

HTPD 2018



Contribution ID : 435

Type : not specified

6.56 Upper Wide Angle Viewing System Design for ITER

Tuesday, 17 April 2018 10:31 (120)

One of several diagnostic systems being developed by the US is the Upper Wide Angle Viewing System (UWAVS) which provides real-time, simultaneous visible and infrared images of the ITER divertor regions via optical systems located in five upper ports. The primary design challenge of the UWAVS is maximizing system performance while surviving the severe electromagnetic and nuclear ITER environment. A first mirror material study was conducted, determining that single crystal molybdenum was the best choice for the first two mirrors of the in-vessel assembly. A fail open, bellows actuated shutter with cross pivot flexure design was determined to be the most reliable mechanism to protect the foremost plasma facing mirror. A geometrically representative glow discharge mirror cleaning system was designed and tested to maximize cleaning effectiveness while minimizing optical degradation of the first two plasma facing molybdenum mirrors. R&D efforts, technical challenges and issues, and design and analysis results are presented. This work is supported by US DOE Contract No. DE-AC02-09CH11466 under subcontract number S013437-C. The views and opinions expressed herein do not necessarily reflect those of the ITER Organization.

Primary author(s) : SMILEY, Matthew (General Atomics)

Presenter(s) : SMILEY, Matthew (General Atomics)

Session Classification : Session #6, Tuesday Morning Poster Session