

## Transversely excited nitrogen laser characterization

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### Abstrak

Characterizations have been performed on single stage Transversely Excited Nitrogen Laser of Blumlein type. Optical cavity arrangement is varied prior to measurement which shows no significant increase in energy on both configurations of inserting a mirror only and a pair of mirror and a quartz parallel plate. Frequency repetitions respond reveals a small drop in energy at higher frequency i.e. 10 Hz by a factor of 20%. N<sub>2</sub> flow rate consideration behaves on the similar way like pressure profile. At higher supply voltage maximum energy is shifted to higher N<sub>2</sub> flow rate. A similar tendency occurs on pressure curve but with more pronounced maximum energy. Higher supply voltage would shift maximum energy to higher N<sub>2</sub> pressure. Other operating conditions have been kept constant. Beam divergence measurement has given 1,87 mrad on vertical direction and 9,32 mrad on horizontal axis. However, beam cross section experiences a - 10° tilt against horizontal reference. This may happen due to a slight twist on main electrodes. Measurements on different date have showed inconsistent results. Major cause is suspected on using different N<sub>2</sub> cylinder, replacement on the gauge pressure, and crater creation on HV side spark gap electrode.