General guidelines for the formal procedure of the public defense of a doctoral thesis

Background
The doctoral programmes at Chalmers lead to two different degrees: Licentiate of Engineering after two years of full-time study and Doctor of Philosophy after four years. The requirements for the doctoral degree include both coursework and a thesis.

A doctoral thesis at a Swedish university has to be reviewed by an expert in the field from another university, known as an “opponent”, and defended publically.

The opponent is officially appointed by the Head or Deputy Head¹ of the department to which the doctoral candidate is associated. The Head or Deputy Head of department also appoints a chairman of the public defense and a grading committee (3 or 5 persons). The grading committee judges the thesis and the candidate's defense performance. Based on their evaluation, the committee assigns a grade of 'Pass' or 'Fail'.

Public defense
Those present at the public defense of a doctoral thesis are the opponent, the candidate, the grading committee, the chairman of the public defense, and the main supervisor of the candidate. In addition, colleagues, experts in the field of the thesis, friends and relatives of the candidate, as well as members of the public may attend.

The common procedure for public defenses is outlined here. Please note that there are no detailed rules describing how the actual examination of the thesis and the defense should be conducted. The procedure may be modified by the Head or Deputy Head of department or the chairman.

1. The chairman welcomes those present and introduces the candidate, the opponent, and the grading committee. The chairman also presents where the research has been conducted and who besides the candidate has contributed to it.

2. Then the chairman gives the floor to the candidate giving him/her the opportunity to present formal comments on the thesis, e.g. the errata sheet.

3. Thereafter, it is common that the opponent gives a brief introduction to the research area and indicates how the thesis contributes to advance the research area.

¹ Some of the departments at Chalmers have Vice Head of department responsible for doctoral programmes instead of Deputy Head of department.
4. The candidate then briefly introduces and summarizes the thesis (approx. 20-30 minutes).

5. The opponent thereafter discusses the thesis with the candidate by asking questions, giving the candidate ample opportunity to demonstrate mastery of the topic and the ability to counter criticism. The questions should be precise and deal primarily with the work reported in the thesis. Thus, the discussion should be concentrated on matters such as the relevance of assumptions made, the validity of methods used, and the scientific and engineering significance of the results presented. It is also desirable, however, to place the thesis in a wider context. During the discussion the opponent should indicate satisfaction with the candidate's answers, or lack of it, and point out any section of the thesis that is particularly valuable. Also, it should be made clear when any part of the thesis or the candidate's answers may deserve criticism.

This part of the defense normally takes one to two hours. It is concluded when the opponent declares the examination to be completed. During this stage of the defense, participation by the audience is normally not allowed.

6. Next, the grading committee is invited to pose questions to the candidate.

7. When the grading committee has finished its questioning, the chairman invites questions to the candidate from the audience. In the discussion that may follow, both the opponent and thesis adviser may participate.

8. The chairman concludes by thanking the opponent and the candidate on behalf of the department and the university.

The whole procedure should normally take no more than two and a half hours.

**Grading Committee meeting**

Immediately after the public defense, the grading committee meets. The committee appoints a chairman and the decision of 'Pass' or 'Fail' is taken based on a majority vote. The opponent and the main supervisor are present at the meeting of the grading committee in order to provide additional information and opinions about the thesis and the defense. However, they do not take formal part in the final decision.