
Comment

Comment on the paper “Etalon effects in laser mirrors”

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In a recent communication, B. A. See¹ detailed the effect of back-surface reflections in laser mirrors. In fact, the detailed examples in the paper relate to an attenuator designed for use with a neodymium YAG laser made from fused silica, with a thickness of 2 ± 0.1 mm, front surface power reflectivities of nominally 20 and 93% (reflectivity R_1), and antireflection-coated rear surfaces (R_2). Reflectivity as a function of angle of incidence is both measured and computed, fitting the fringe depth seen, to obtain a measure of back-surface (AR) reflectivity.

The procedure adopted has a number of serious pitfalls that need to be taken into consideration, especially when applied to the “laser mirrors” cited in the communication’s title, as opposed to thin attenuators. Such mirrors are frequently much thicker, commonly glass (most often BK7), and often concave-plane or concavo-convex in figure. In addition, there are many laser types and the effects that will be observed vary. We note here a number of the more serious effects which, in general, need consideration.