

Alternative to Aerodag Peer Review Summary

Peer review summary: NSTXU_1-4-1-23_peerDRs_100

REVISION 0

November 5, 2019

PREPARED BY: **Kathleen Lukazik** 11/5/2019 2:07:23 PM

Kathleen Lukazik,

REVIEWED BY: **William R. Blanchard** 11/5/2019 2:27:05 PM

William R. Blanchard,

APPROVED BY: **Robert A. Ellis** 11/5/2019 3:47:31 PM

Robert A. Ellis,

PRINCETON PLASMA PHYSICS LABORATORY
P.O. BOX 451
PRINCETON, N.J. 08543

DESIGN REVIEW DOCUMENTATION – RESULTS – No:

Title: Alternative to Aerodag (WP# 3059, WBS#) _____

CAT: ☒A1 ☐A2 ☐A3

Type of Review: ☒ Peer ☐ CDR ☐ PDR ☐ FDR

Cognizant Individual: A. Cao _____ **Date of Review:** 10/31/19

Review Board Members:	Other Attendees
W. Blanchard, Chairperson	R. Hawryluk
B. Stratton, RE Diagnostics	W. Gattoni
T. Stevenson, Operations & Alt CE	A. Indelicato
S. Gerhardt, Systems Integration & Physics Req's	L. Hill
D. Cai, Vacuum TA	M. Safabakhsh
R. Ellis, Mech TA, CE & VVIH Alt. Re	J. Galayda
P Titus, Analysis TA	P. Dugan
Y. Zhai, NSTX-U Project Engineer	D. Westover
A. Castaneda, QA	

Items Reviewed:	Sat.	Unsat.	Comments or n/a if not applicable
Appropriate requirements identified	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
Development plans and schedules	<input type="checkbox"/>	<input type="checkbox"/>	N/A _____
Reg. compliance incl. USI/USID and NEPA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NEPA 1128 _____
Disposition of CHITS from previous reviews	<input type="checkbox"/>	<input type="checkbox"/>	N/A _____
Cost objectives	<input type="checkbox"/>	<input type="checkbox"/>	Will be updated _____
Other review objectives addressed	<input type="checkbox"/>	<input type="checkbox"/>	_____

SUMMARY OF RESULTS:

At the Alternative to Aerodag CDR, installation of metal oxide plates was proposed as a method of darkening background areas in the vacuum vessel. The purpose of this Peer Review was to review methods employed at other facilities with the objective of finding a suitable and more economical alternative to the metal oxide plates. A. Cao reviewed darkening methods (or lack of) at Alcator C-Mod, JET, ASDEX, MAST-U, DIII-D, NASA, NIST and JPL. The proposed metal oxide plates design has been used in Alcator C-Mod and is suitable for the temperature, outgassing and lithium compatibility required for use in NSTX-U. The only alternative that was considered was an epoxy resin used by NIST and JPL. This epoxy would require successful thermal, outgassing and lithium compatibility testing prior to a decision to use it in NSTX-U. Therefore, the Peer Review committee found the review to be acceptable and recommends that the project proceed with the metal oxide plate design. The total number of plates that are necessary to be installed shall be justified and finalized in preparation for the Final Design Review. There were no chits that the committee concurred with during the review.

Disposition: [check one]

☒ **Acceptable**

☐ **Acceptable pending resolution of concerns**- CHITS identified above must be resolved prior to installation.

☐ **Incomplete** - Additional design work is required prior to another design review.

☐ **Unsuccessful** – Corrective actions must be taken and another review process must be initiated.

Design Review Chair Person _____ **Date:** _____

Cognizant Individual Acceptance _____ **Date:** _____

Distribution: Review Board Members, Operations Center, Responsible Engineer (RE), Cognizant Individuals, Project Manager, Project Director, relevant Technical Authorities (TAs), Chief Engineer (CE), Fire Protection Engineer, Attendees, QA, ES&H, Security, Requesting & Performing Dept. Head