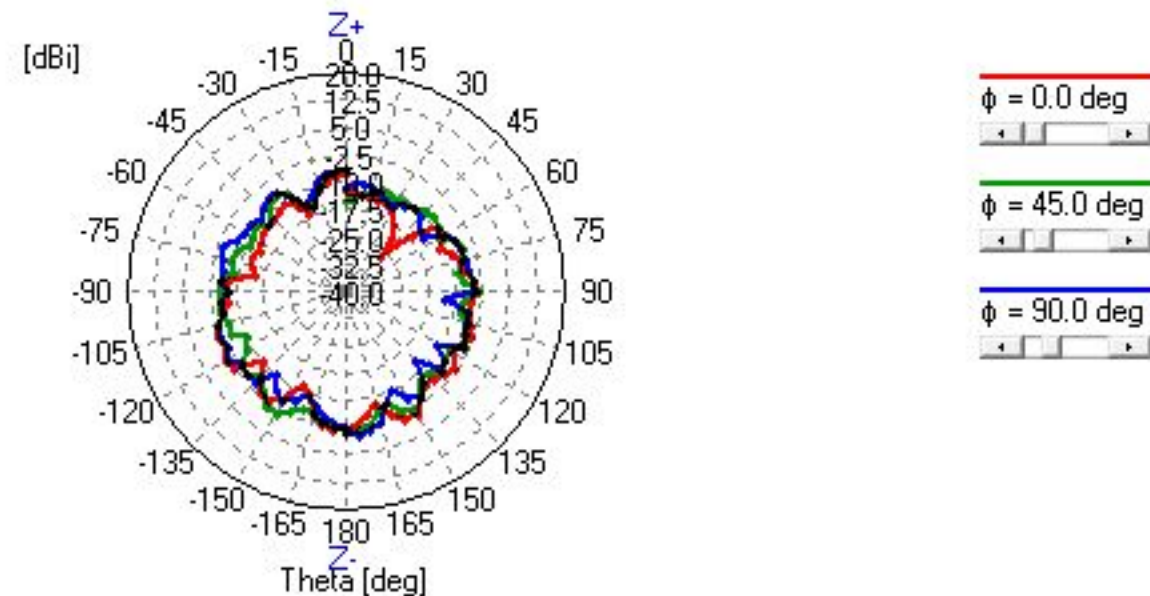


[dBi]

20.00
12.50
-0.68
-2.50
-10.00
-17.50
-29.96
-32.50
-40.00

R<->P

Theta-Cut



zm

Plot Data

Polarization :

Powr-Sum

Frequency :

2.450 [GHz]

Graph Option

☐ AutoRotation☐ View Phone☐ SphereMapping☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

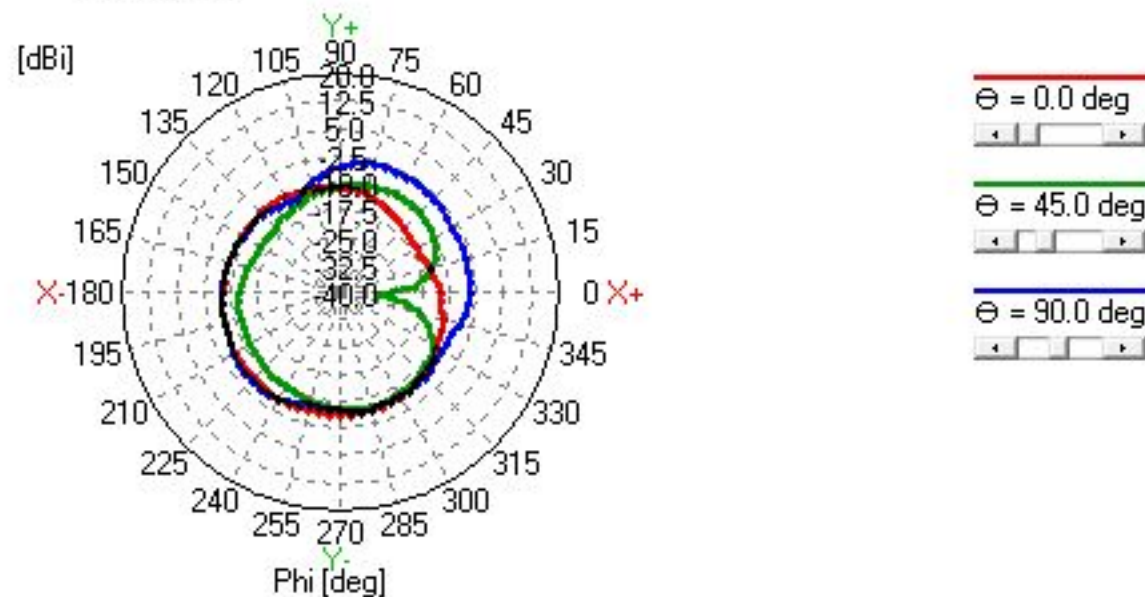
Max : 20

Min : -40

Apply

R<->P

Phi-Cut

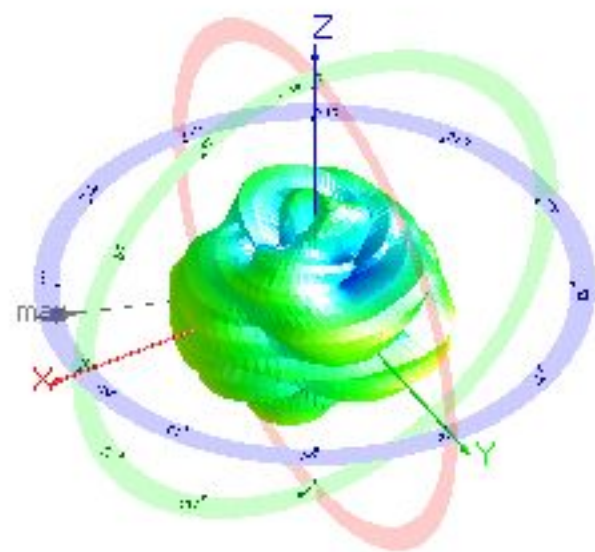


zm

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
2	2.450	21.31	-6.71	-0.68	175.00	90.00

zm

2.500GHz



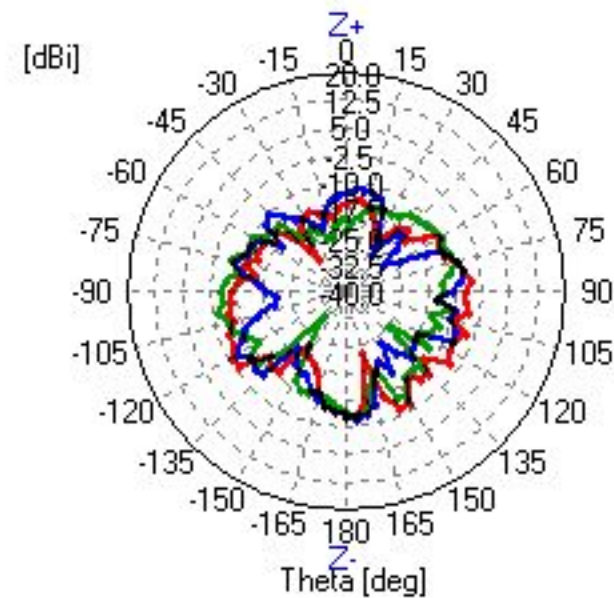
[dBi]

