

PCAL Calibration Factors for LHOX

PCAL Team

August 28, 2015

Description	Variable(Units)	D20150804	D20150827
Mass of ETM	$M(Kg)$	$39.6470 \pm 0.01\%$	$39.6470 \pm 0.01\%$
Cosine of Incident Angle	$Cos\theta$	$0.9884 \pm 0.07\%$	$0.9884 \pm 0.07\%$
WS/GS(T15000035)	(V/V)	$0.9262 \pm 0.03\%$	$0.9262 \pm 0.03\%$
GS/NIST(T15000035)	(V/W)	$-1.6935 \pm 0.44\%$	$-1.6935 \pm 0.44\%$
WS/TX (inner beam)	(V/V)	$-0.1586 \pm 4.2 \times 10^{-03} \%$	$-0.1588 \pm 2.8 \times 10^{-03} \%$
WS/TX (outer beam)	(V/V)	$-0.1580 \pm 2.7 \times 10^{-03} \%$	$-0.1583 \pm 2.8 \times 10^{-03} \%$
WS/TX (inner beam)	(V/V)	$-0.1561 \pm 3.9 \times 10^{-03} \%$	$-0.1561 \pm 3.2 \times 10^{-03} \%$
WS/TX (outer beam)	(V/V)	$-0.1549 \pm 3.8 \times 10^{-03} \%$	$-0.1532 \pm 3.1 \times 10^{-03} \%$
RX/TX (inner beam)	(V/V)	$0.6287 \pm 5.8 \times 10^{-04} \%$	$0.6270 \pm 5.1 \times 10^{-04} \%$
RX/TX (outer beam)	(V/V)	$0.6235 \pm 8.4 \times 10^{-04} \%$	$0.6128 \pm 2.4 \times 10^{-03} \%$
Optical efficiency (inner)	e_i	$0.9846 \pm 0.45\%$	$0.9828 \pm 0.50\%$
Optical efficiency (outer)	e_o	$0.9805 \pm 0.57\%$	$0.9679 \pm 0.94\%$
Optical efficiency	e	$0.9826 \pm 0.51\%$	$0.9753 \pm 0.72\%$
TX/WS (combined)	(V/V)	$-3.1589 \pm 2.5 \times 10^{-04} \%$	$-3.1533 \pm 2.0 \times 10^{-04} \%$
RX/WS (combined)	(V/V)	$-4.0257 \pm 5.5 \times 10^{-03} \%$	$-4.0082 \pm 5.1 \times 10^{-03} \%$
Calibration factor (TxPD)	(V/W)	$4.9983 \pm 0.67369\%$	$5.0079 \pm 0.84669\%$
Calibration factor (RxPD)	(V/W)	$6.2591 \pm 0.67371\%$	$6.2085 \pm 0.84670\%$
Displacement factor (TxPD)/ f^2	(m/V)	$8.428 \times 10^{-13} \pm 0.67899\%$	$8.412 \times 10^{-13} \pm 0.85091\%$
Displacement factor (RxPD)/ f^2	(m/V)	$6.73 \times 10^{-13} \pm 0.67901\%$	$6.785 \times 10^{-13} \pm 0.85092\%$
Force Coefficient (TxPD)	(N/V)	$1.319 \times 10^{-09} \pm 0.67887\%$	$1.317 \times 10^{-09} \pm 0.85082\%$
Force Coefficient (RxPD)	(N/V)	$1.053 \times 10^{-09} \pm 0.67890\%$	$1.062 \times 10^{-09} \pm 0.85083\%$