Window Specification for Earth ONE Station

7.2.4 Window Specification Earth ONE Station

The Earth ONE station requires windows that withstand extreme thermal cycling, rapid decompression, micrometeorite impacts, and intense UV and cosmic radiation. A multi-layered composite structure is proposed:

- **Outer Layer**: Aluminum Oxide or ALON, 5 cm thick, providing hardness and UV resistance.
- **Middle Layers**: 10 cm fused silica for thermal stability and UV shielding, plus 5 cm polycarbonate for shock absorption.
- **Inner Layer**: 3 cm borosilicate or cerium-doped glass for radiation protection and optical clarity.

Total thickness is approximately 20–30 cm with a weight of 530–550 kg/m², offering superior resilience for the LEO environment.

7.2.4.1 Sources

No external sources used.