# ARCS Radiometer Calibration Check Using Comparison Instruments Form

## I. Calibration information

| | Calibration | Calibration Check | Field Calibration |
|---|---|---|---|
| This is a (check which): | | X | |

| Date: | GMT Begin Time: | GMT End Date: | GMT End Time: | ARCS # |
|---|---|---|---|---|
| 11/1/2004 | 00:40 | | | 1 |
| MM/DD/YY | | MM/DD/YY | | |

| | SKYRAD | GNDRAD | CAL Logger |
|---|---|---|---|
| Old configuration version | n/a | n/a | V040926 |
| New configuration version | | | V041101 |

| Instrument / System: | TWP OMS Part Number(s): | Changed? | TWP OMS Serial Number(s): | Calibration Coefficients |
|---|---|---|---|---|
| PIRG1 | PIR | | 31300F3 | K0=-2.66 , K1=0.3049839 , K2=1.000 , K3=-4.5 |
| PIRD2 | PIR | | 30131F3 | K0=-11.95, K1=0.2604585 , K2=1.021 , K3=-3.121 |
| PSPG | PSP | | 31290F3 | RS@45=8.4570 |
| PSPD | B&W | | 33243 | RS@45=9.4712 |
| IRT | KT19.85 | | 866 | |
| NIP | NIP | | 31346E6 | RS@45=8.1573 |
| PIR GNDRAD | PIR | | 31312F3 | K0=0.27 , K1=0.29859 , K2=0.99657 , K3=-2.933 |
| PSP GNDRAD | PSP | | 31280F3 | RS@45=7.2488 |
| IRT | KT19.85 | | 1205 | |
| MFRSR | MFR7-HEAD / MFRSR-Logger Board | | 922 / B | |
| Tracker | KZ | | | |

Verify that serial number of test instruments above are correct. (yes / no) **YES**

| Location (eg. PNNL, Manus): | Participant(s): | Issued by: | Signature(s): |
|---|---|---|---|
| Manus | Troy Culgan & Rex Pearson | | |
| | | | |

| Comparison Stand Reference Instrument(s): | TWP OMS Part Number(s): | TWP OMS Serial Number(s): | Calibration Coefficients |
|---|---|---|---|
| PIRC1cal1 | PIR | 31301F3 | K0=-0.75 , K1=0.31270 , K2=0.999 , K3=-3.520 |
| PIRC2cal1 | PIR | 31302F3 | K0=-5.41 , K1=0.27536 , K2=1.007 , K3=-2.405 |
| PIRC1Cal2 | PIR | 31304F3 | K0=-10.28 , K1=0.28169 , K2=1.018 , K3=-2.797 |
| PSPC1cal1 | B&W | 33271 | RS@45=9.0870 |
| PSPC2cal1 | PSP | 29913F3 | RS@45=7.8047 |
| PSPC1cal2 | PSP | 29916F3 | RS@45=7.7788 |
| PSPC2cal2 | PSP | 29915F3 | RS@45=7.9418 |
| NIPC1cal1 | NIP | 29868E6 | RS@45=8.0380 |
| IRTC1cal1 | | | |
| IRTC2cal1 | | | |
| | | | |
| MFRSRcal | MFR7-HEAD / MFRSR-Logger Board | 922 / B1DA | |

Verify that serial numbers of reference instruments are correct (yes/no) **YES**

Verify with mentor that calibration coefficients and configuration file changed accordingly for PIRs, PSPs, and NIPs. (yes / no) **YES**

## II. Initial Values

note: the following are determined from sample values of voltages from the logger during unobsured sun conditions if possible (using ARM calculator or other technique)

| Sensor / Element | Value Reference (usually spare instr.) | Value of SKYRAD Instr. | % Difference: SKYRAD and Spare | Time (GMT) | Sun Obscured? (Yes/No) |
|---|---|---|---|---|---|
| PIR1C & PIRG (W/m2) | | | | | |
| PIR2C & PIRD (W/m2) | | | | | |
| PIR1C & PIRG (Td oC) | | | | | |
| PIR2C & PIRD (Td oC) | | | | | |
| PIR1C & PIRG (Tc oC) | | | | | |
| PIR2C & PIRD (Tc oC) | | | | | |
| PSP1C & PSPG (W/m2) | | | | | |
| PSP2C & PSPG (W/m2) | | | | | |
| NIP1C & NIP (W/m2) | | | | | |
| Cavity & NIP (W/m2) | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| PIRD & PIR GNDRAD (W/m2) | | | | | |
| PSPG &PSP GNDRAD (W/m2) | | | | | |
| IRT oC | | | | | |
| NET (W/m2) | | | | | |
| MFRSR (W/m2 @615 nm) | | | | | |

**III. Final Values**

| Sensor / Element | Value Reference (usually spare instr.) | Value of SKYRAD Instr. | % Difference: SKYRAD and Spare | Time (GMT) | Sun Obscured? (Yes/No) |
|---|---|---|---|---|---|
| PIR1C & PIRG (W/m2) | | | | | |
| PIR2C & PIRD (W/m2) | | | | | |
| PIR1C & PIRG (Td oC) | | | | | |
| PIR2C & PIRD (Td oC) | | | | | |
| PIR1C & PIRG (Tc oC) | | | | | |
| PIR2C & PIRD (Tc oC) | | | | | |
| PSP1C & PSPG (W/m2) | | | | | |
| PSP2C & PSPG (W/m2) | | | | | |
| NIP1C & NIP (W/m2) | | | | | |
| NIP2C & NIP (W/m2) | | | | | |
| PIRD & PIR GNDRAD (W/m2) | | | | | |
| PSPG &PSP GNDRAD (W/m2) | | | | | |
| IRT oC | | | | | |
| NET (W/m2) | | | | | |
| MFRSR (W/m2 @615 nm) | | | | | |

**IV. Statistics**(if applicable)

| No. of Samples: | Begin Date / Time GMT | End Daste / Time GMT |
|---|---|---|
| | | |

**V. Calilbration Change**(if applicable)

| Sensor or Parameter | Sensor Serial No. | Internal Resistance | Original Sensitivity | Offset | Quadratic |
|---|---|---|---|---|---|
| | Old | Old | Old | Old | Old |
| | New | New | New | New | New |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Document(s) Referenced: | Document(s) Updated: |
|---|---|
| PRO(RAD)-001.001 | PRO(RAD)-001.007 |
| | |

**PROBLEMS:**

**NOTES:**
Gndrad inverted at 00:40 01 Nov 04 UTC