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Coherent Doppler Lidars (CDLs), operating at an eye-safe 1.5-micron wavelength, have found promising applications in the optimization of wind-power production. To meet the wind-energy sector’s impending demand for more cost-efficient industrial sensors, we have focused on the development of continuous-wave CDL systems using compact, inexpensive semiconductor laser (SL) sources. In this work, we compare the performance of two candidate emitters for an all-semiconductor CDL system: (1) a monolithic master-oscillator-power-amplifier (MOPA) SL and (2) an external-cavity tapered diode laser (ECTDL).

General information
Publication status: Published
Organisations: Department of Photonics Engineering, Optical Sensor Technology
Contributors: Rodrigo, P. J., Pedersen, C.
Pages: 824112
Publication date: 2012
Peer-reviewed: Yes

Publication information
Journal: Proceedings of SPIE, the International Society for Optical Engineering
Volume: 8241
ISSN (Print): 0277-786X
Ratings:
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.27 SJR 0.219 SNIP 0.282
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
Original language: English
Keywords: Semiconductor laser, LiDAR
DOIs: 10.1117/12.908800
Source: dtu
Source ID: n:oai:DTIC-ART:inspec/363413089::15421
Research output: Contribution to journal » Conference article – Annual report year: 2012 » Research » peer-review