

激光技术

激光能量计测量不确定度评定

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摘要 激光能量是激光辐射的基本参数之一, 是评价激光光源的关键参数, 而激光能量计校准结果的准确性直接关系到激光能量测量的准确性。笔者通过对激光能量计检定过程的分析, 找出了影响检定结果的几个因素。通过分析用作标准器的激光能量计和直读式激光能量计测量不确定度的来源, 建立了测量不确定度的数学模型,

并给出不确定度的A类评定和B类评定等的评定方法。对检定结果的不确定度进行了评定, 给出检定结果不确定度的计算方法和表示方法。

关键词 [激光能量计](#) [检定](#) [测量不确定度](#)

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Evaluation of uncertainty measurement for laser energy meter

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Abstract Laser energy is one of the basic parameters of laser radiation and a key parameter for the evaluation of the laser source, so the calibration result of the laser energy meter has a direct relationship to the accuracy of the laser energy measurement. A factor which effect the verification result is find out through the procedure analyses of calibration of the laser energy meter. By analyses of measuring the source of uncertainty with the laser energy meter and direct reading laser energy meter which were used as standard measurement devices, a mathematical model of uncertainty of measurement was built up. Two evaluation methods (Type A and Type B) of uncertainty of measurement are presented in this paper. The uncertainty of the calibration results is evaluated. The methods of calculation and expression for the uncertainty of calibration results are given.

Key words [laser energy meter](#) [verification](#) [uncertainty of measurement](#)

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