

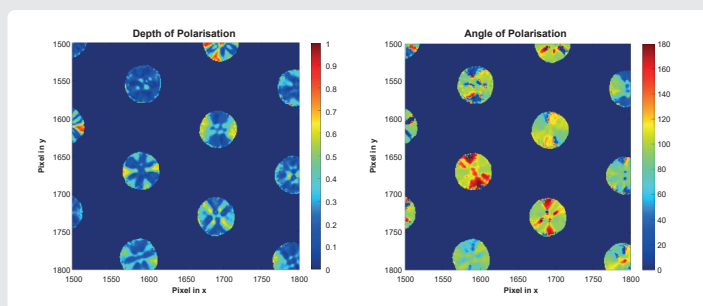
VCSEL Characterization – Advancing to the next level!

Challenges

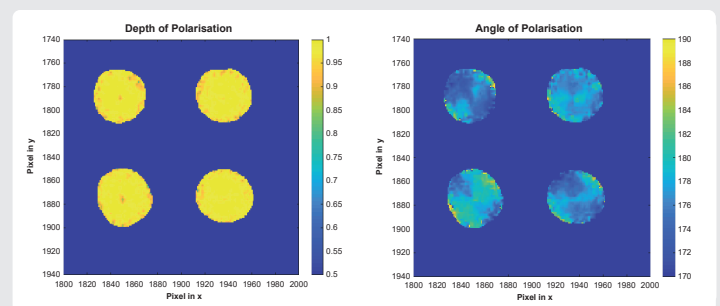
- ▲ Novel high power VCSEL arrays need spatial, spectral and polarization testing
- ▲ Time-of-flight applications require pulse durations shorter than 10 ns
- ▲ Eye safety evaluation with low error budgets and traceable absolute calibration



Visualisation of VCSEL polarization characteristics



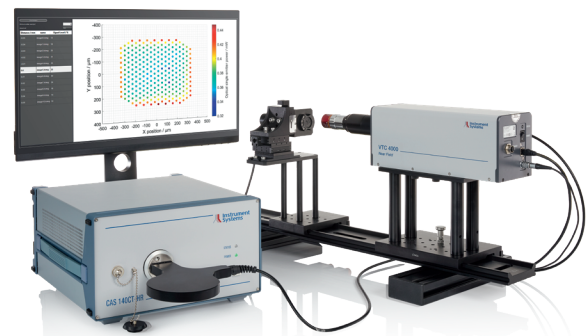
Polarization-unstable VCSELS



Polarization-stable VCSELS

Fast Single Emitter Characterization on a VCSEL Array – VTC 4000

- » Single shot evaluation of radiant power across an array and each emitter
- » 2D defect emitter detection
- » Determine position, waist, numerical aperture and M^2 of each emitter
- » Measurement of spectra for all emitters on array
- » One-shot spatially resolved evaluation of linear polarization with pixel-resolution
- » PTB traceable, absolute radiometric and spectral calibration



Calibrated Spatial Emission Inspection in the Far Field – VTC 2400

- » Measure radiant intensity or irradiance in one shot
- » Measure angular distribution of the whole packaged or unpackaged VCSEL array
- » Automatic identification of highest intensity “Hot-Spots” for laser eye safety evaluation
- » Uniformity control of radiation pattern
- » PTB traceable radiometric calibration

