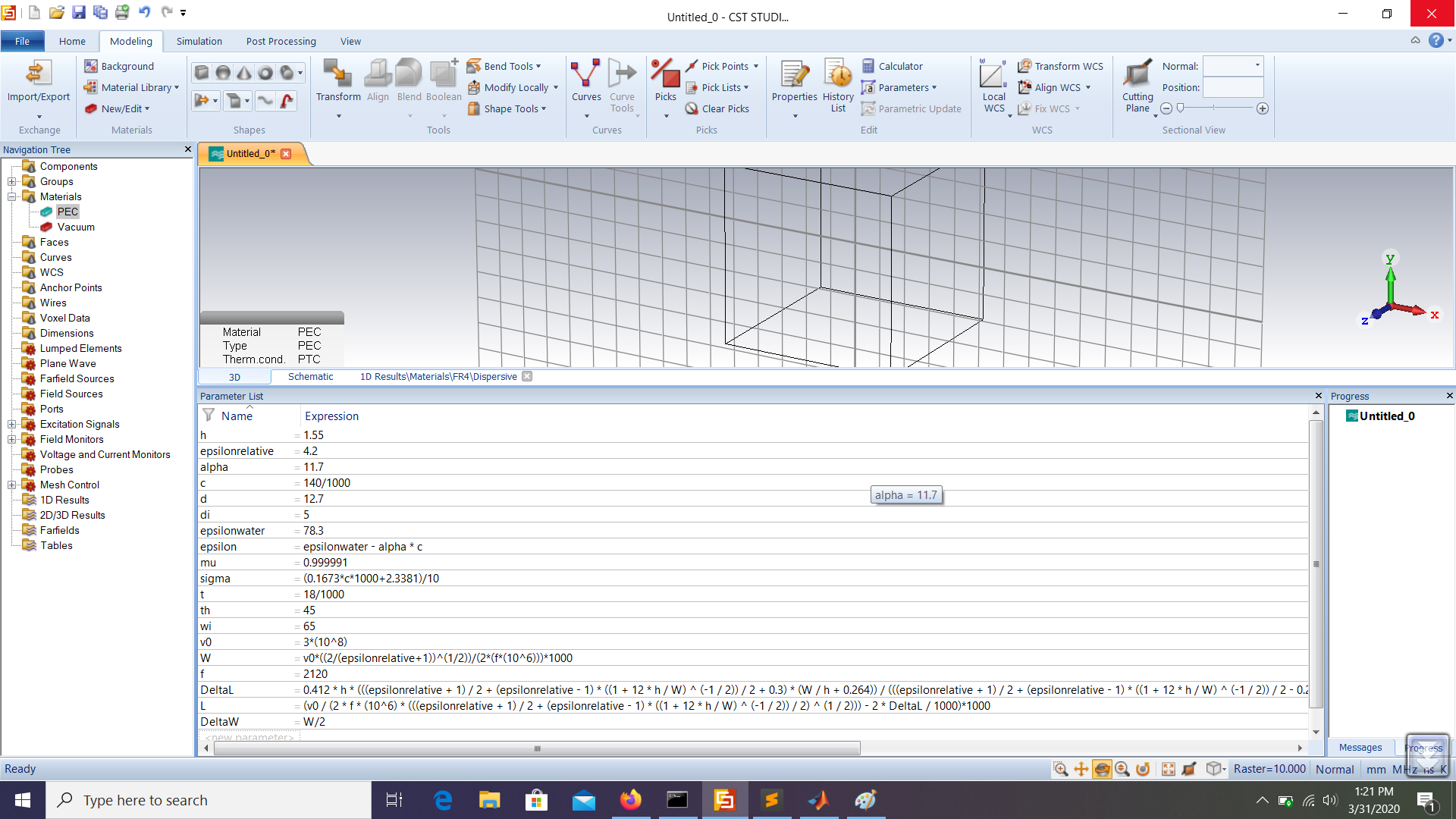
**2D CAD Guide**

**Step 0: Set up the CST file.**

Remember to set length to units of ‘mm’ and frequency to units of ‘MHz’.

**Step 1: Enter parameters as shown below.**



**For your experiment, the value for f is different, please take note!**

The very long expression for DeltaL is

|  |
| --- |
| 0.412 \* h \* (((epsilonrelative + 1) / 2 + (epsilonrelative - 1) \* ((1 + 12 \* h / W) ^ (-1 / 2)) / 2 + 0.3) \* (W / h + 0.264)) / (((epsilonrelative + 1) / 2 + (epsilonrelative - 1) \* ((1 + 12 \* h / W) ^ (-1 / 2)) / 2 - 0.258) \* (W / h + 0.8)) |

**Step 2: Create the substrate**

Create a brick called ‘SUBSTRATE’ with the following parameters:

|  |  |  |  |
| --- | --- | --- | --- |
| Xmin: | -(W+2\*DeltaW)/2 | Xmax: | (W+2\*DeltaW)/2 |
| Ymin: | -h/2 | Ymax: | h/2 |
| Zmin: | -(L+2\*DeltaL)/2 | Zmax: | (L+2\*DeltaL)/2 |

Use a new material (created by you), called ‘FR4’ with the following properties:

*General*

|  |  |
| --- | --- |
| Epsilon | epsilonrelative |
| RGB | 240, 209, 194 |

*Conductivity: Only change tangent delta el. and at frequency as shown below. Do not change the rest.*

