

Development of an oscillator-amplifier system consisting of tea -te nitrogen laser

Marpaung, Mangasi Alion, author

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Abstrak

ABSTRAK

An N₂ laser system that consists of transversely excited atmospheric (TEA) oscillator and transversely excited (TE) amplifier has been designed and constructed. The laser system employs single common spark gap for both oscillator and amplifier. The optimum operating voltage is 15 kV at 2 Hz repetition rate. The measured energy of the output oscillator-amplifier system has maximum value of 55 pJ and beam divergence of 2 mrad horizontally and 1 mrad vertically.

Synchronization between the oscillator and amplifier was achieved by varying the gas pressure in amplifier tube, inductance between oscillator and spark gap as well as the optical path between the oscillator and amplifier. The result of its characterization showed that this system is capable to producing BOO % amplification in a single pass.