

The following is guidance on how to revise the two sections of the Preliminary Report for the final report. Note that these sections will be re-evaluated in the Final Report, meaning that your Preliminary Report grade can be replaced with a higher grade.

**Basic Requirements of the Preliminary Report** (now transferred to the Final Report):

- Should consist of two sections, an Introduction (~ half a page) and a Situation Analysis (~ 3 pages)
- The Introduction should be written in very general terms, provide background and motivation for the project, and give an idea of what you are trying to do.
- The Situation Report (SA) should start out by describing the target and its general characteristics, e.g., what does the target look like, how does it move, what does it do, what is its environment, etc. Say where your information comes from.

Describe what the radar operator (or controlling system) would like to know about the target, and any operational constraints or other unavoidable considerations.

Sketch out a simple scenario involving the target and describe radar performance specs that would make it possible to do something useful; e.g.,  $\Delta R$ ,  $\Delta Az$ , refresh rate, range of detection, velocity measurement, tracking capability, etc. Relate your performance specs to what the operator will see on his screen – how will your design help him make sense of the situation?

If this scenario is too simple or unrealistic, define a scenario #2 with more factors, e.g., clutter, multiple targets, etc.

Cut off the definition of scenarios when you are satisfied that you have something worthwhile to design.

You must conclude the SA by providing at least one set of radar performance specs. In the subsequent Design Analysis phase, you will assemble a radar system to meet this set of specs.

- Observe that there is virtually no discussion of radar design in these two sections! The Introduction could be intelligently discussed with anybody; the SA could be discussed with a person with practical experience of the situation but no radar training.

**Other points:**

- It is a good idea to illustrate with figures and explain where your numbers come from (even if you had to make them up).