20.00
12.50
-3.11
-10.00
-17.50
-32.50
-40.00
-46.49

R<->P

Theta-Cut

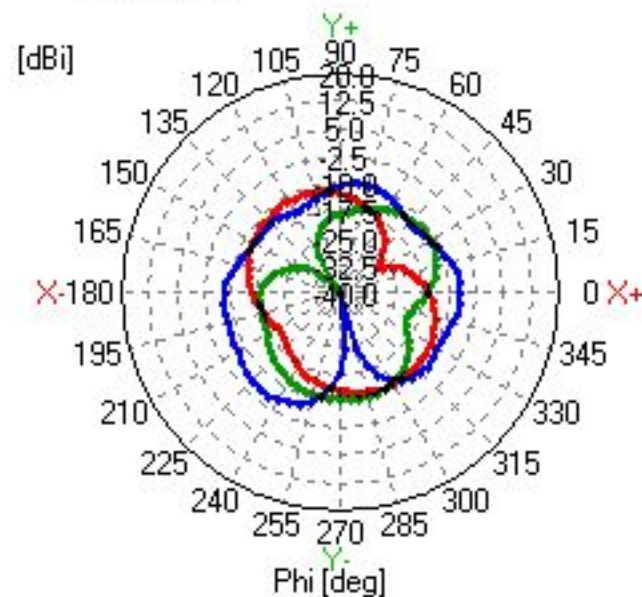
zm



$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

R<->P

Phi-Cut



$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
3	2.500	9.45	-10.24	-3.11	110.00	315.00

Plot Data

Polarization :

 θ -pol(H)

Frequency :

2.500 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

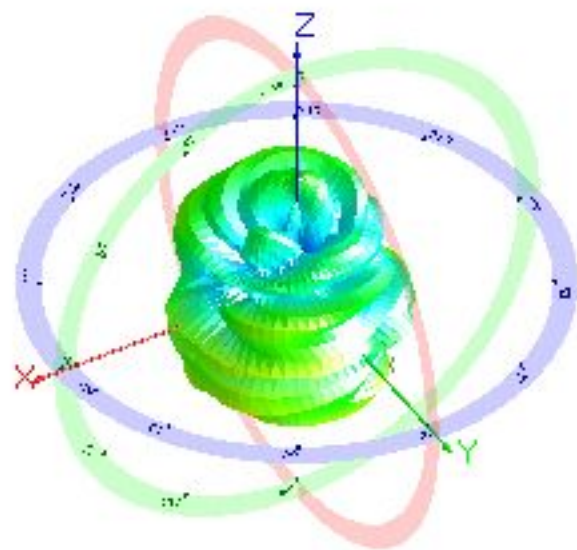
Max : 20

Min : -40

Apply

zm

2.500GHz



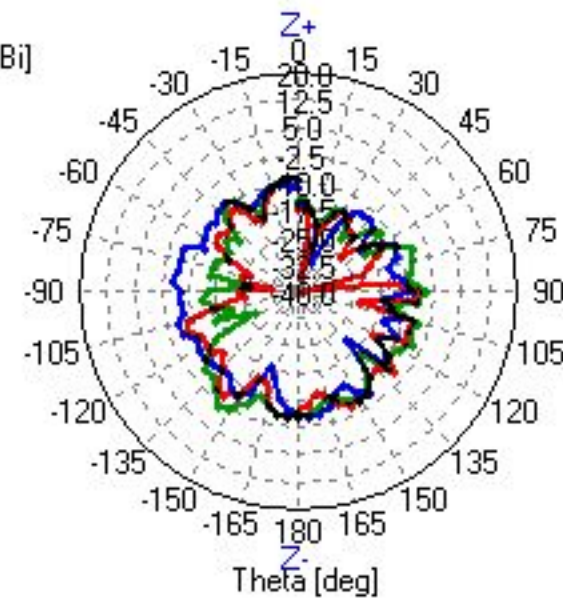
[dBi]

20.00
12.50
-2.03
-10.00
-17.50
-32.50
-40.00
-47.52

R<->P

Theta-Cut

[dBi]



$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

Plot Data

Polarization :

 ϕ -pol(V)

Frequency :

2.500 [GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

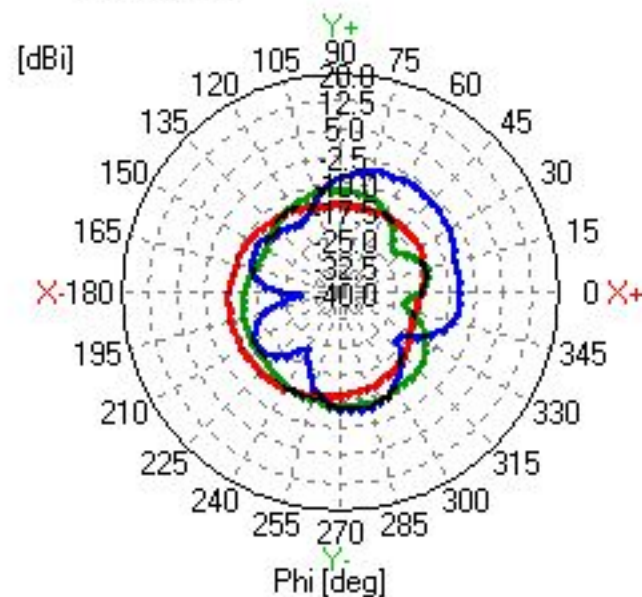
Min : -40

Apply

R<->P

Phi-Cut

[dBi]



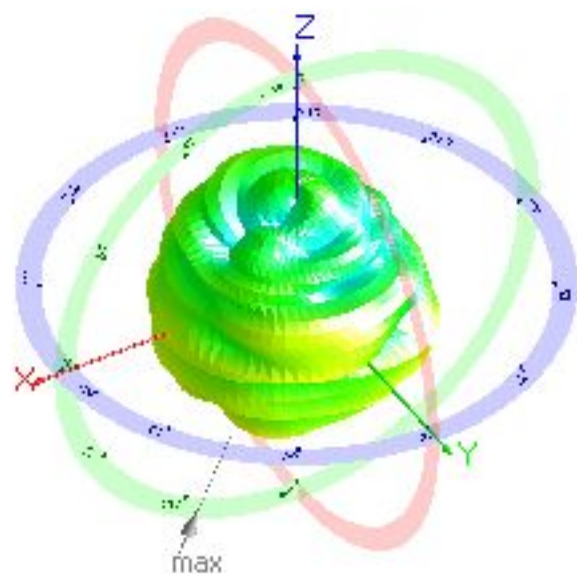
$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
3	2.500	8.97	-10.47	-2.03	145.00	225.00

zm

zm

2.500GHz



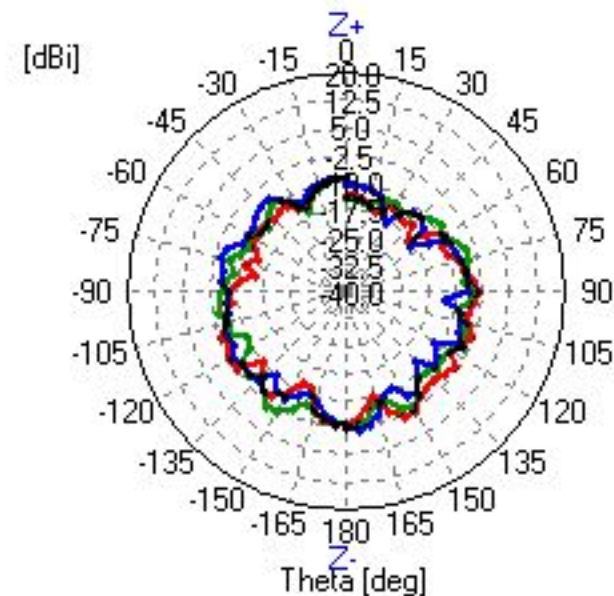
[dBi]

