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12.21 Dual Magnification IR Viewing System for DIII-D*

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The infrared (IR) part of the DIII-D IR/visible periscope viewing system has been modified for choice of magnification of 1X or 3X (for improved spatial resolution of selected areas such as the upper divertor). No modifications were made to in-vacuum or visible components. The 3X field of view is set by re-aiming one mirror. This allows any part of the 1X view to be examined at 3X magnification. An adjustable camera mount was integrated on a baseplate with a fixed final lens cell (1X or 3X) on a kinematic base and a remote-controlled moveable focusing lens cell. The final and moveable cells were mounted to the baseplate and aligned in an optical lab to insure co-linearity. A new IR camera was installed that allows frame rates up to 1000 Hz at 640 by 512 pixels, and has an integrated filter wheel for neutral density and wavelength filters. Optical and mechanical design will be shown, with results from the installed system. *Work supported by U.S. DOE under DE-AC52-07NA27344 and DE-FC02-04ER54698.

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