



CALIFORNIA STATE UNIVERSITY
FULLERTON

EGEE 435
Project 3 Report

Submitted by : Mayank Pathak
CWID: 89330183

1. Calculate the device's dimension

Using the LineCalc tool in ADS, we get the following results

For $Z_0 = 50$ ohms, the device dimension are encircled as below

The screenshot shows the LineCalc tool interface with the following parameters and results:

Component
Type: MLIN ID: MLIN: MLIN_DEFAULT

Substrate Parameters
ID: MSUB_DEFAULT
Er: 10.200 N/A
Mur: 1.000 N/A
H: 254.000 um
Hu: 3.9e+34 mil
T: 17.000 um
Cond: 5.88e7 N/A

Physical (Dimensions circled in red)
W: 0.222057 mm
L: 2.424170 mm

Electrical
Z0: 50.000 Ohm
E_Eff: 90.000 deg

Calculated Results
K_Eff = 6.637
A_DB = 0.024
SkinDepth = 0.023

Values are consistent

A diagram of a microstrip line is shown on the right, with dimensions L and W labeled.

For $Z_0 = 50 / \text{Squareroot of } 2 = 35.35$

Therefore rounding off $Z_0 = 35 \text{ Ohms}$, the device dimension are encircled as below

LineCalc/untitled

File Simulation Options Help

Component
Type: MLIN ID: MLIN: MLIN_DEFAULT

Substrate Parameters
ID: MSUB_DEFAULT

Er	10.200	N/A
Mur	1.000	N/A
H	254.000	um
Hu	3.9e+34	mil
T	17.000	um
Cond	5.88e7	N/A

Component Parameters
Freq: 12.000 GHz
Wall1: mil
Wall2: mil

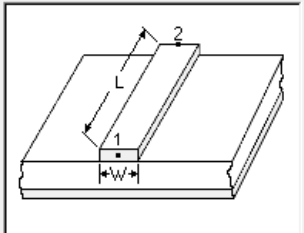
Physical
W: 0.444631 mm
L: 2.323130 mm

Synthesize Analyze

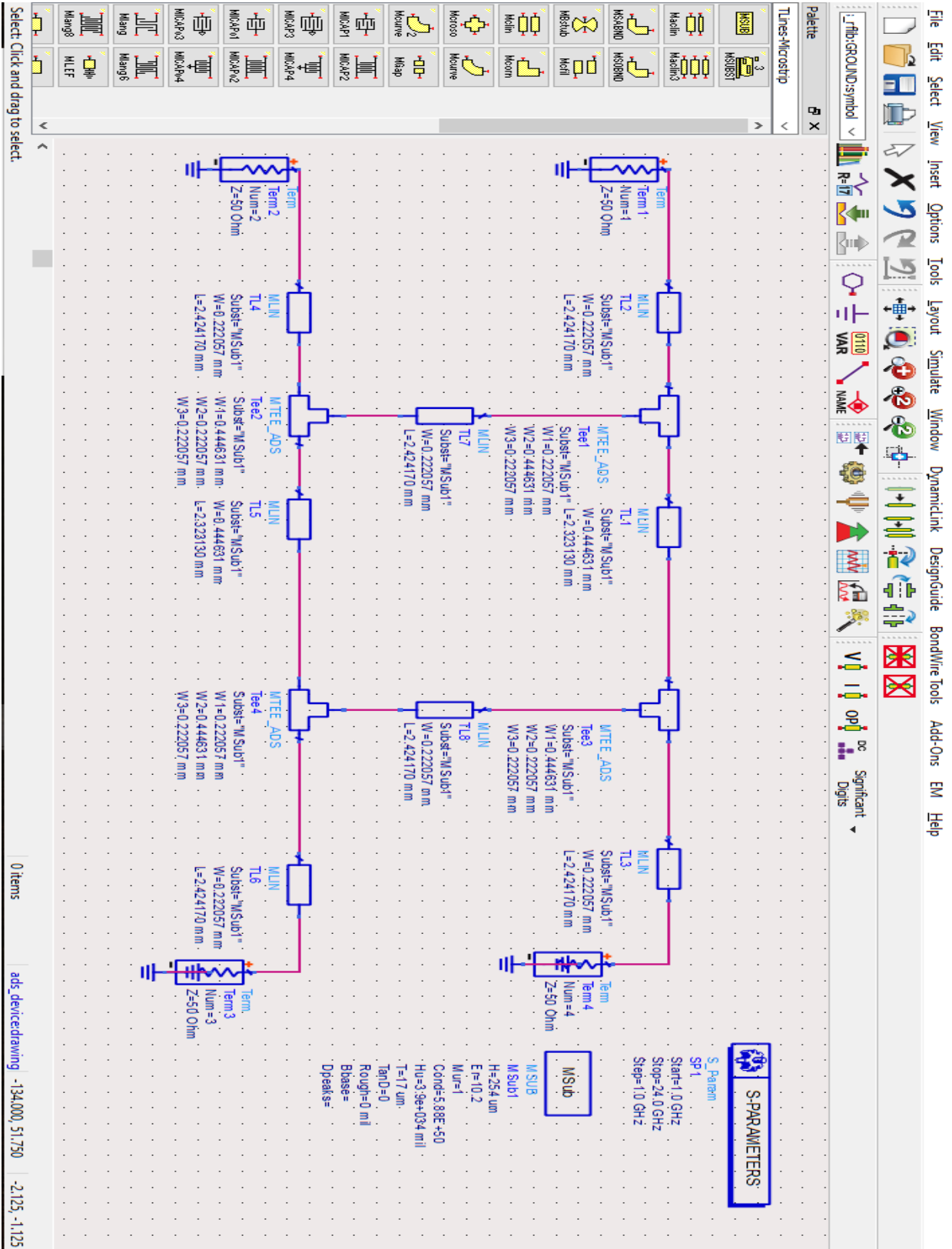
Electrical
Z0: 35.000 Ohm
E_Eff: 90.000 deg