20.00
12.50
-1.98
-10.00
-17.50
-25.83
-32.50
-40.00

R<->P

Theta-Cut

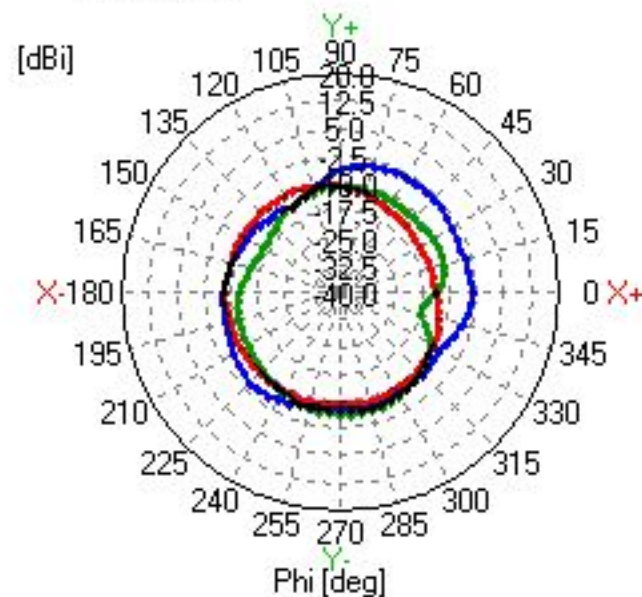
zm



$\phi = 0.0$ deg
 $\phi = 45.0$ deg
 $\phi = 90.0$ deg

R<->P

Phi-Cut



$\Theta = 0.0$ deg
 $\Theta = 45.0$ deg
 $\Theta = 90.0$ deg

No	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ [deg]	ϕ [deg]
3	2.500	18.42	-7.35	-1.98	150.00	10.00

Plot Data

Polarization :

Powr-Sum

Frequency :

2.500 [GHz]

Graph Option

☐ AutoRotation☐ View Phone☐ SphereMapping☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

Min : -40

Apply

Summary

Multiple Frequency

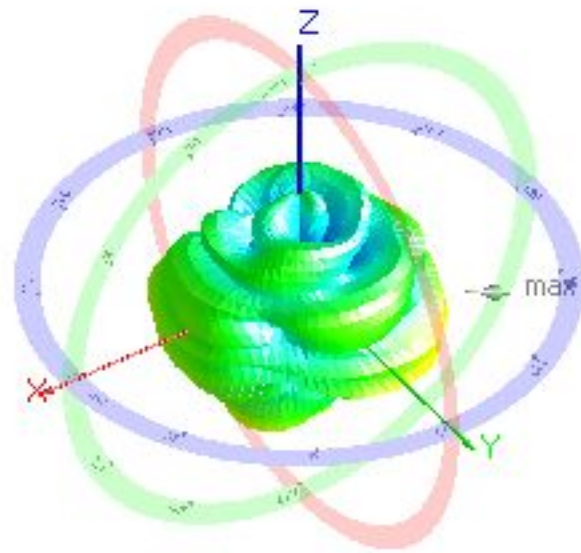
Multiple Cut

3D-View

Reserved

zm

2.400GHz



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max -1.99

-43.65

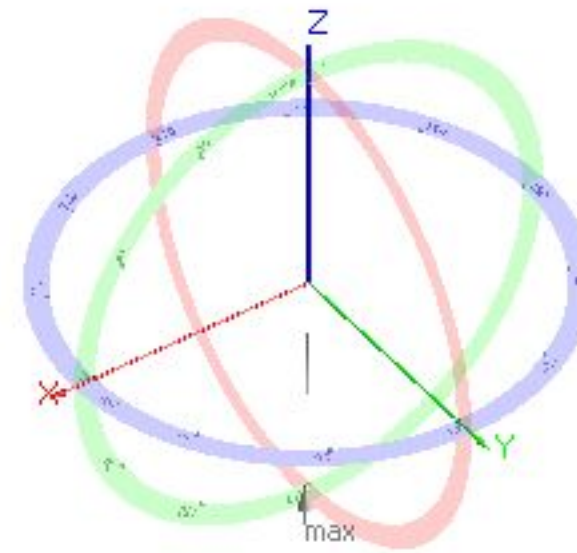
N/A

[dBi]

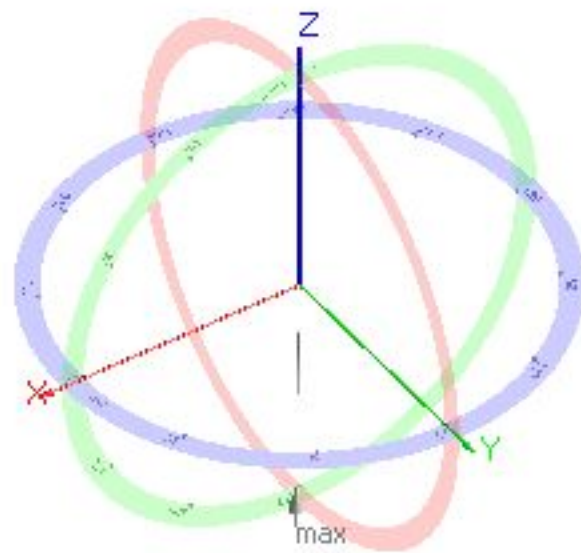
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max 0.00

0.00



N/A



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max 0.00

0.00

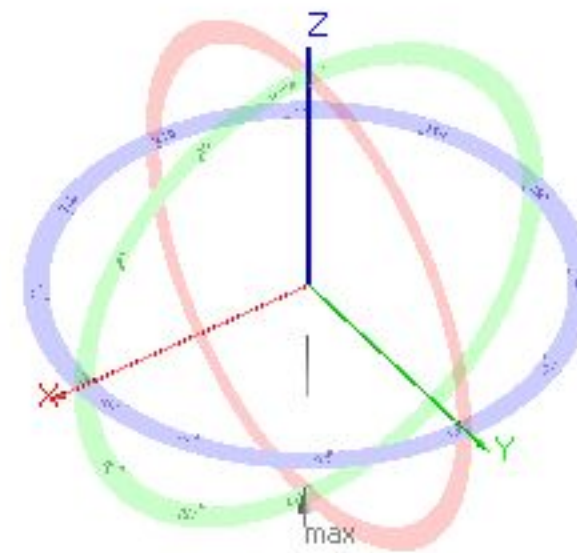
N/A

[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max 0.00

0.00



zm

Plot Data

Polarization :

Frequency :

2.400	[GHz]
2.450	
2.500	

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

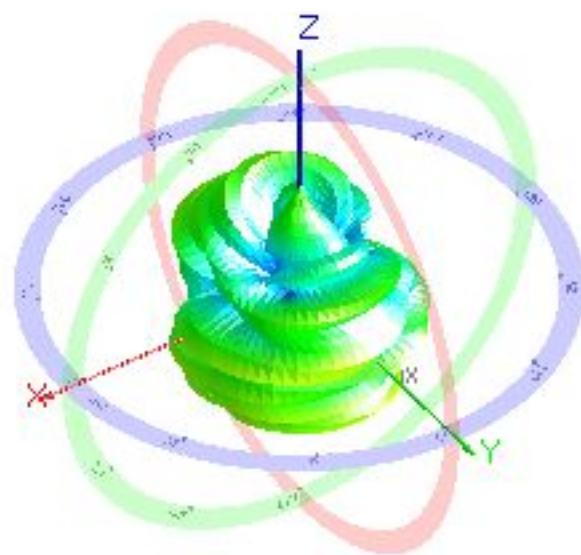
Max : 20

Min : -40

Apply

zm

2.400GHz



[dBi]

