

# VIRGINIA MICROELECTRONICS CONSORTIUM (VMEC) 2018 SCHOLAR INTERNSHIP PROGRAM

## Undergraduate Summer Scholars Exchange Program

### Virginia's best summer research program in microelectronics

**May – August, 2018**

VMEC has rapidly growing research and education opportunities in the field of microelectronics. If you are currently a junior or senior in a 4-year degree program at a university in Virginia, if you are a student at a community college in Virginia that has already been accepted to one of the participating 4-yr engineering schools, you are eligible to join us for a summer internship that will give you a hands-on, state-of-the-art research experience. The VMEC internship provides excellent technical knowledge as well as industrial and academic contacts for your career development.

### Financial Benefits

- \$725 stipend per week for 12 or 13 weeks

### Academic Benefits

- Research experience
- Guidance of mentor
- Hands on experience

### Internship Requirements

- Must attend June kick-off meeting and give introductory oral report
- Must work 12 or 13 weeks on project at location other than home school
- Must attend the August scholar presentation meeting and give an oral report or poster.

### Application Process

- VMEC Application is at [vmec-scholars.org](http://vmec-scholars.org).
- Email all application materials to [vmec.scholars@gmail.com](mailto:vmec.scholars@gmail.com) (PDF or Word) (email references directly to [vmec.scholars@gmail.com](mailto:vmec.scholars@gmail.com) from sender's original email address).

## Application Information:

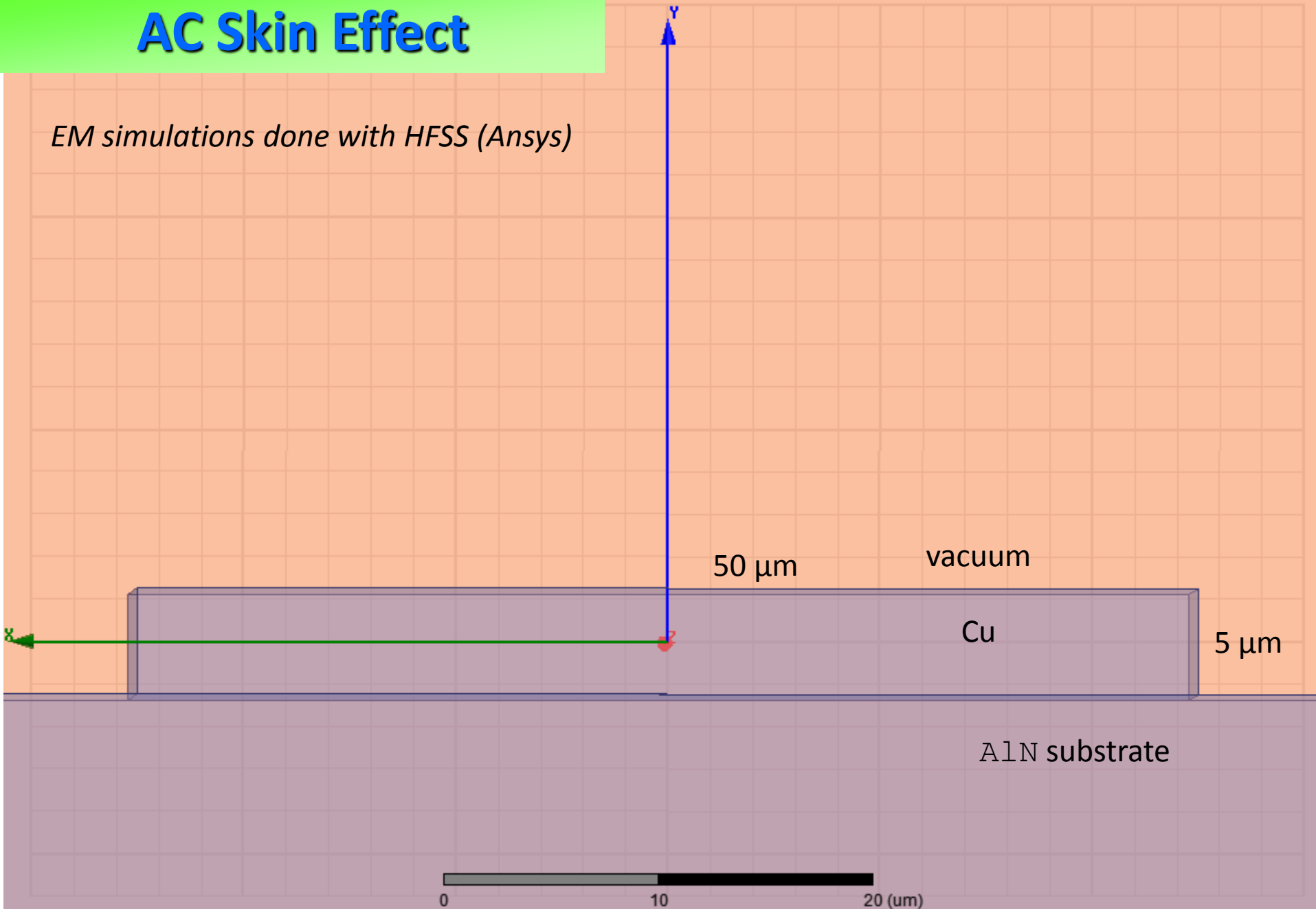
- Application Deadline: [November 10, 2017](#). Apply at [vmec-scholars.org](http://vmec-scholars.org).
  - Strong preference is given to candidates with a 3.0 GPA or better.
  - Letter of recommendation required (from a technical mentor or professor is preferred).
  - Final Decision: All candidates will be notified of final decisions [by December 22, 2017](#).
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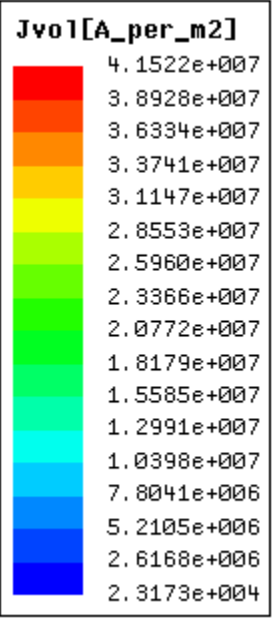
## Participating Internship Locations:

