

3D FDTD Analysis of TE_{01} Mode Propagation in X-Band Rectangular Waveguides

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Abstract—Write your abstract text here.

I. INTRODUCTION

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II. MATHEMATICAL MODEL

Describe and give picture of model here

A. Formulation

- 1) *PEC Surrounded Dielectric:*
- 2) *TF/SF 1-Way Waveport Source:*
- 3) *3D Mur Waveport Terminating ABC:*

B. Discretization

- 1) *PEC Surrounded Dielectric:*

- 2) *TF/SF 1-Way Waveport Source:*
- 3) *3D Mur Waveport Terminating ABC:*

III. NUMERICAL RESULTS

A. Verification and Validation

- 1) *Propagation Patterns:*
- 2) *Cutoff Frequency:*
- 3) *Dielectric Frequency Compression:*

B. Case Study

IV. CONCLUSION

Overall, this is just a very simple document to get you going in LaTeX. There is a bit of a learning curve, but in my experience it is incredibly worthwhile for every graduate student to learn how to use this tool. There are still some times where I use Microsoft Word because it will be easier, but this is often very infrequent. At this point, I cannot imagine trying to write a journal paper within anything but LaTeX because of how much easier it is to control formatting, produce great looking equations, automatically handle cross-referencing and reference lists, etc.

V. APPENDIX

A. Code Structure

REFERENCES

- [1] J.-M. Jin, *Theory and Computation of Electromagnetic Fields*. John Wiley & Sons, 2011.
- [2] D. M. Pozar, *Microwave Engineering*. John Wiley & Sons, 2011.
- [3] J.-M. Jin, *The Finite Element Method in Electromagnetics*. John Wiley & Sons, 2015.