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FINAL REPORT

Optimization of the Laser

12 October 1965

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SUMMARY

Visible, coherent radiation of 0.53 micron wavelength (blue-green) was produced in a laboratory setup by harmonic doubling in a KDP crystal from 1.06 micron wavelength input radiation. A one millisecond, 4-watt output radiation pulse (4×10^{-3} joules) resulted from a 140 joule input pulse from a neodymium doped, borate glass laser, representing 2.8×10^{-3} percent conversion efficiency.

This technique for the generation of visible, coherent radiation is useful only where a short, high peak-power pulse of radiation is required, since the conversion efficiency is proportional to the level of the input radiation power.

The availability of convenient, moderate-price continuous radiating sources of coherent blue or green radiation, comparable to the present He-Ne lasers, appears imminent.

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