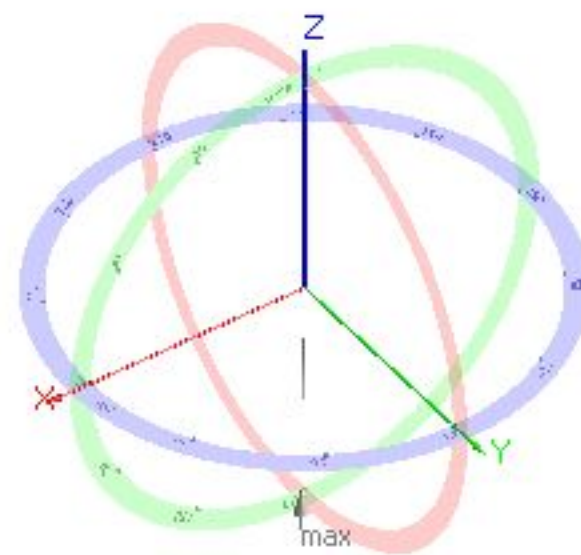
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max -1.83

N/A

[dBi]

zm



max 0.00

0.00

0.00

[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

Plot Data

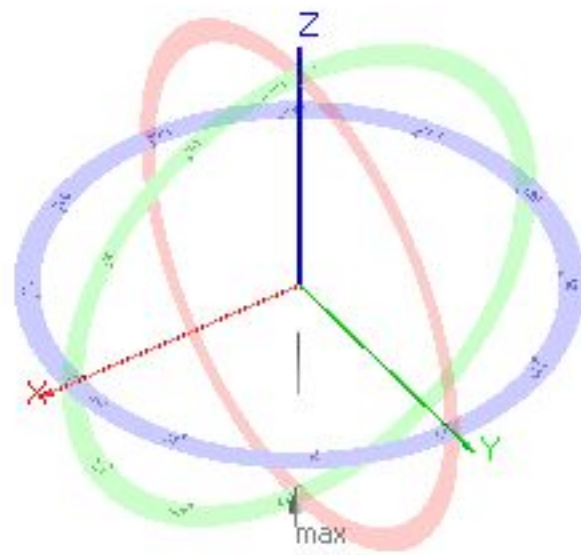
Polarization :

 ϕ -pol(V)

Frequency :

2,400	[GHz]
2,450	
2,500	

N/A



[dBi]

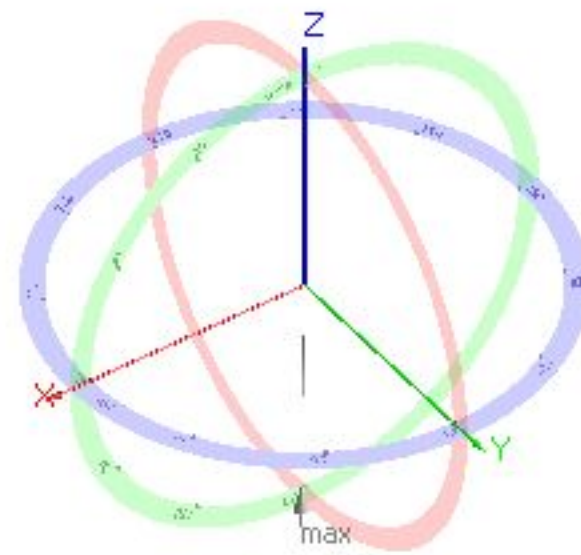
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max 0.00

0.00

N/A

[dBi]



max 0.00

0.00

0.00

[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

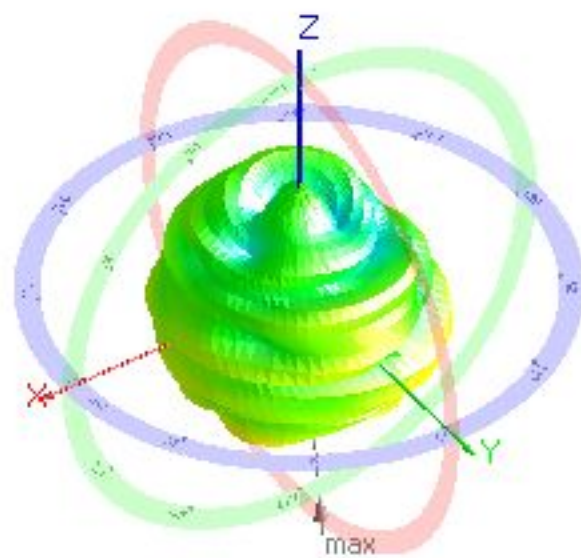
Max : 20

Min : -40

Apply

zm

2.400GHz



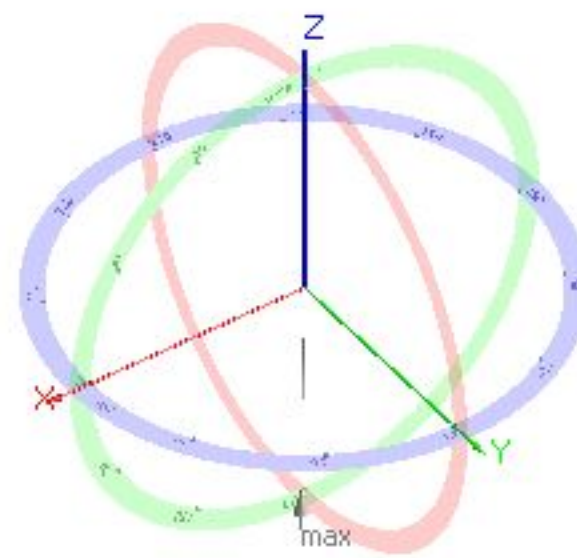
[dBi]

	20.00
	12.50
max	-2.50
	-10.00
-0.49	-17.50
	-32.50
-22.63	-40.00
min	

N/A

[dBi]

zm



0.00 max

0.00 min

[dBi]

	20.00
	12.50
	-2.50
	-10.00
	-17.50
	-32.50
	-40.00

Plot Data

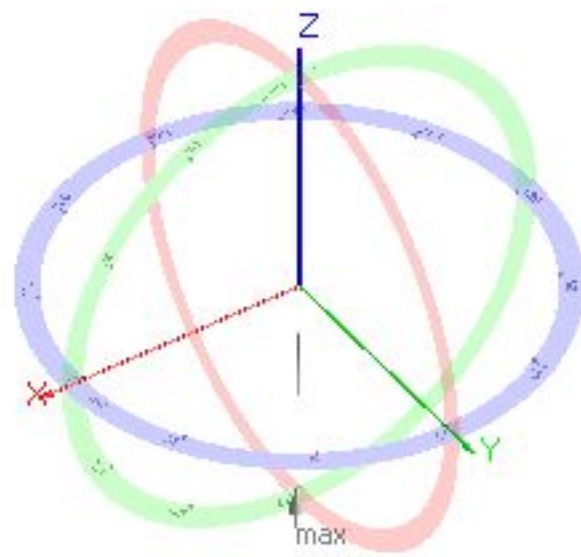
Polarization :

