Team or Design Name

line 1: 1st Given Name Surname
line 2: *dept. name of organization (of Affiliation)*
line 3: *name of organization (of Affiliation)*line 4: City, Country
line 5: email address or ORCID

line 1: 2nd Given Name Surname
line 2: *dept. name of organization (of Affiliation)*
line 3: *name of organization (of Affiliation)*line 4: City, Country
line 5: email address or ORCID

line 1: 3rd Given Name Surname
line 2: *dept. name of organization (of Affiliation)*
line 3: *name of organization (of Affiliation)*line 4: City, Country
line 5: email address or ORCID

line 1: 4th Given Name Surname
line 2: *dept. name of organization (of Affiliation)*
line 3: *name of organization (of Affiliation)*line 4: City, Country
line 5: email address or ORCID

*Executive Summary* — Succinct (100 – 200 words) summary of your design, analysis, and key results.

# DESIGN DESCRIPTION

Present your design and describe key design features. **The main body of the report (not including appendices) should be 3 or 4 pages (with body text at 10 pt, Times New Roman font, single spaced, two-column format).** You should use schematics or illustrations to visualize the heat sink. Include additional figures and tables as required in the appendix B.

# DESIGN ANALYSIS

Describe your analysis method including assumptions and corresponding justifications. Present your key results and use your engineering knowledge to critically analyze the findings. Describe any possible limitations of your analysis. This section should explain your design and analysis methodology and the next two sections should specifically indicate the two metrics described in the design guidelines.

# PREDICTED FIGURE OF MERIT

The groups should submit a cost-based Figure of Merit (FOM) as described in the competition guidelines. The groups should predict the figure of merit of their design and explain their analysis here. All values in the table below should be calculated and listed.

1. Figure of Merit and Model Data

| Parameter | Value |
| --- | --- |
| Givens |
| *Heater Power, qinput* [W] | 18 |
| *Ambient Temperature, Tamb* [oC] | 20 |
| **Modeled Values** |
| *Heat Sink Mass, mheat sink* [g] |  |
| *Heat Sink Cost, $heat sink* [$] |  |
| *Heater Temperature, Theater* [oC] |  |
| ***Figure of Merit, FOM* [$-1 oC-1]** |  |
| *Max Temperature of the Heat Sink, Theat sink max*  [oC] |  |
| *Heat Transferred through Heat Sink\*, qHeat Sink* [W] |  |

\*Please note: Teams should state and justify assumptions in their models as part of the design analysis section. If the heater block is assumed to be well insulated from the housing, then *qheat sink* = *qinput* = 18 W. But if the heat lost by conduction through the support structure and to the environment is part of the modeling approach, please report the rate of heat transferred through the heat sink extracted from the model.

# ADDITIVE MANUFACTURING

Describe the advantages and disadvantages of using additive manufacturing to create your designed heat sink.

##### References

Use [IEEE format](https://www.ieee.org/documents/ieeecitationref.pdf) to cite references if needed. You can use reference managers like EndNote, [Mendeley](https://www.mendeley.com), and Zotero to easily insert references.

##### APPENDIX B: ADDITIONAL SUPPORTING MATERIALS

Additional details of code or solution methods, plot outputs, detailed calculations, etc. There is no page limit to this section.