- BAE Systems
- George Mason University
- Micron Technology
- William and Mary
- Norfolk State University
- Old Dominion University
- University of Virginia
- Virginia Commonwealth University
- Virginia Tech

# AC Skin Effect

*EM simulations done with HFSS (Ansys)*

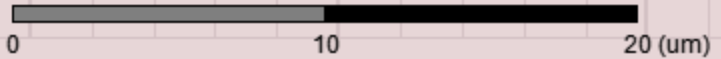
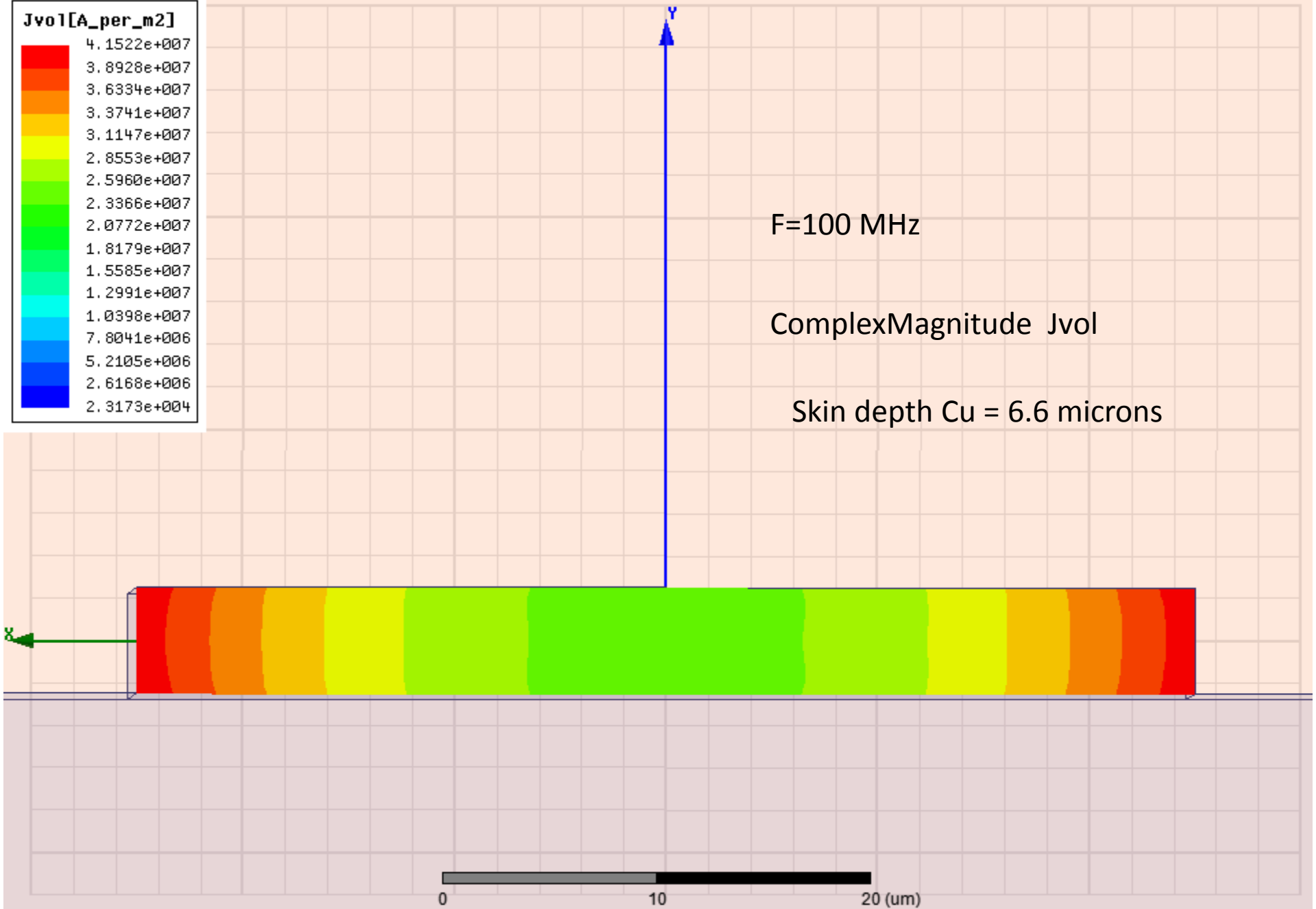


