Writing the Method Section of a Formal Report

As its name implies, the Method section of a lab report describes the experimental method or procedure carried out in performing the lab. This section of a report may also be titled Experimental Procedure or Technical Approach. The description of the process is either an explanation or history of the procedure. Use the present tense to describe how to perform the procedure. Use the past tense to describe the procedure that was done. Since you are reporting on what you did in the lab, I would expect that your Method section would be written in past tense.

The Method section includes descriptions of the sequence of activities performed and the apparatus used. The description of the apparatus can be as simple as a list, but paragraph form allows for greater detail and clarification of how the apparatus was used.

Photographs and figures can provide a convenient and efficient way to communicate what was done during an experiment. Rather than trying to describe a piece of equipment and how it functions in words alone, it is often more informative and easier to use a picture or schematic diagram of the apparatus. If figures are used, they should be properly labeled with a figure number and title. Figures should be neat and professional in appearance. Photographs should provide a clear image of the object of interest and be free from distracting clutter.

In technical writing, it is important to keep in mind who the reader of your report will be. The style and content of your writing are strongly affected by your audience. Clearly, your approach in describing an experimental procedure would be different for our department chair than it would be for an incoming freshman. For your lab reports, your audience is the TA for your section and the instructor.

Your Method section should be a concise description of the procedures that you completed for the lab. Your report should not contain the same level of detail that the lab handout contains. However, from your writing, it should be clear exactly what experiments were performed. When written as part of a full formal report, the Method section supports what is presented in other parts of the report. For example, when reading the Results section of a report, it should be apparent (from previous reading of the Method section) how the results were obtained. As an estimate of length, I would think it difficult to provide a sufficient description of what was done for Lab 2 in less than two pages. In my estimation, anything longer than four pages would be too long.

The Formal Report example in the Undergraduate Guide provides a good guideline for the Method section. Appendix A of your textbook is another good reference. It refers to the Method section as Experimental Program.

Clarifications:
The Method that you write should not be a paraphrase of the procedure documented in the lab handout. The formal report that is written to accompany a lab notebook should complement the notebook, not simply restate the same information in a word-processed
document. I would expect the Method to have less detail (it is not necessary to describe how boiling water was created), and more "big picture" information. Why was it necessary to test in air and in water? Why were time constants measured and calculated in different ways? Why were three temperature-measuring devices used? Be sure to discuss (briefly) how frequency response plots were generated.

Keep in mind who your audience is (it is your instructor or TA, but you can pretend it is your very busy boss). Your boss does not want to wade through a lot of minutia to get to the meat of the method. It is your job to distill this information for him. If he wants to reproduce the experiment, then the nitty-gritty details are in the lab book.

It may help you to "think ahead" to the Results section of the report. What are the results of the experiment? Your Method section should help the reader understand how and why the results were obtained.

Paraphrasing the lab handout is a waste of your time. What I am asking of you will require more careful thought and a higher level of understanding. You will hopefully benefit from the process.