Powr-Sum

Frequency :

2.400	[GHz]
2.450	
2.500	

N/A



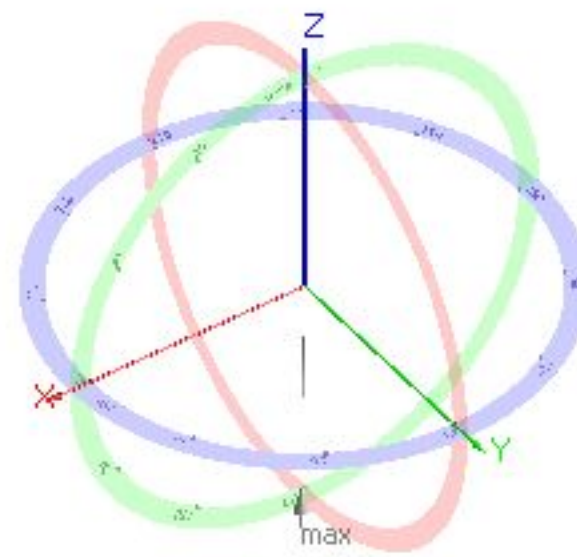
[dBi]

	20.00
	12.50
0.00 max	-2.50
0.00 min	-10.00
	-17.50
	-32.50
	-40.00

N/A

[dBi]

zm



0.00 max

0.00 min

[dBi]

	20.00
	12.50
	-2.50
	-10.00
	-17.50
	-32.50
	-40.00

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

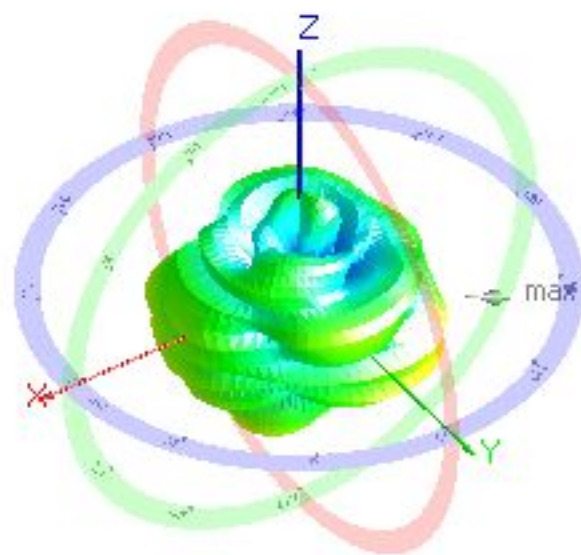
Max : 20

Min : -40

Apply

zm

2.450GHz



[dBi]

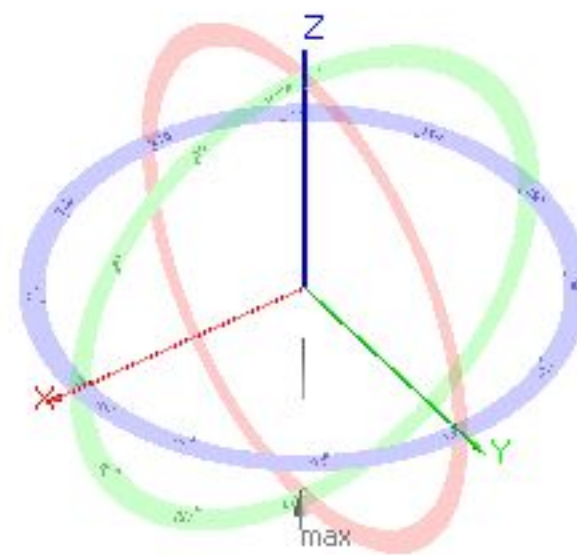
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max -2.21

N/A

[dBi]

zm



0.00 max
0.00

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

Plot Data

Polarization :

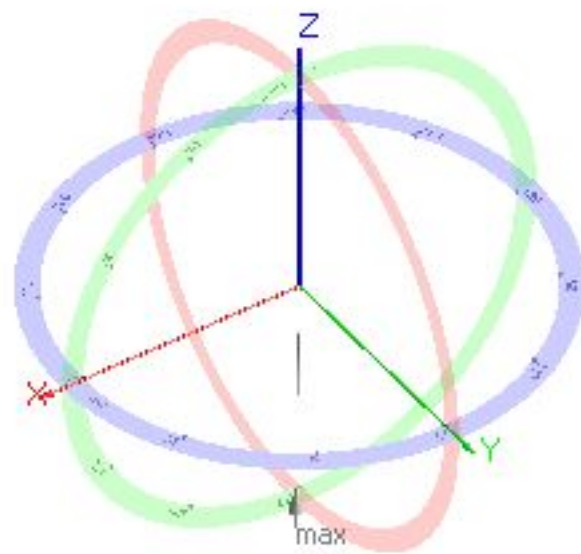
θ-pol(H)

Frequency :

2,400
2,450
2,500

[GHz]

N/A



[dBi]

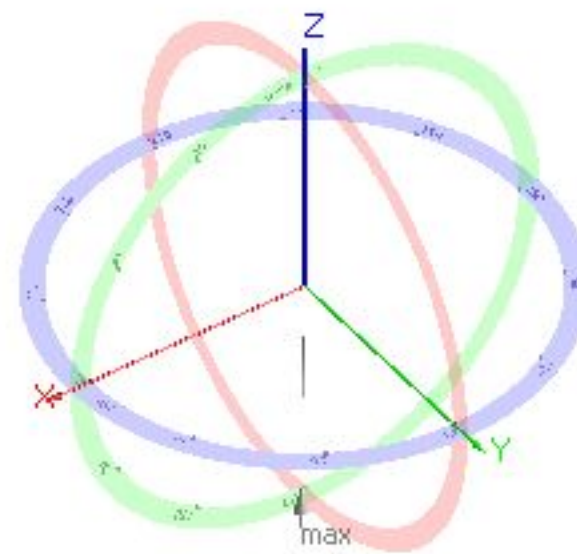
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max 0.00

N/A

[dBi]

zm



0.00 max
0.00

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

Min : -40

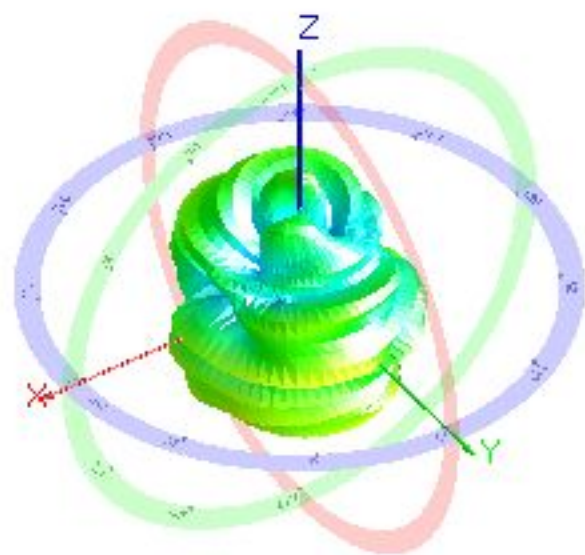
Apply

zm

zm

zm

2.450GHz



[dBi]

