# Annex E. Multi-asteroid Touring CubeSat Problem Optimization Results

**Table E.3.** Comparison of baseline and optimized surface properties

| | Baseline value | | Optimized value | |
|---|---|---|---|---|
| Geometry | $\epsilon$ | $\alpha$ | $\epsilon$ | $\alpha$ |
| MS (Main Spacecraft) | | | | |
| Side Panel X+ | 0.03 | 0.1 | 0.095 | 0.078 |
| Side Panel X− | 0.03 | 0.1 | 0.258 | 0.073 |
| Side Panel Y+ | 0.03 | 0.1 | 0.072 | 0.291 |
| Side Panel Y+ inner surface | 0.04 | 0.26 | 0.072 | 0.291 |
| Side Panel Y− | 0.03 | 0.1 | 0.428 | 0.07 |
| Side Panel Y− inner surface | 0.04 | 0.26 | 0.428 | 0.07 |
| Side Panel Z+ | 0.03 | 0.1 | 0.71 | 0.07 |
| Side Panel Z− | 0.03 | 0.1 | 0.02 | 0.07 |
| Propulsion | 0.89 | 0.72 | 0.02 | 0.27 |
| E-sail | 0.022 | 1.0 | 0.02 | 0.94 |
| Instrument | 0.04 | 0.26 | 0.02 | 0.173 |
| Bottom Bus Plate | 0.04 | 0.26 | 0.634 | 0.133 |
| Solar Array back side | 0.89 | 0.72 | 0.94 | — |
| RU (Remote Unit) | | | | |
| Solar Array back side | 0.035 | 0.14 | 0.94 | — |
| External body surface | 0.106 | 0.5 | 0.94 | 0.149 |

**Table E.4.** MAT Comparison of baseline and optimized temperatures. Baseline temperature at hot case is computed for optimized transmitter heat dissipation

| | Temperature before optimization, °C | | Temperature after optimization, °C | |
|---|---|---|---|---|
| Subsystem | min | max | min | max |
| MS (Main Spacecraft) | | | | |
| Battery | −0.9 | +95.8 | −0.15 | +44.8 |
| Main bus | −4.0 | +96.4 | −17.0 | +44.9 |
| Propulsion | −7.6 | +99.8 | −10.15 | +56.4 |
| Transmitter | −7.6 | +108.1 | −20.15 | +49.9 |
| Optical instrument | −10.5 | +95.5 | −20.15 | +32.8 |
| Reaction wheels | −7.6 | +100.2 | −20.15 | +49.6 |
| RU (Remote Unit) | | | | |
| Main bus with battery | 4.4 | 63.0 | −0.15 | +44.8 |
| Tether-reel subsystem | −7.6 | 64.9 | −10.7 | +48.7 |
| Electric propulsion | −7.6 | 60.0 | −10.15 | +56.5 |