

Field Technician Quick-Reference Checklist

Field Service & Verification Form | Lead Specialist: Kadeem Manning | Instrument: Ground Penetrating Radar (500 MHz Shielded Antenna Unit)

Technician Name:	Kadeem Manning	Date / Time:	___ / ___ / 2026
Station / Location:	_____	Unit Serial #:	_____ _____
Weather Conditions:	Temp: ____ °C RH: ____ %	Target BAC / Permittivity:	_____ _____

Step / Item	Procedure & Acceptance Criteria	Target Range	Pass / Fail
1. Battery Voltage Check	Check main control unit Li-ion battery pack voltage before survey start.	> 14.2 V DC	[] Pass [] Fail
2. Antenna Cable Check	Inspect Ethernet/fiber-optic interconnect cable between antenna and control unit.	No Kinks / Locks Tight	[] Pass [] Fail
3. Odometer Calibration	Roll cart over measured 10 m baseline course; adjust wheel calibration factor.	10.00 m ± 0.05 m	[] Pass [] Fail
4. Time-Zero (\$ ext{T}_0\$) Adjust	Set transmitter pulse direct-wave arrival peak to \$t = 0.0 ext{ ns}\$.	\$ ext{T}_0\$ Offset Fixed	[] Pass [] Fail
5. Metal Plate Amplitude	Perform metal plate reflection test; verify full negative amplitude pulse.	Phase Inverted / Max Amp	[] Pass [] Fail
6. Gain Function Setup	Apply Exponential Time Gain (SEC) to compensate for geometric attenuation.	Balanced Trace Signal	[] Pass [] Fail
7. Ground Coupling Check	Ensure antenna bottom skid rests flat against ground without excessive gap.	Air-Gap < 0.5 cm	[] Pass [] Fail
8. Hyperbola Fitting	Fit hyperbola curve to point reflector trace; extract local wave velocity \$v\$.	\$v = 0.06 ext{--}0.15 ext{ m/ns}\$	[] Pass [] Fail
9. Dielectric (\$ arepsilon_r\$) Calc	Compute soil relative permittivity \$ arepsilon_r = (c/v)^2\$ across profile horizons.	\$ arepsilon_r = 4.0 ext{--}25.0\$	[] Pass [] Fail
10. Profile Data Export	Save RAW radar files (.DZT / .RD3) to external flash storage.	File Verified Intact	[] Pass [] Fail

FIELD NOTES & SUBSURFACE REFLECTION LOG:

FIELD TECHNICIAN SIGN-OFF I attest that all calibration verification steps listed above have been executed strictly according to published SOP guidelines and quality assurance protocols.	Prepared & Verified By: Kadeem Manning Lead Field Specialist Signature: _____ Date: _____
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