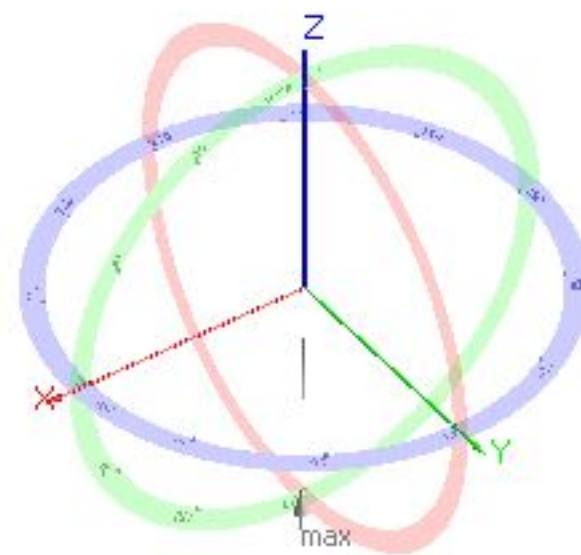
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
-1.51
-45.98

N/A

[dBi]

zm



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
0.00
0.00

Plot Data

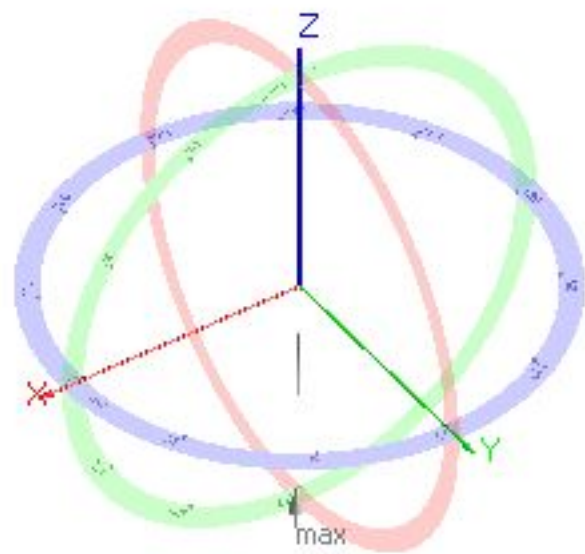
Polarization :

Frequency :

2,400
2,450
2,500

[GHz]

N/A



[dBi]

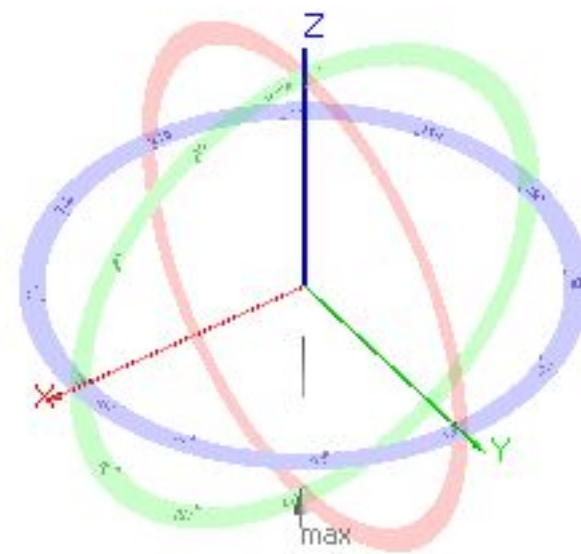
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
0.00
0.00

N/A

[dBi]

zm



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
0.00
0.00

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

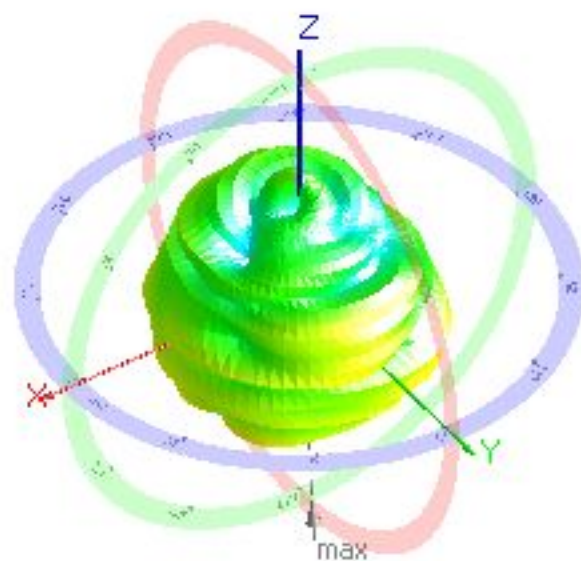
Scale

☐ Auto ☒ User DefinedMax : Min :

Apply

zm

2.450GHz



[dBi]

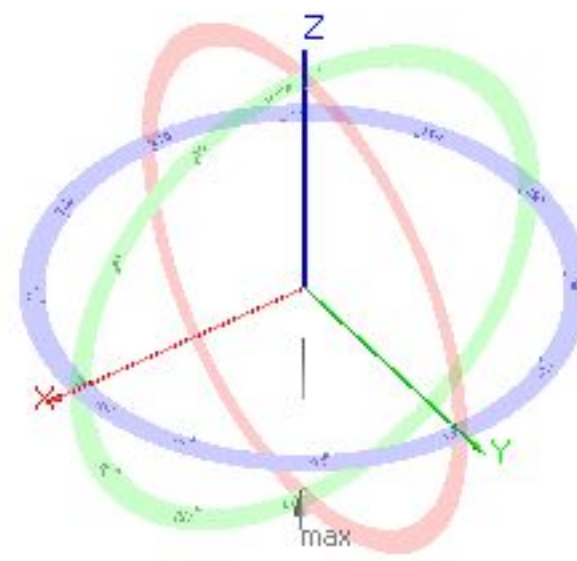
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
-0.68
min
-29.96

N/A

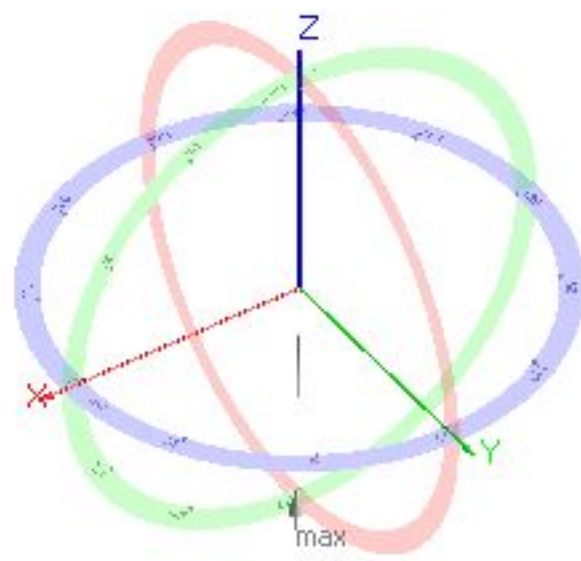
[dBi]

zm



max
0.00
min
0.00

N/A



[dBi]

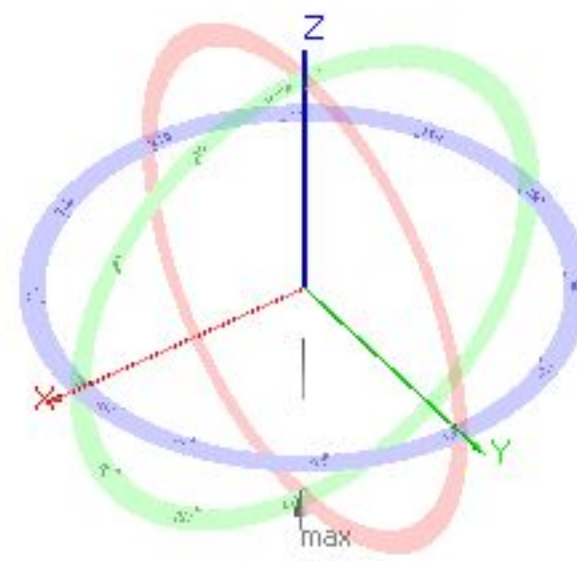
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
0.00
min
0.00

