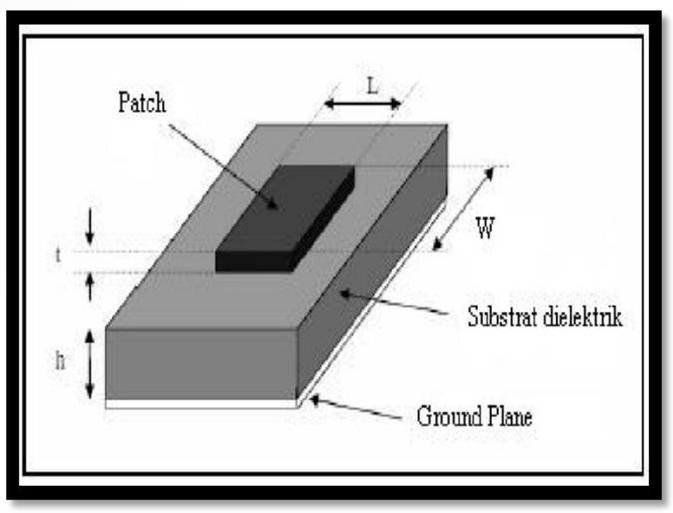
COMPARATIVE ANALYSIS OF ARRAY 2X2 DOUBLE BI CIRCULAR MICROSTRIP ANTENNA WITH THE EMPHIRICAL FORMULA AND COMSOL PROGRAMME

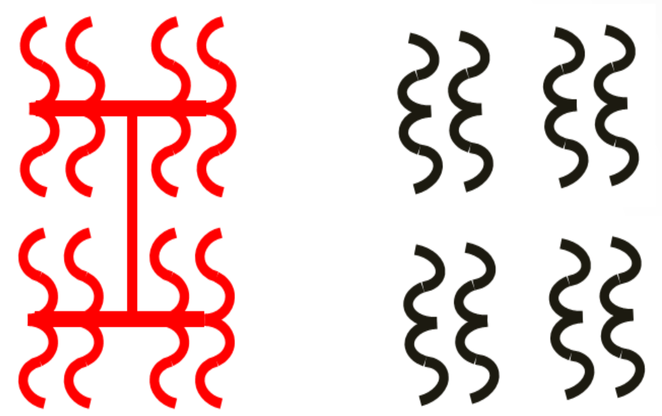
Putu Artawan 1), Yono Hadi Pramono 2), Mashuri 3)

1)2)3) Physics Department, Faculty Of Natural Sciences,
Institut Teknologi Sepuluh Nopember (ITS), Surabaya, Indonesia
E-mail: Scientya@Yahoo.Com / yonohadipramono@gmail.com



Microstrip Antenna Characteristic

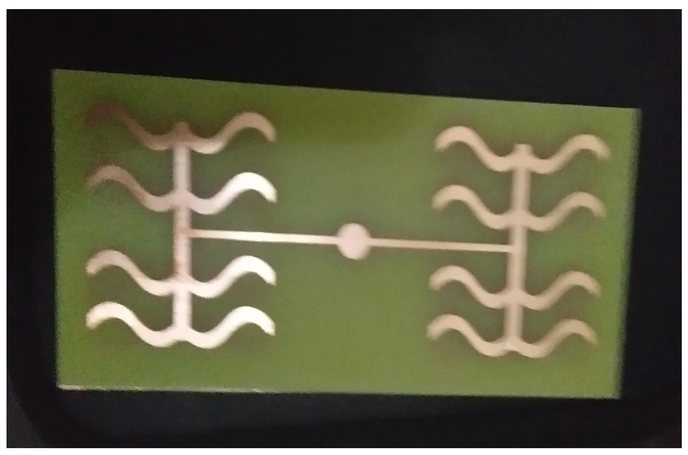
The design of the antenna are:
- Thin
- Small
- Lightweight and
- Can be applied to the Microwave Integrated Circuit (MICs). (Balanis, C.A. 1997)



