

Field Technician Quick-Reference Checklist: SWIR Spectrometer

Daily Field Verification & Calibrated Panel Inspection

Station / Location:		Date & Time:	
Instrument Serial #:		TEC Target Temp:	-15.0°C ± 0.2°C

Step	Task / Verification Description	Acceptance Criteria	Result
1. Optics Cleanliness	Inspect fore-optics lens for dust, dirt, or fingerprints; clean with lens wipes.	Lens pristine, scratch-free	☐ Pass ☐ Fail
2. TEC Cooled Stabilize	Power on detector TEC and wait 15 min for thermal stabilization.	Detector $T = -15.0 \pm 0.2^{\circ}\text{C}$	☐ Pass ☐ Fail
3. Dark Current Sweep	Attach black cap and average 50 dark frame sweeps (DC_{λ}).	Noise $< 15 \text{ DN}_{\text{RMS}}$	☐ Pass ☐ Fail
4. Spectralon Inspection	Inspect 99% Spectralon panel for scuffs or yellowing.	Target uniform white	☐ Pass ☐ Fail
5. White Reference Capture	Aim lens perpendicular at Spectralon panel (30 cm) and acquire WR_{λ} .	Peak signal 75–85% FSR	☐ Pass ☐ Fail
6. Saturation Audit	Check raw spectral count curve to ensure no saturated channels.	Peak $< 55,000 \text{ DN}_{(16\text{-bit})}$	☐ Pass ☐ Fail
7. SNR Verification	Evaluate signal-to-noise ratio across 1.45 μm and 1.94 μm water bands.	$\text{SNR} > 500:1$	☐ Pass ☐ Fail
8. NDWI Check	Verify live calculated NDWI output against reference wet/dry targets.	$\text{NDWI}_{\text{wet}} > +0.30$	☐ Pass ☐ Fail
9. Battery Voltage	Check internal lithium power pack voltage status.	Voltage $> 14.2 \text{ V}_{\text{DC}}$	☐ Pass ☐ Fail
10. Data File Log	Save dark/white baseline file header with GPS coordinates.	File header populated	☐ Pass ☐ Fail

FIELD VERIFICATION & APPROVAL SIGN-OFF	
Prepared & Approved By:	Kadeem Manning (Lead Field Specialist)
Technician Signature:	Kadeem Manning
Verification Date:	September 16, 2026
Calibration Status:	☒ PASSED & VERIFIED ☐ REJECTED