

OPTICAL ELEMENT FOR EFFICIENT GENERATION OF
SHORT-WAVE LASER LIGHT

Abstract

An optical frequency conversion element has a wave-guiding layer which consists of a $\chi^{(2)}$ -active ferroelectric liquid crystal (4). The monomeric or polymeric liquid crystal material has a periodic structure which permits the so-called quasi phase matching of a guided laser beam. The period length of the structure is equal to twice the coherence length $l_c = \pi/\Delta\beta$ of the material, whereby $\Delta\beta = \beta_o(2\omega) - 2\beta_o(\omega)$, with ω = angular frequency of the fundamental wave, 0 = zero-order mode and β = propagation constant of the mode.

FIGURE 1.



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