N/A

[dBi]

zm



max
0.00
min
0.00

zm

zm

Plot Data

Polarization :

Powr-Sum

Frequency :

2,400
2,450
2,500

[GHz]

Graph Option

- ☐ AutoRotation
☐ View Phone
☐ SphereMapping
☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

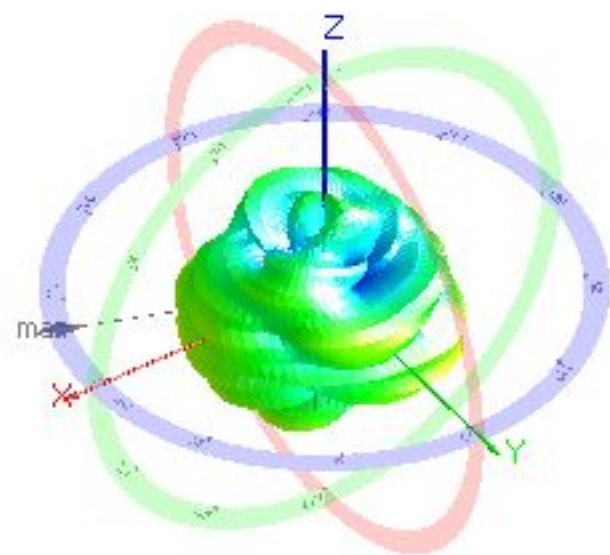
Max : 20

Min : -40

Apply

zm

2.500GHz



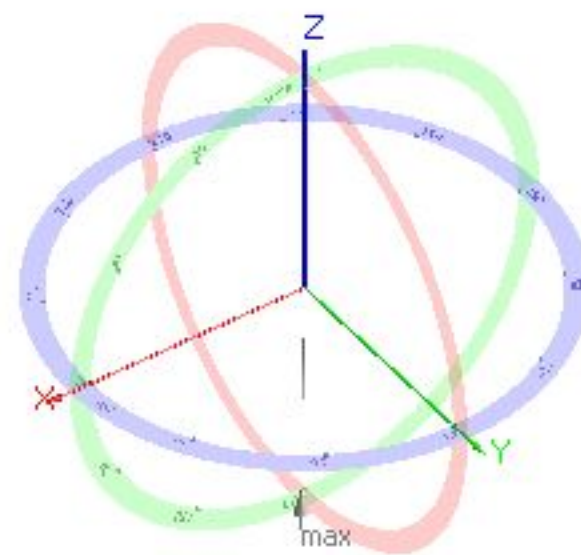
[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00
-46.49

N/A

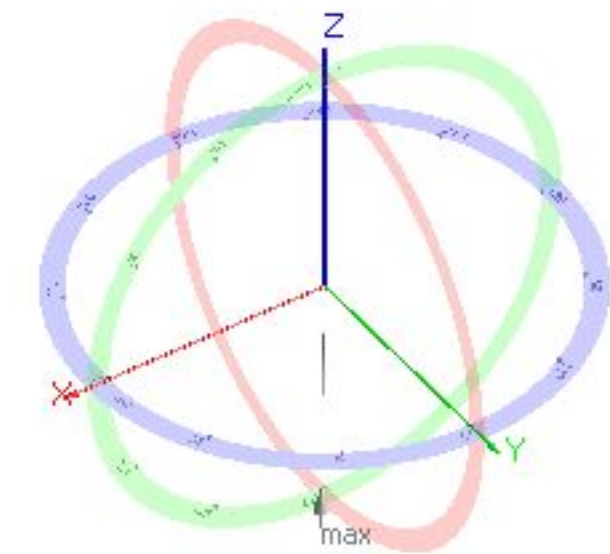
[dBi]

zm



20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00
0.00

N/A



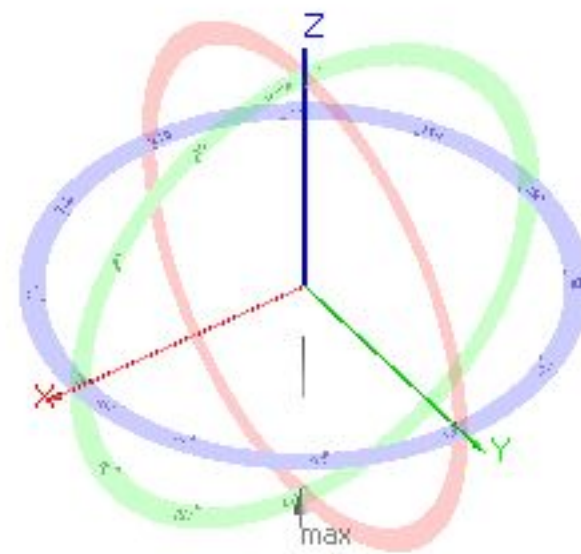
[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00
0.00

N/A

[dBi]

zm



20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00
0.00

Plot Data

Polarization :

θ-pol(H)

Frequency :

2,400
2,450
2,500

[GHz]

Graph Option

- ☐ AutoRotation
☐ View Phone
☐ SphereMapping
☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

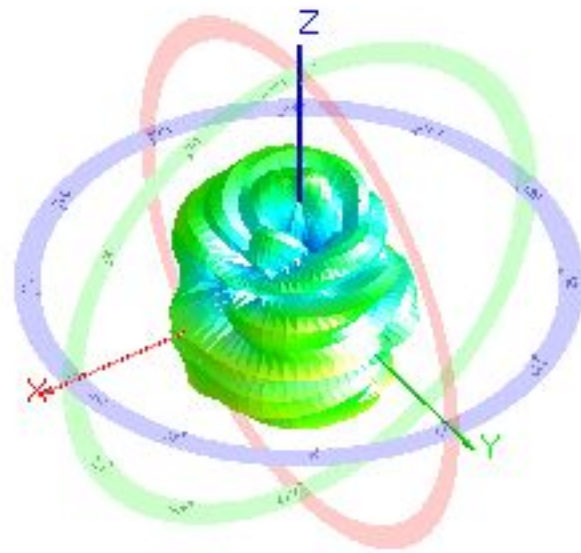
Max : 20

Min : -40

Apply

zm

2.500GHz



[dBi]

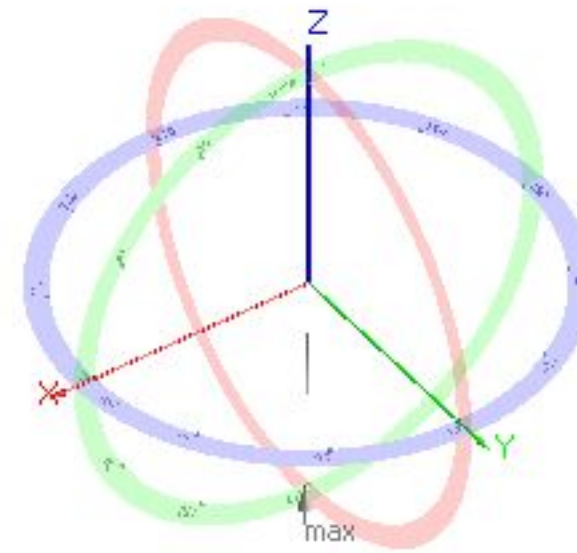
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
-2.03
-47.52

