KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY

Deemed to be University U/S 3 of the UGC Act, 1956

Microwave and Antenna Laboratory

(5^{th} Semester)

Lab Report 6

Aim of the Experiment: To design a rectangular waveguide having inside dimension of 20 mm x 15 mm with wall thickness of 1.27 mm and determine its cut off frequency.

Software to be used: CST Studio Suite (Student Version)

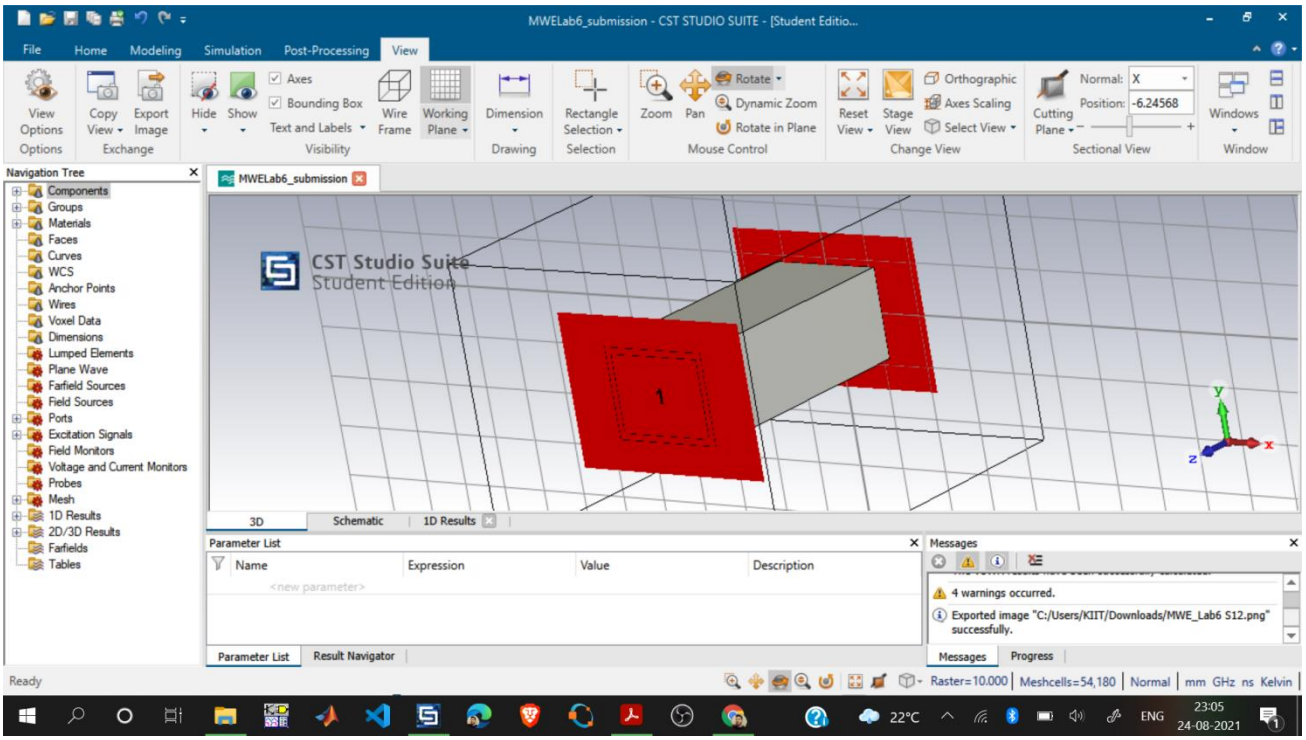
Design:

- **Theoretical calculation of cut off frequency of dominant mode**

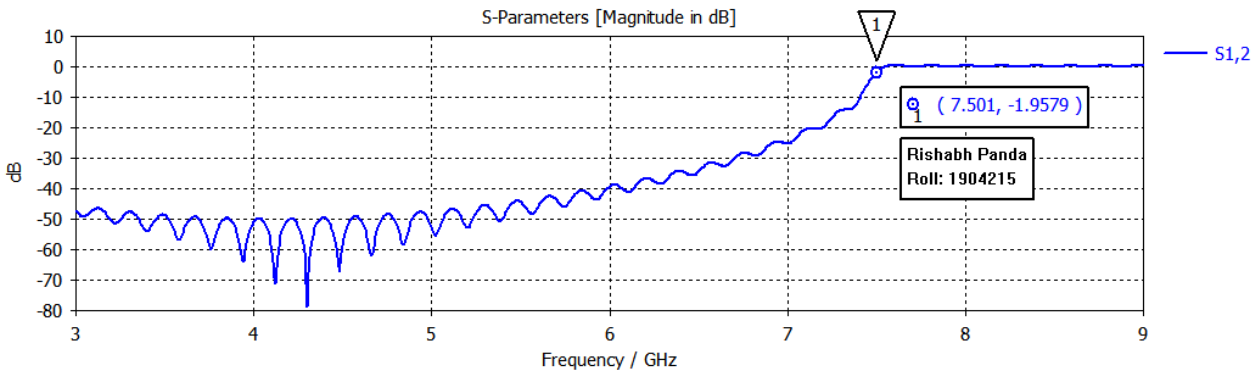
Since a = 20 mm, we have the cut-off frequency as follows

$$f_c = \frac{c}{2a} = 7.5\ \text{GHz}$$

- **Structure**



- **S21/S12 plot**



Conclusion

The design and plot of the rectangular waveguide with the given dimensions of **20 mm** x **15 mm** with wall thickness of **1.27 mm** and its cut-off frequency has been studied successfully. The observed results in the S12 plot clearly shows the cutoff-frequency plot, which was calculated as 7.5 GHz.

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