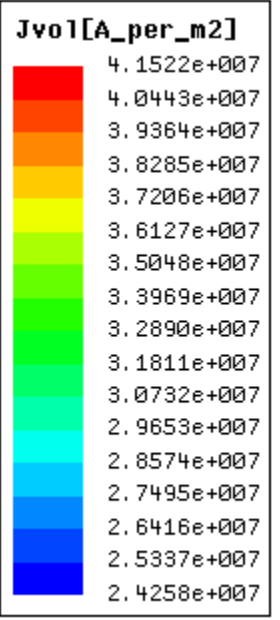


F=100 MHz

ComplexMagnitude Jvol

Skin depth Cu = 6.6 microns

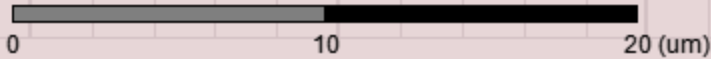
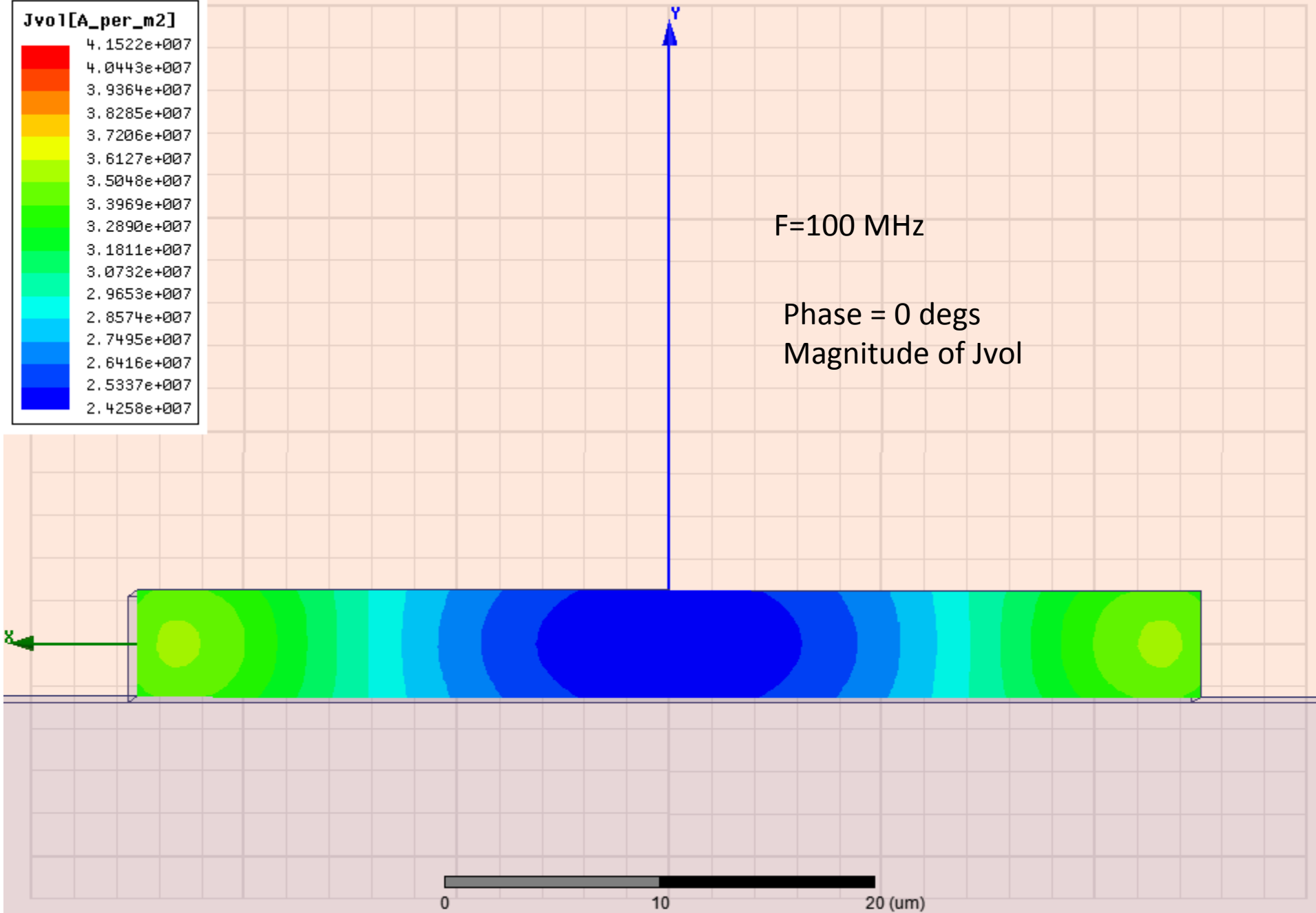