N/A

[dBi]

zm



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
0.00
0.00

Plot Data

Polarization :

Frequency :

2,400
2,450
2,500

[GHz]

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

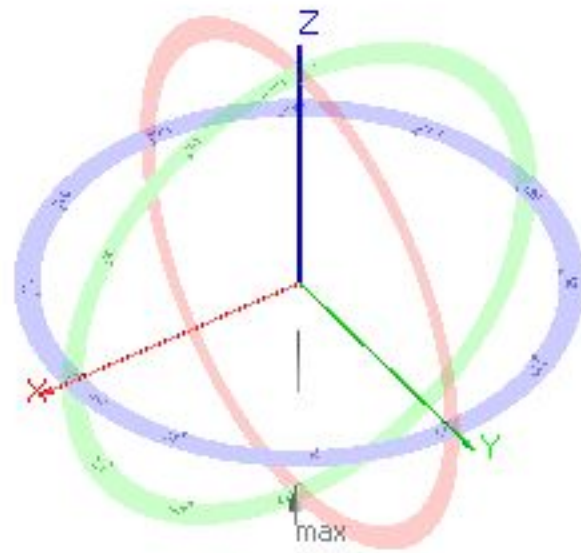
☐ Auto ☒ User Defined

Max : 20

Min : -40

Apply

N/A



[dBi]

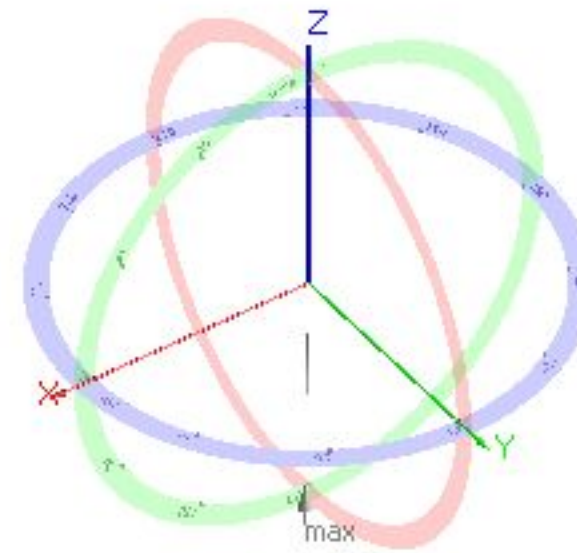
20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

max
0.00
0.00

N/A

[dBi]

zm



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

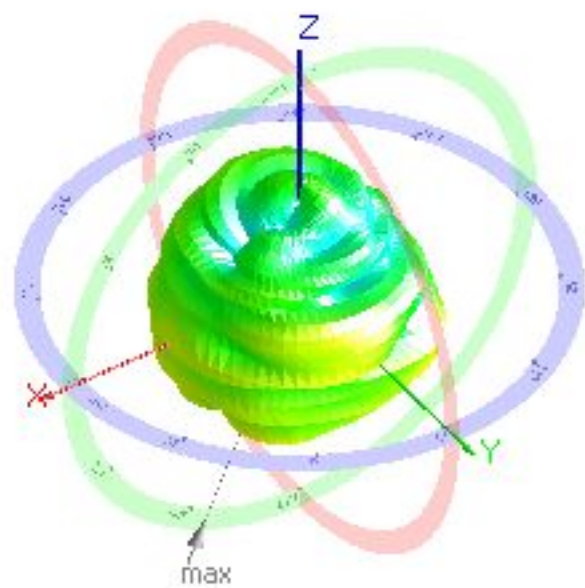
max
0.00
0.00

zm

zm

zm

2.500GHz



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

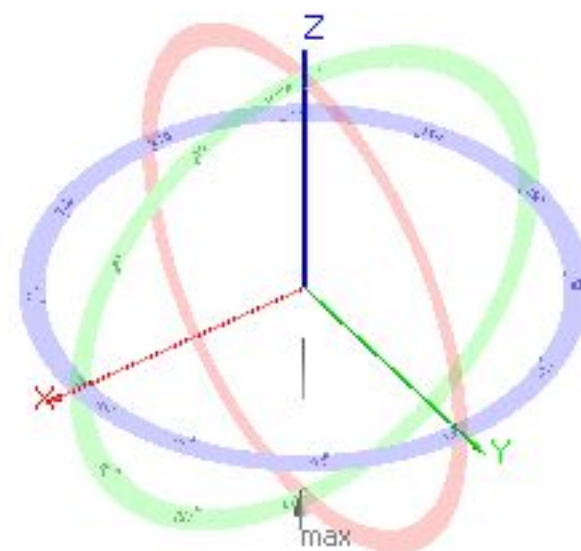
max -1.98

min -25.83

N/A

[dBi]

zm



max 0.00

min 0.00

[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

Plot Data

Polarization :

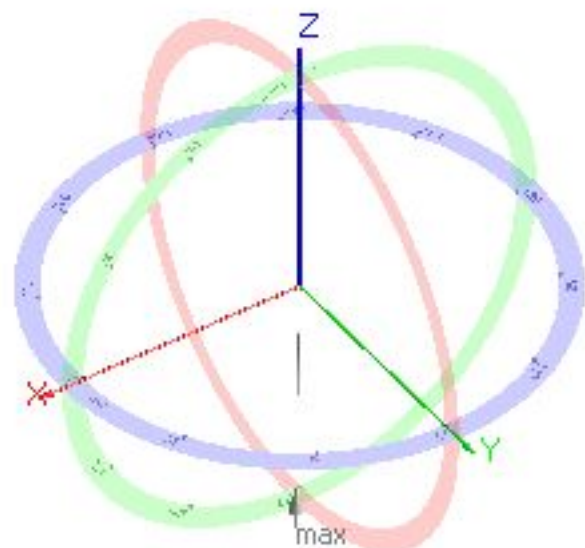
Powr-Sum

Frequency :

2,400
2,450
2,500

 [GHz]

N/A



[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

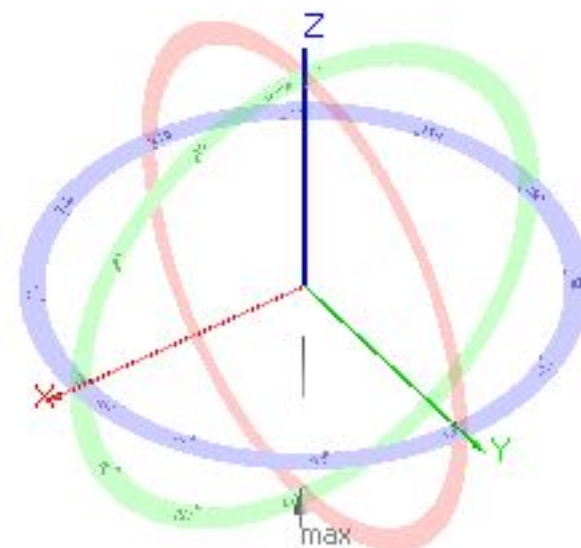
max 0.00

min 0.00

N/A

[dBi]

zm



max 0.00

min 0.00

[dBi]

20.00
12.50
-2.50
-10.00
-17.50
-32.50
-40.00

Graph Option

- ☐ AutoRotation
- ☐ View Phone
- ☐ SphereMapping
- ☐ Interpolation

x2

Scale

☐ Auto ☒ User Defined

Max : 20

Min : -40

Apply