



**Kipp &  
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recd 10/10/09 09

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## CALIBRATION CERTIFICATE

### QUANTUM SENSOR

Calibration date : 29-05-04

Calibrated by : G.Lindner

Quantum sensor, type : **PAR LITE**

Serial no : 040412

Sensitivity ( $\pm 2\%$ ) : 5.58  $\mu\text{V}/\mu\text{mol}/\text{s}.\text{m}^2$   
in solar radiation at airmass 1.5

Impedance : 240 Ohm

Calibration procedure : Exact interchange of test PAR LITE and reference PAR LITE in a horizontal parallel beam from a Xenonlamp. Photosynthetic photon flux density approx. 400  $\mu\text{mol}/\text{s}.\text{m}^2$ . Instrument temperature approx. 25<sup>o</sup> C.

Hierarchy of traceability : The reference PAR LITE is calibrated against a standard of known illuminance, the photometric standard lamp of Osram type Wi 41/G with color temperature of 2856 K, which on his turn is calibrated yearly at the dutch standard laboratory NMI. From the known illuminance and the 2856 K spectrum the photosynthetic photon flux density is calculated: 6.122  $\mu\text{mol}/\text{s}.\text{m}^2$ . The sensitivity figure of the reference PAR LITE is made correct for hemispherical solar irradiance at airmass 1.5 (spectrum according international standard ISO 9845-1). The correction of the Correction applied to sensitivity figure was +1.2 %.

File name: PARLITEcalibrate cert..doc  
Date : 980701