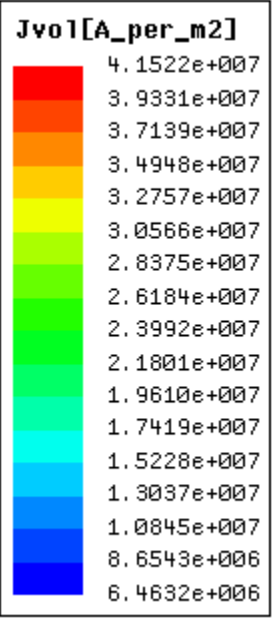


F=100 MHz

Phase = 0 degs

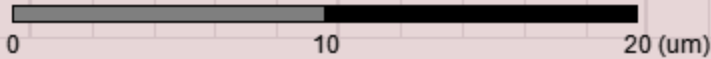
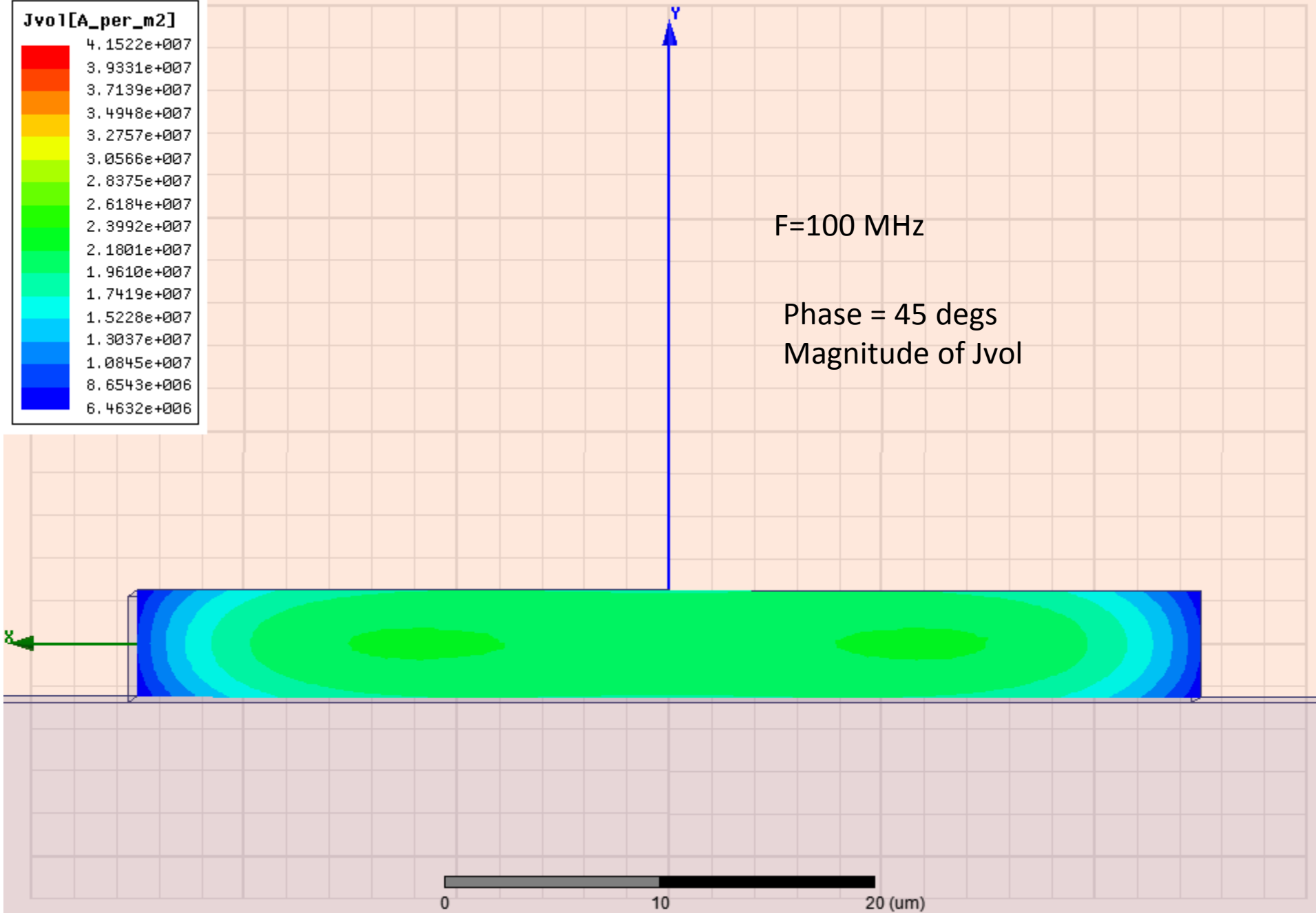
Magnitude of Jvol