Design of Microstrip *double bi-circular Antenna* (front and back side)

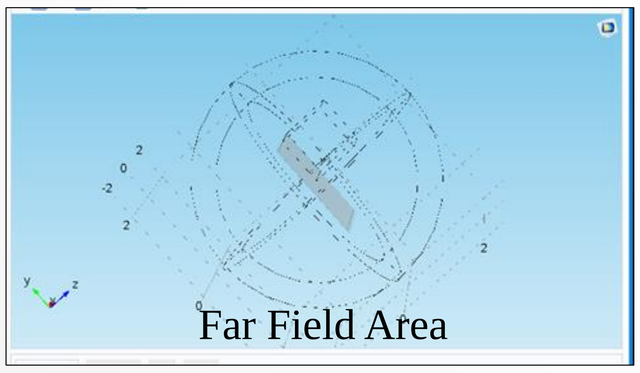
Parametric	*Dimension*
ℓ_1	3 Cm
W_1	1 mm
θ	30^0
ℓ_2	3 Cm
W_2	2 mm
ℓ_3	3 Cm
W_3	2 mm
h	19.6 mm

With The UV Photoresist Laminate Methode

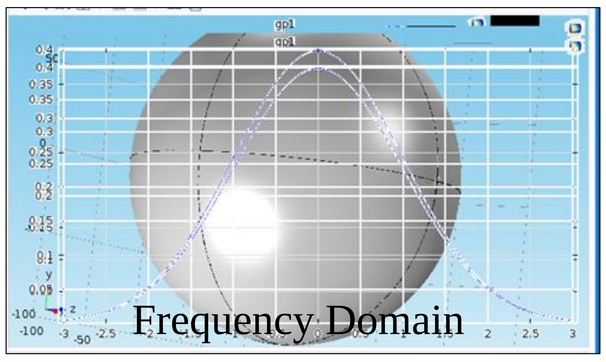


Fabrication Result Of 2 x 2 Array Double Bi Circular Microstrip Antenna Design

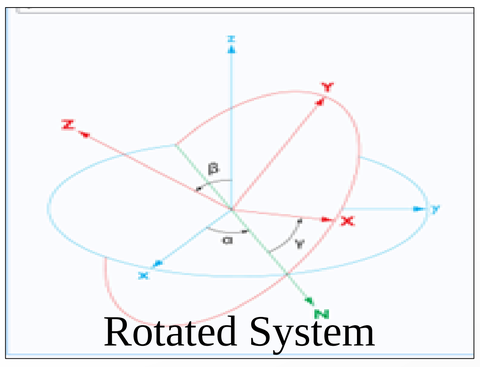
In COMSOL Programme



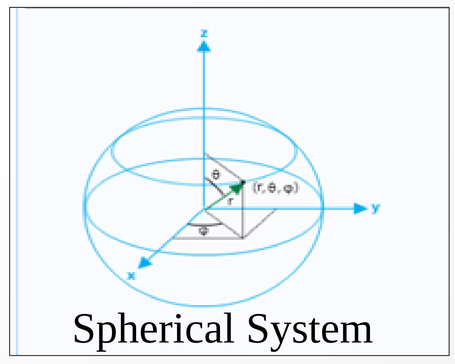
Far Field Area



Frequency Domain



Rotated System



Spherical System

THE RESULT

The result of analysis that was obtained as Antenna Parameter such as VSWR (1.76), SWR (4.91), Reflection Coofesien (0.28) and Return Loss (-11.06dB). And with the Comsol programme was result VSWR (2.36), SWR (7.45), Reflection Coofesien (0.40) and Return Loss (-7.96dB).

CONCLUSION

This design can be applied in Wi-fi Communication System.

REFERENCES

Balanis, C.A. (1997), Antena Theory Analysis and Design, Second Edition, John Wiley and Sons, New York.