

Technology Demonstration Mirror (TDM)

Questions and Answers

July 1, 2002

Question 1: What is the corresponding rms surface error in the mid-spatial frequency range?

Answer 1: The specification is the PSD (see 4.2.2.1.1 in the specification) and not the rms surface error. It is true that a PSD specifies a specific rms surface error but it is not true that the rms surface error specifies a specific PSD. Thus a mirror can be built that has an rms surface error that is below the value that can be derived from the PSD, but the mirror may not necessarily meet the PSD requirement.

The only purpose for providing an rms surface error is to help those who typically think in terms of rms and not PSD to quickly get an idea of what is requested. After getting a quick sense of what is requested the PSD must be referenced to understand the specification. For the spatial wavelength range of 2cm to 40cm the rms surface error is 5nm.