Start Sonnet 10.52
The Sonnet Task Bar appears:

➢ Click Edit Project ➔ New Geometry

A new window opens:
Select Circuits → Units
Choose microns and GHz for length and frequency units respectively

Go to Circuit → Dielectric layers
In the bottom layer choose a thickness of 380µm

The quick Start Guide will help you for the rest of the project. Click on one of the steps to find out how to do it.
Click edit → Select directly from library → Check Global library and select Silicon

The 2\textsuperscript{nd} layer is oxide, choose 3\textmu\text{m} the 3\textsuperscript{rd} layer is also oxide, choose 2\textmu\text{m}

Add another layer above of 2000\textmu\text{m} of air

Here is the final dielectric stack up you should have:
- **Circuit → Box**
  Choose cell size of 1\(\mu\)m and a box size of 349.5\(\mu\)m
  The number of cells is automatically calculated

- **Circuit → Metal types**
  Select metal from library and choose Aluminum in the global library, Leave type as Normal
  Choose a thickness of 1\(\mu\)m
Make sure the Level 0 is selected

- Tools → Add Metallization → Rectangular Spiral
Choose the following parameters for a 3.5 turn inductor with line width of 10\(\mu\)m and spacing between the lines of 1.5\(\mu\)m and outer dimension of 255\(\mu\)m

Place the inductor in the middle of the box and click on it
Extend the external port of the spiral inductor to the edge of the cell box
→ Tools → Add Metallization → Draw rectangle
Add another line that will connect the internal port of the spiral inductor to the edge of the cell box with a via underneath

Select the layer 1
And add the via in the first layer → 2μm below the spiral inductor metal lines
→ Tools → Add Metallization → Draw rectangle
Select the layer 0

Tools → Add via → Draw Rectangle (make sure Down one level is checked)
Add the two vias as it is shown below

View → View 3D
➢ Tools → Add port
Add 2 ports as it is shown below

➢ Circuit → Ref planes
- Analysis ➔ Set up

![Analysis Setup](image)

- Project ➔ Analyze

![Project Analyze](image)
Project → View Response → Add to Graph
Equation → Add Equation Curve
Plot Inductance2[nH] on the left and Q Factor on the right

Project → View Current @ 10GHz