Radiator: determine surface treatment (coatings (flight tested))
radiator area (m^2)
operational heater power as $f(t)$ over 1 orbit for solstice & equinox
survival heater power as $f(t)$ over 1 orbit for solstice & equinox

Power - $P = 20\ W$

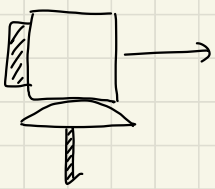
Orbit - geostationary - Earth IR + albedo loading can be ignored

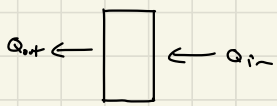
Orientation - one surface continually nadir pointing, radiator mounted on trailing surface

Operational Thermal Requirements - instrument shall be maintained between 20°C and 30°C (no margin)

Survival Thermal Requirements - maintained > -40°C when instrument powered off (no margin)

Spacecraft IR Backload - IR heatload will vary w/ orbital environment
- Winter Solstice $88\ W/m^2$
- Summer Solstice $63\ W/m^2$
- Eclipse $11\ W/m^2$





$$Q_{in} = P_{in} + IR + Solar + Heater$$