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# Tilted waves and passive mode-locking in multi-transverse mode VCSELs

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We show experimentally that a electrically biased 200  $\mu\text{m}$  multi-transverse mode VCSEL can be passively mode locked using optical feedback from a distant Resonant Saturable Absorber Mirror (RSAM). Optical feedback from RSAM selects a tilted wave propagating along the transverse section of the VCSEL and leading to mode-locking of the external cavity modes. A large portion of the VCSEL transverse section contribute to mode-locked pulse emission leading to pulses of approximately 1 W peak power and 10 ps width.

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