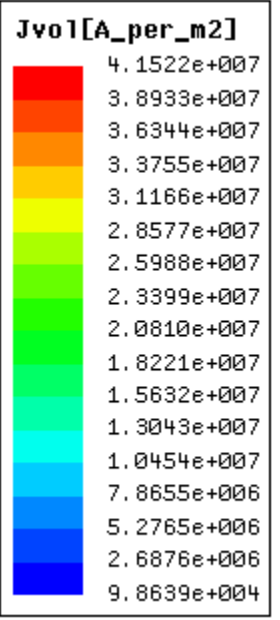




F=100 MHz

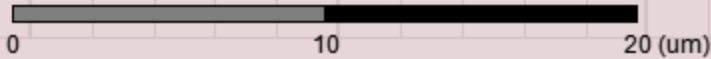
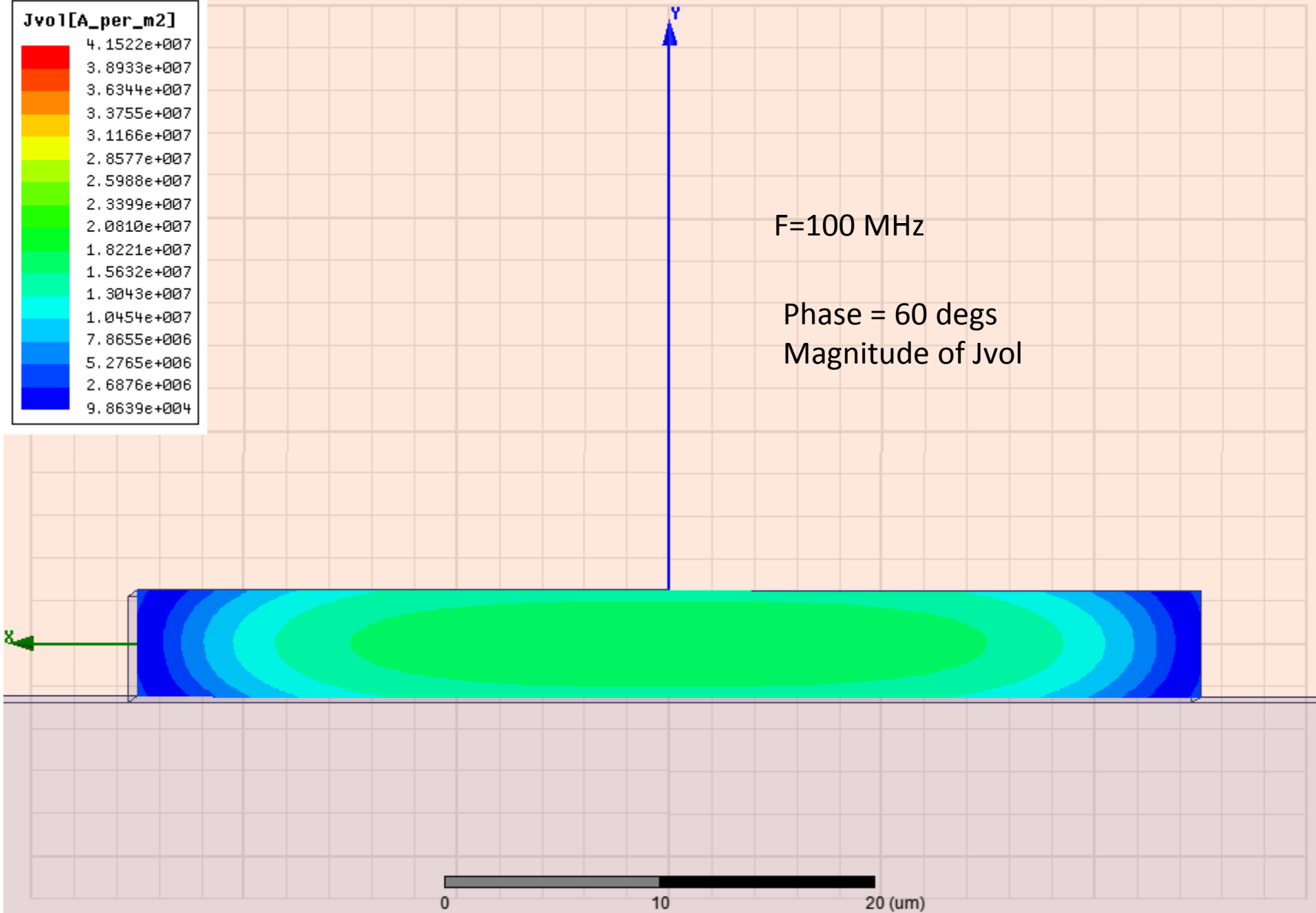
Phase = 45 degs  
Magnitude of Jvol

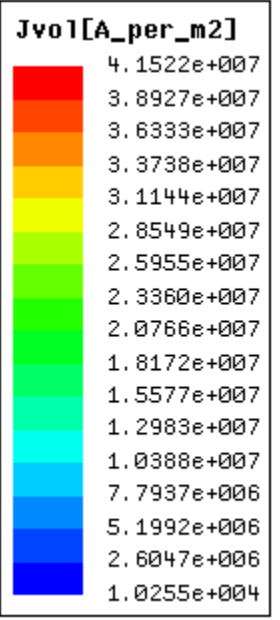




F=100 MHz

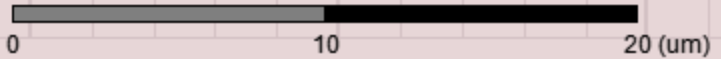
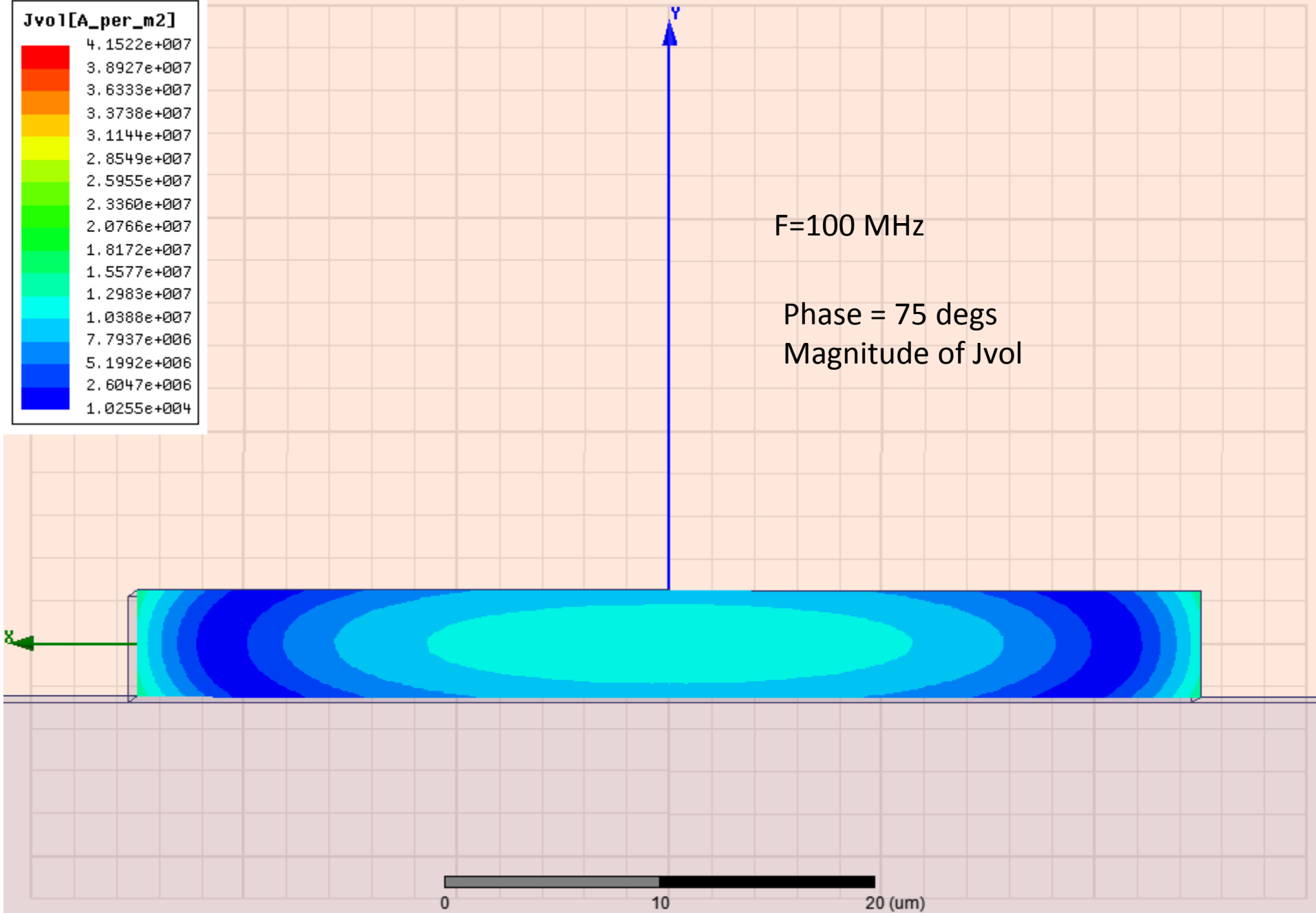
Phase = 60 degs  
Magnitude of Jvol



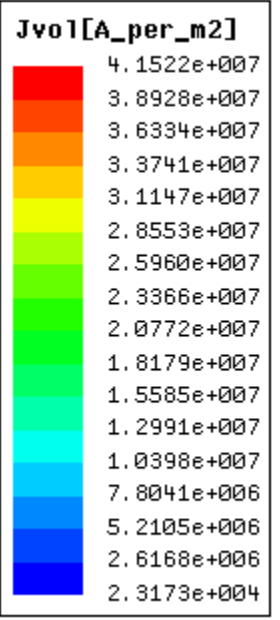


F=100 MHz

Phase = 75 degs  
Magnitude of Jvol

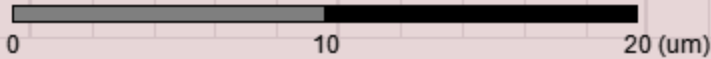
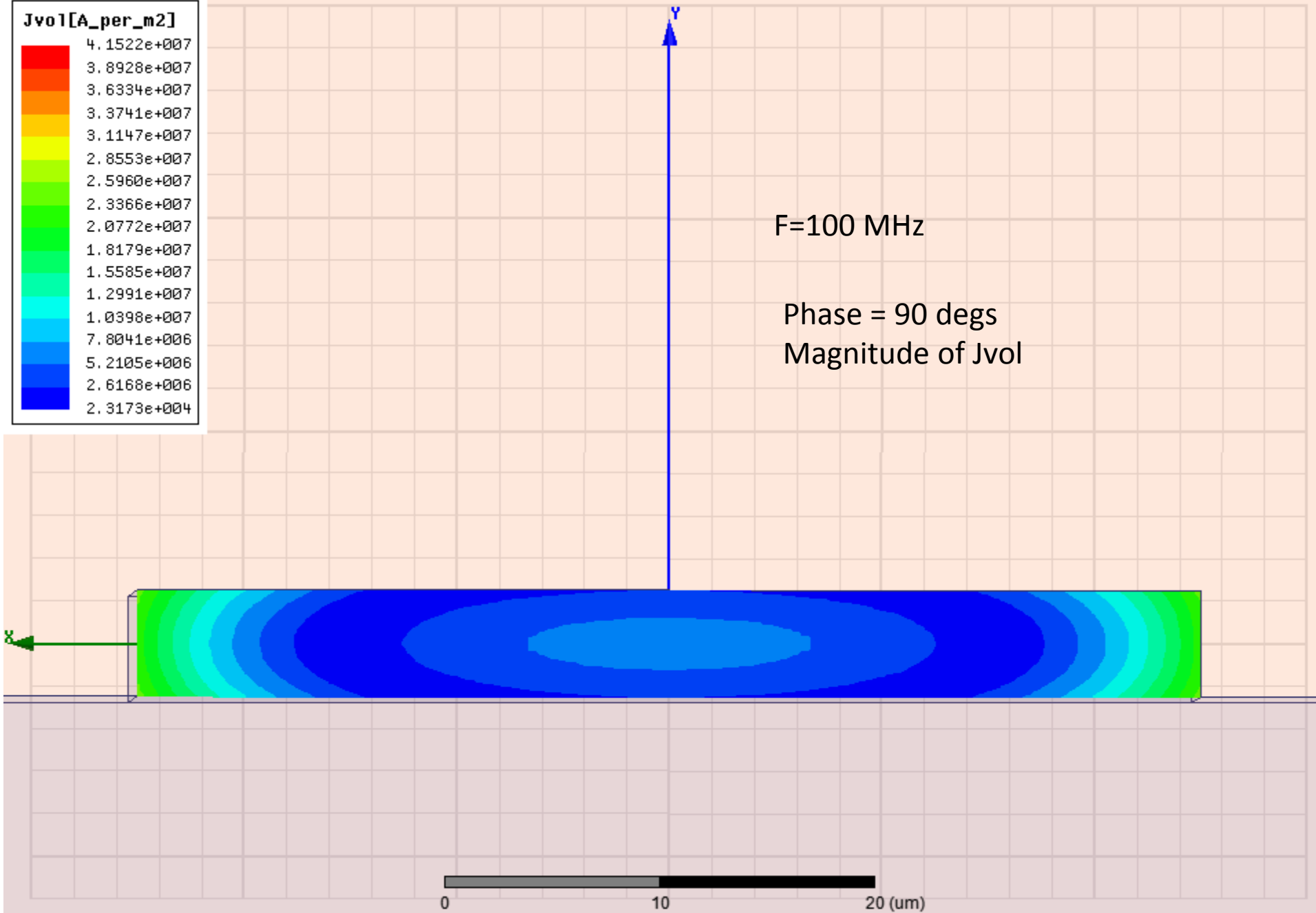




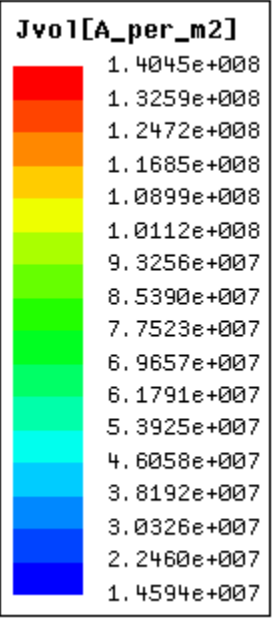


F=100 MHz

Phase = 90 degs  
Magnitude of Jvol



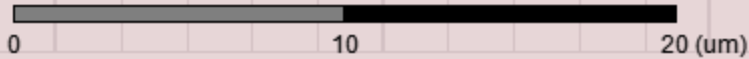


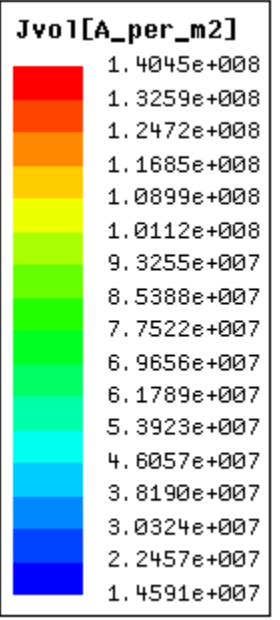


F=1000 MHz

ComplexMagnitude Jvol

Skin depth Cu = 2.1 microns

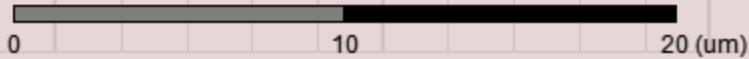


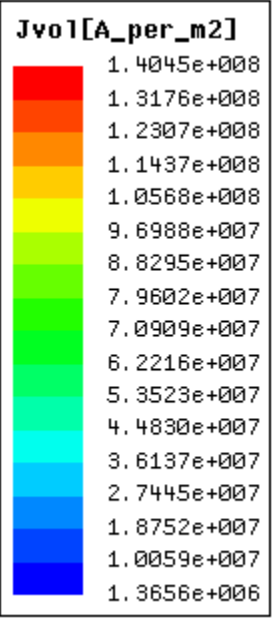


F=1000 MHz

Phase = 0 degs

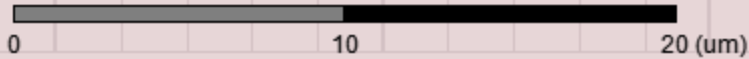
Magnitude of Jvol

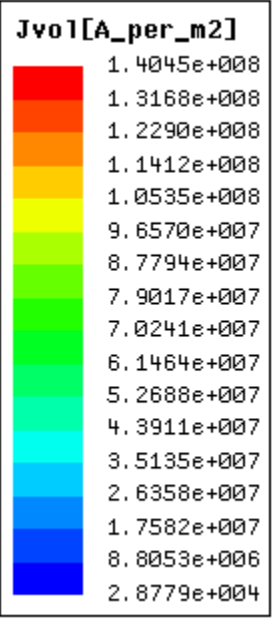




F=1000 MHz

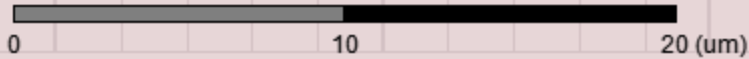
Phase = 45 degs  
Magnitude of Jvol

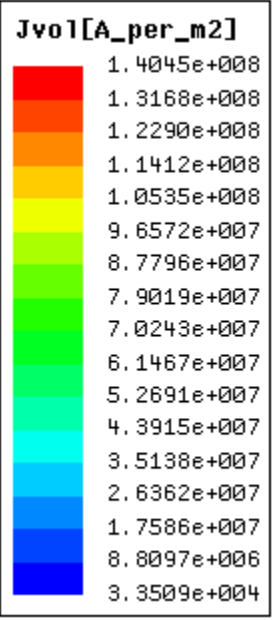




F=1000 MHz

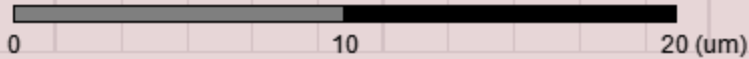
Phase = 70 degs  
