SPACE DEVELOPMENT

Temperature-responsive spacecraft radiator films

A thin-film thermal-control concept that changes emissivity with temperature.

Applications to discuss: Passive spacecraft thermal control.

Development technology; numerical design data to confirm

Selection points
Tungsten-doped VO□ thin film / Temperature-dependent emissivity / Thermal-control development concept

Configuration options

Concept	Lower-temperature behaviour	Higher-temperature behaviour
Responsive radiator film	Lower-emissivity heat retention	Higher-emissivity heat rejection

Each row is a separate configuration. Limits from different rows must not be combined.

Technical details

Parameter	Specification or condition
Transition temperature	Not numerically specified
Emissivity limits	Not numerically specified
Film thickness and area	Not numerically specified
Space qualification	Mission-specific evidence to confirm

Integration and delivery

Item	Configuration detail
Integration	Substrate, coating process and spacecraft thermal interface require review

Conditions and configuration notes

• No temperature setpoint, thermal capacity, emissivity range or flight acceptance limit is inferred.

• Ground-test statements do not establish flight qualification for a delivered coating.