

Gunn Diode Oscillator Minutes

David Headland

2004-05-13 10:00

Attendance

- Fourth year students:
 - JM Higginbotham.
 - R Wan.
 - DP Headland.
 - MP Gaskill.
 - AJ Nelms.
 - RE Irwin.
- UMIST staff:
 - WS Truscott (Until 10:10).

Approvals

- The minutes from the last meeting were approved.

Testing

- Looking at the fundamental waveguide, the output is a mirror.
- The backshort is also a mirror.

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- For the fundamental, each diode is also a mirror.
 - Therefore, multiple overlapping cavities are created for > 1 diode.
 - Rotating housings will change these section lengths.
 - The backshort may just affect the back diode.
 - Second harmonics should be affected less by the diodes.

Competition

- Details of a competition were circulated by WS Truscott.
- The “Science, Engineering and Technology Student of the Year”.
- £2000 is available for the best student.
- Full details at <http://www.setawards.org/>.
- Team entries are allowed, but one student should represent the team.

Poster

- MP Gaskill has produced an independent poster.
- The design is very similar to RE Irwin’s layout.
- The best features of each will be selected for the final design.
- The team moved to a computer to comment on the design.
- The following changes were suggested:
 - The background picture is a good idea.
 - Change the combining oscillator diagram to our design.
 - Include a brief description of the single device oscillator.
 - Get a good graph from oscillator testing.
 - Replace the UMIST logo with a vector image.
 - Include the following references:

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- * Barth's paper.
 - * The "microwave bible".
 - * e2v's web site.
 - * Our web site.
- Printing has not currently been arranged for the poster.

Demonstration

- Pictures have been printed for the display.
- Documents will be laminated for public viewing.
- Mechanical drawings will have calculations on the reverse.
- Quantity is being created, quality items will be selected later.
- Name badges have been produced with roles within the team.

Demonstration Meeting

- T York has been emailed regarding the demonstration location.
- He will tell all teams at the same time in the future.
- He has arranged a meeting to discuss this:
 - Thursday 20 May 2004, B29.
 - All managers must attend.
 - All supervisors should attend.
 - Attendance should be confirmed ASAP.

Accenture prize

- This is likely to be won by the tomography team.
- We are acting as consultants to e2v rather than employees.
- We need to differentiate ourselves on this point.
- e2v's role should be made clear in the project demonstration.

Power supply

- Problems were encountered with the PCB automatic routing.
- Extraneous links were created copying PSU components.
- It was suggested that voltage monitoring should be tested.
- Measuring is definitely possible to within ± 10 mV.
- The card contains a 12-bit DAC, so greater resolution should be possible, but this must be tested.

Simulation

- Generally progressing well.
- Backshort simulation tests are complete.
- Future work will go into trying to use e2v's diode model.
- WS Truscott will be available to help this afternoon.
- The RLT P Norton made will be simulated.
- Measurements for the RLT will be made ASAP.

Miscellaneous

- A draft epilogue structure was presented.
- Good luck to everyone in the exams.

Proposed actions

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| RE Irwin | Update the poster according to comments. |
| JM Higginbotham | Send simulation pictures (preferably vector format) to RE Irwin. |
| RE Irwin | Contact T York and supervisors about the meeting. |

DP Headland Send current testing graphs to RE Irwin.
RE Irwin Obtain a photograph of one of the oscillators.
DP Headland Send new testing graphs to RE Irwin ASAP.

Next meeting

Time Tuesday 1 June 2004, 09:00.

Place D2c coffee room.

Meeting adjourned, 11:35.