Magnitude of Jvol





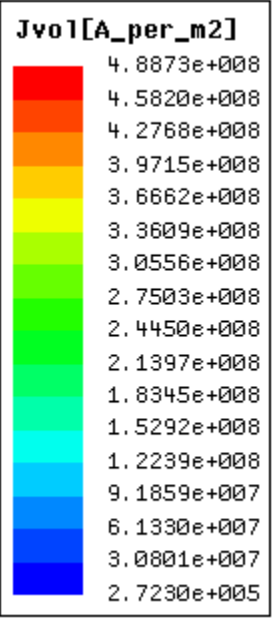
F=1000 MHz

Phase = 90 degs  
Magnitude of Jvol





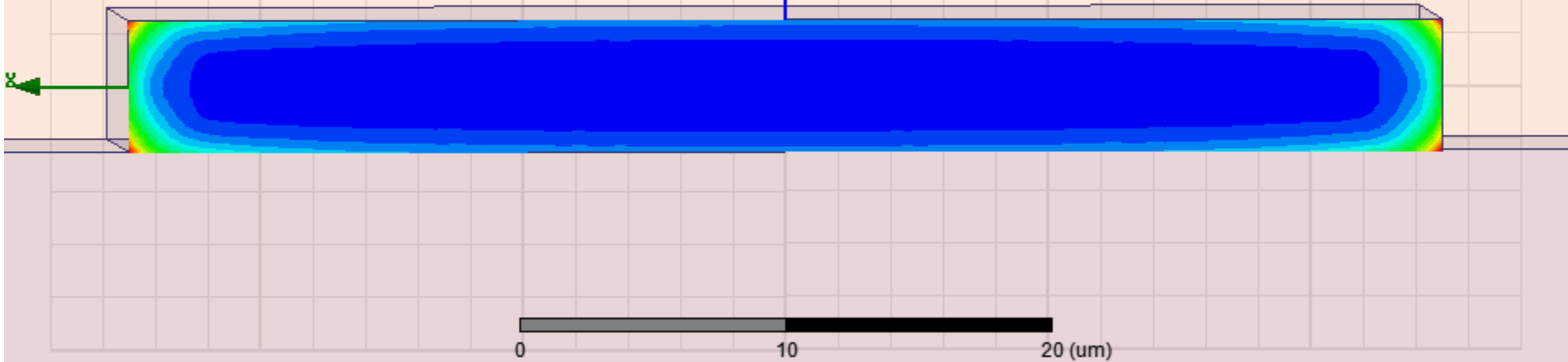


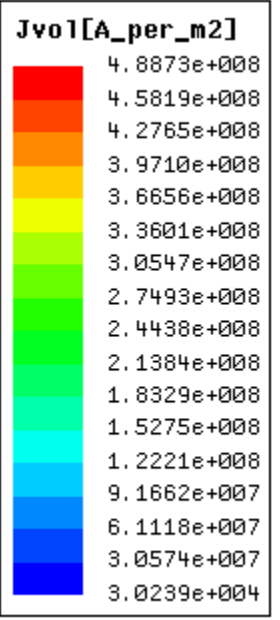


F=6.8 GHz

ComplexMagnitude Jvol

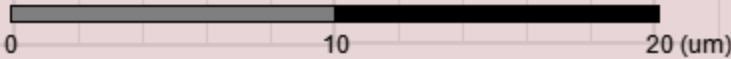
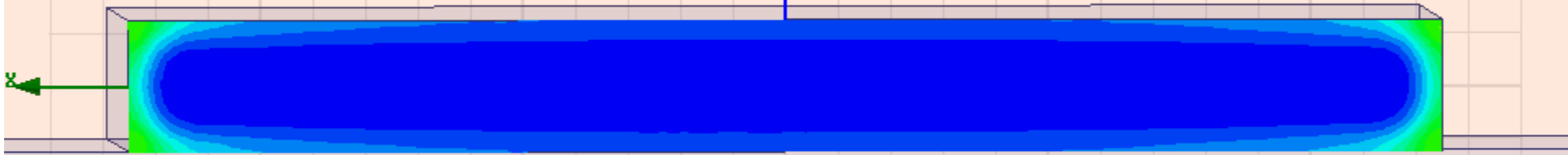
Skin depth Cu = 0.8 microns

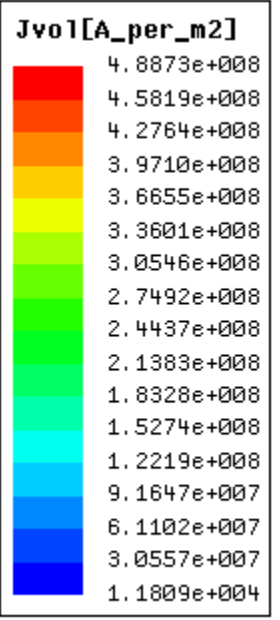




F=6.8 GHz

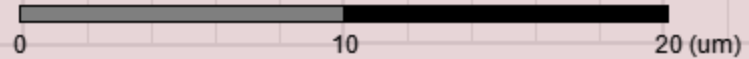
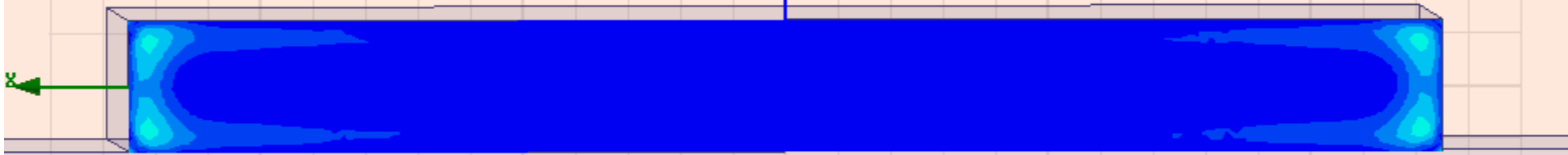
Phase = 0 degs  
Magnitude of Jvol

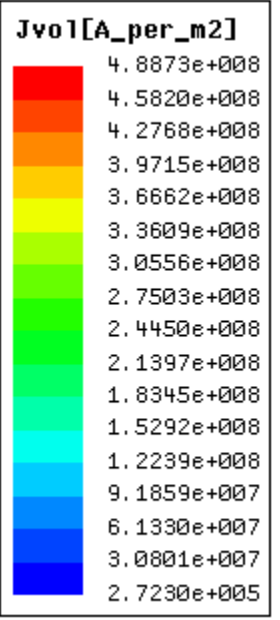




F=6.8 GHz

Phase = 45 degs  
Magnitude of Jvol





F=6.8 GHz

Phase = 90 degs  
Magnitude of Jvol