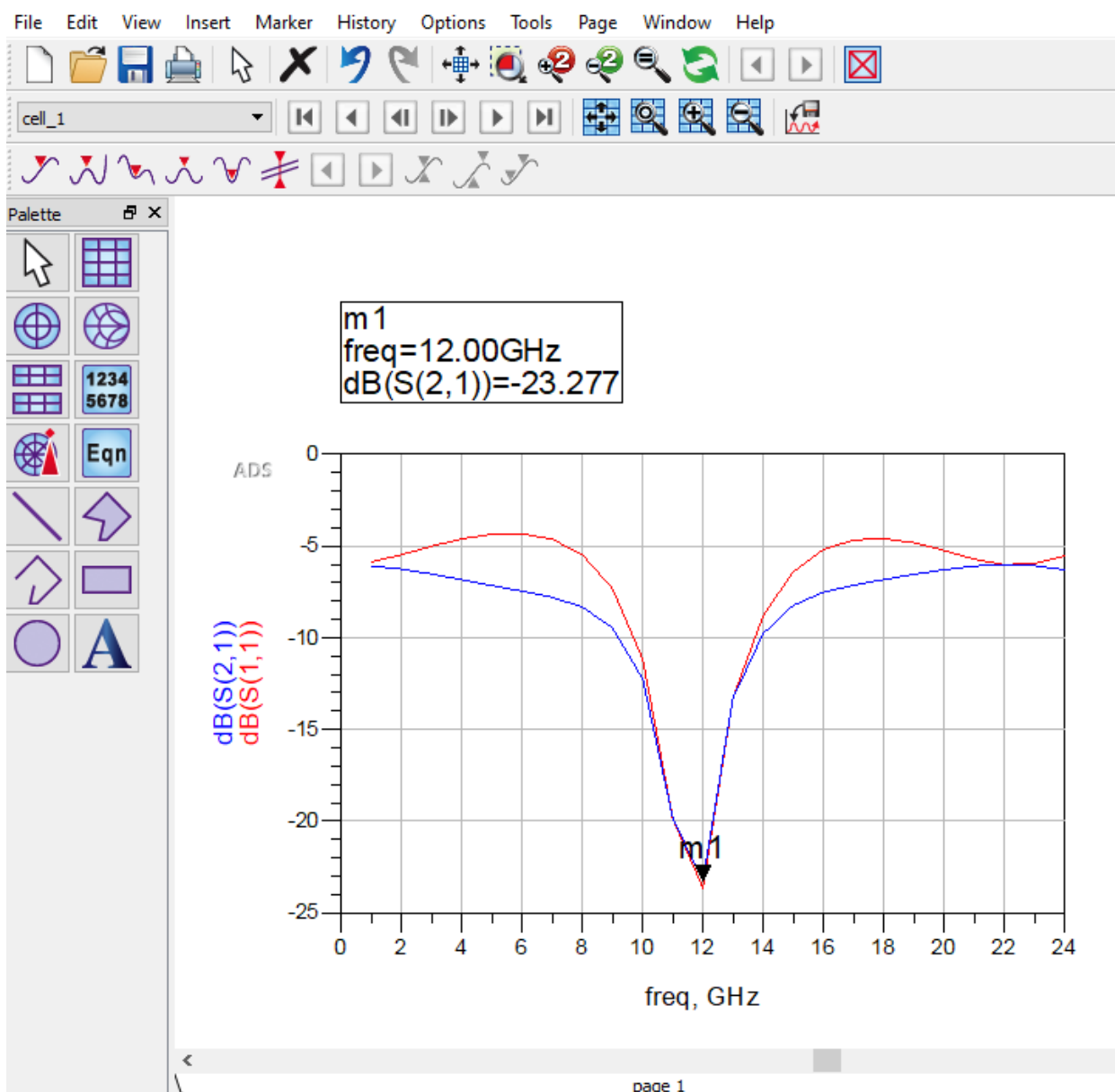
Calculated Results
K_Eff = 7.227
A_DB = 0.017
SkinDepth = 0.023

Values are consistent



2. Run Simulation using ADS Software





Plot Layout:

