

Title Thermal, Halo, and Structural Analysis of OBD Row 1&2 Tiles

Component was checked against latest design
Yes.

All required load cases are included and current
Yes

Discuss method used in the calculation

ANSYS workbench is used for the Analysis. The simulation includes transient thermal runs and static structural runs. FEM model is from CAD model of latest design and dimension and material properties are updated. Thermal modeling includes radiation using the environment temperatures from thermal global model, but addressing the 3D effect of tile profile and applying 3D detailed distribution of heat flux. Structural model imports EOP temperature from thermal model and combined the eddy current load and halo load from Art Brooks. Bolt stress is still high and need to be solved in sub model.

Discuss how the calculation was checked (*)

Temperature ratcheting is compared to 2D global thermal model (NSTXU-CALC-10-6-00) [7]. Based on my knowledge, I think the result is reasonable.

List issue identified and how they were resolved

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Technical Authority: _____(sign and date)

(*) independent calculations can be appended