



SURFACE SYSTEMS & INSTRUMENTS, INC.

Custom Test Equipment • Mobile Technology Solutions

California

1845 Industrial Drive
Auburn, California 95603

☎ (530) 885-1482



38.9295236N, -121.0945153W

Kansas

307 Plymate Lane
Manhattan, Kansas 66502

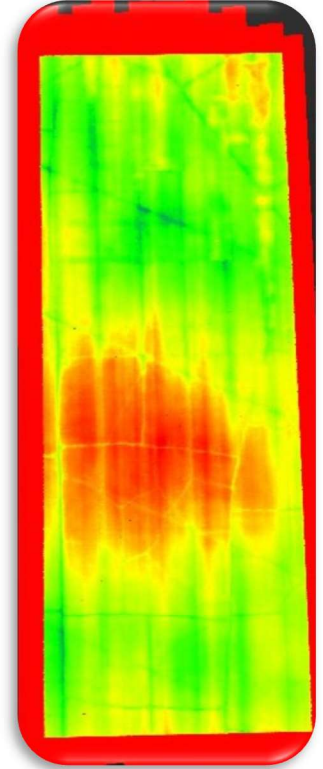
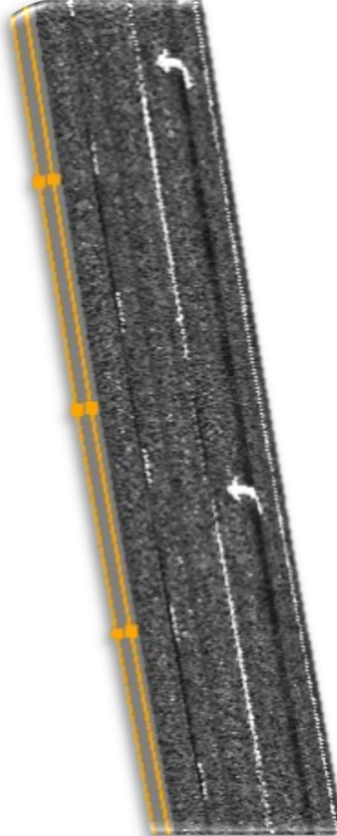
☎ (785) 539-6305



39.1852186N, -96.6082708W

smoothroad.com

Scan • Design • Control

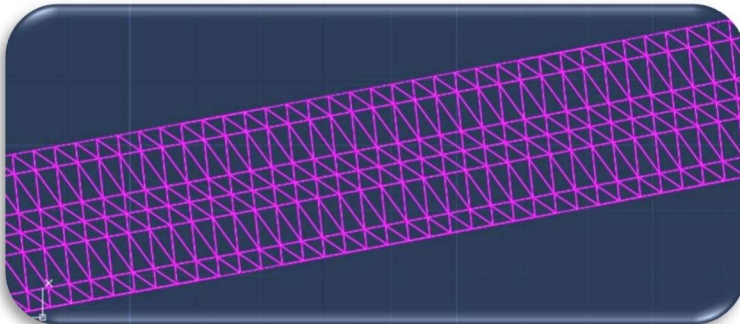


▲ CS9550 and CS9500 Survey Scanners ▲

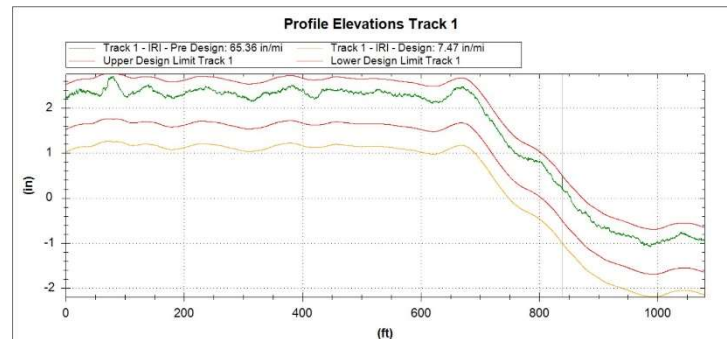
▲ Dense Point Cloud ▲

▲ Machine Control Model ▲

2D or 3D Machine Control Models by Slope or Elevation



▲ Existing or Design Mesh ▲



▲ Elevation Model in SSI Profile Design ▲

All Properties Dependent on System Build and Features Installed:

IP Conforming Specifications	ASTM E950, AASHTO R56 & R57, ASTM E1926, TxDOT 1001-S
Collection Speed	0-160 mph for inertial system with Zero-Speed upgrade 56 mph for 2-inch grid on scanning system
Smoothness Report Metrics	IRI, MRI, HRI, RN, RMS, PRI
CS9500 Mounting	Rear (bed rails) or front mounted (tow hooks)
CS9550 Mounting	2" hitch (Class III)
Smoothness Localized Roughness Metrics	IRI, Straightedge, Profilograph must-grinds, Texas 1001-S method
Smoothness Data Export Formats	ProVAL (PPF, ERD), GIS, Excel, PDF, TxDOT PRO, CAD, Txt.
Survey Scan Export Formats	LAS, DXF, Text/CSV (PNEZD)
Software Requirements	Windows 10
GPS Features Available	Constellations: GPS, Glonass, Galileo, Beidou; L1/L2 frequencies; Correction Services: WAAS, SBAS, PPK/RTK, NTRIP
PPK 2D GPS Accuracy	~10mm horizontal, ~25mm vertical
3D Control Point Spacing	2,500 – 4,000 feet (800-1,200 meters)
PPK 3D Elevation Accuracy	≤ 6mm for ~95% of point cloud
Inertial Profiler Laser Vertical Accuracy	< 0.01-inches (Per AASHTO r56)
Inertial Profiler Laser Standoff Height	12-inches (305mm)
Inertial Profiler Laser Width	4-6 inches (100-150 mm)
Scanning Laser Vertical Accuracy	0.56 mm (0.022-inches)
Scanning Laser Z-axis Linearity	0.05% of MR
Scanning Laser Measurement & Frequency	1200 points at 5kHz
3 Laser CS9550 Scan Width	3-Laser: 7.5-feet (2.3 meters) 6-Laser: 13.5-feet (4.1 meters)
Scanning Laser Mount Height	60-inches (1.52 meters)
Accelerometer	±10g (0.0001g resolution)
GPS-DMI Accuracy	< 0.05%
Encoder DMI Accuracy	< 1-ft/528-ft
IMU Pitch/Roll Accuracy	0.02 degrees
IMU Heading Accuracy	0.01 degrees
Power Connection	Host Vehicle Battery or 7-pin trailer
Power Supply	12V DC
Power Draw	2.4 amps per laser

Features: 25 Years Refined

- Guided calibrations for bounce test, laser verification, accelerometer, and distance.
- Only 1 pass per lane (CS9500) and two passes per lane (CS9550)
- Immediate reporting of IRI and texture
- Built-in GPS Post-Processing (**PPK**)
- 2D or 3D surfaces for modeling
- SSI Survey Correction Program merges scan data & corrects to 3D elevations
- **Intellicut Corrective Grind Optimization Software.**
- Profile Design software creates smoothed **machine control models** based on machine dynamics and IRI values
- Navigate to defects and locations with our real time **GPS Tracker**
- Real time display of traces, speed, position during collection.
- Configurable hot-key shortcuts.
- Real-time system health monitoring and diagnostics
- Support for Google Earth and Google Maps.
- User configurable analysis parameters and data editing.
- Rewritable raw data: change parameters at any time.
- Automatic software updates with SSI Profiler 3.
- Real-time error logging and web-based reporting.

Operation, Training & Support

- Designed for safe, one-person operation.
- Sensor modules adjust to meet different agency specifications.
- Operator training and technical support worldwide.
- Portable, modular components for in-field replacement.
- Warranty and rapid response customer support.

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California Division

1845 Industrial Drive, Auburn, California 95603
Tel: (415) 383-0570 • Fax: (415) 358-4340
smoothroad.com

Kansas Division

307 Plymate, Manhattan, Kansas 66502
Tel: (785) 539-6305 • Fax: (785) 539-6210
info@smoothroad.com