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**UV Discharge Lamp on Water Vapor** YURIJ SHPENIK, VOLODYMYR KELMAN, YURIJ ZHMENYAK, ANDRIJ HENERAL, Institute of Electron Physics NAS Ukraine — The development of non-coherent sources of UV radiation based on safe and nontoxic gaseous mixtures have good aspect for different applications. Present paper for the first time reports about experimental investigations of high voltage pulse-periodic discharge in water vapor. The observed time integrated emission spectra in the range 250-325 nm at the estimated water vapor pressure 0.1 mm Hg shown tree different parts: part I (250-275 nm) is attributed to B-A electronic transition of hydroxyl OH molecule; part II (275-300 nm) and part III (300-325) – to the A-X electronic transition of OH molecule. The most intensive were the bands, connecting with vibration transitions (1-0) 283 nm and (1-1) 309 nm. No other radiating species were detected. Time-dependent measurement clearly indicated that the emission pulse coincides with current pulse and the electron impact processes defines the properties of the discharge emission. The average output power of the lamp was estimated 1.5 W at 0.2 % efficacy. The use of hard water D<sub>2</sub>O instead of H<sub>2</sub>O results the increasing of output power approximately to twice.

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