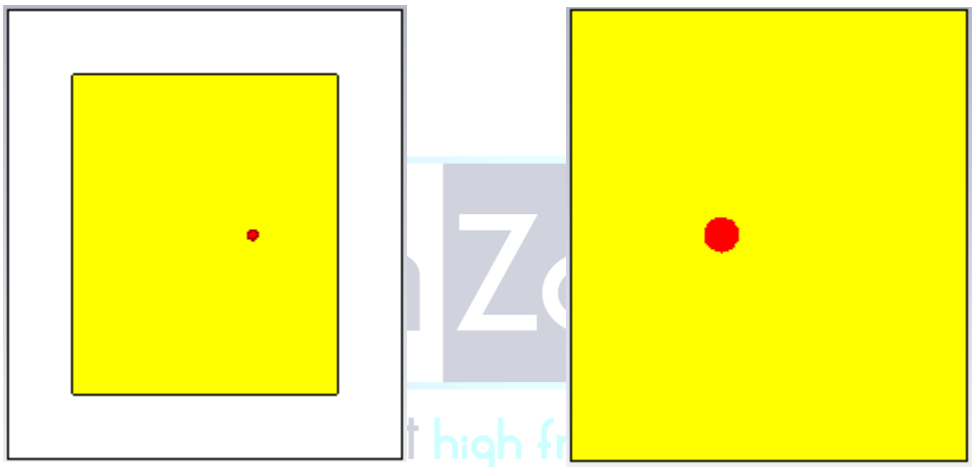
RECT MICROSTRIP PATCH ANTENNA COAXIAL FEED

Problem Statement 1

To design a rectangular patch antenna on a ROGERS CUSTOMIZED substrate. The frequency is 2.4 GHz and thickness is 1.6 mm, dielectric constant = 2.32

USAGE: S BAND (WIFI/ BLUETOOTH)



FRONT VIEW **BACK VIEW**

Parameter	Dimension(mm)	Description
W	47	Width of Patch
L	39	Length of Patch
Wg	W + 12*Hs	Width of Ground
Lg	L + 12*Hs	Length of Ground
Y	7	Coaxial Feed (Discrete Port)
Hs	1.6	Height of Substrate
Ht	0.035	Height of Copper

DESIGN STEPS:

STEP1 Modelling of **Ground** Plane ➡ Brick ➡ Esc

Xmin	Xmax	Ymin	Ymax	Zmin	Zmax
-Wg/2	Wg/2	-Lg/2	Lg/2	0	Ht

Material: **Copper Annealed**

STEP2 Modelling of **Substrate** Plane ➡ Brick ➡ Esc

Xmin	Xmax	Ymin	Ymax	Zmin	Zmax
-Wg/2	Wg/2	-Lg/2	Lg/2	Ht	Ht+Hs

Material: **ROGERS (ξr = 2.32)**

STEP3 Modelling of **Patch** Plane ➡ Brick ➡ Esc

Xmin	Xmax	Ymin	Ymax	Zmin	Zmax
-W/2	W/2	-L/2	L/2	Ht+Hs	2*Ht+Hs

Material: **Copper Annealed**

STEP6 Excitation of Square Patch Antenna

SIMULATION ➡ DISCRETE PORT

Impedance = 50 Ohms

X1 = 0.0; X2= 0.0; Y1 = Y; Y2= Y; Z1 = 0.0; Z2= 2*Ht + Hs;

STEP7 Simulate