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SURFACE SYSTEMS & INSTRUMENTS, LLC

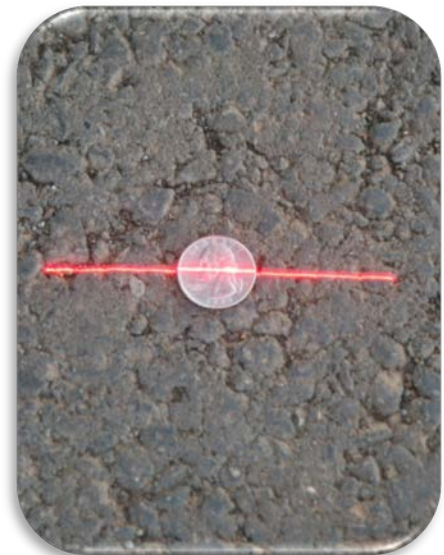
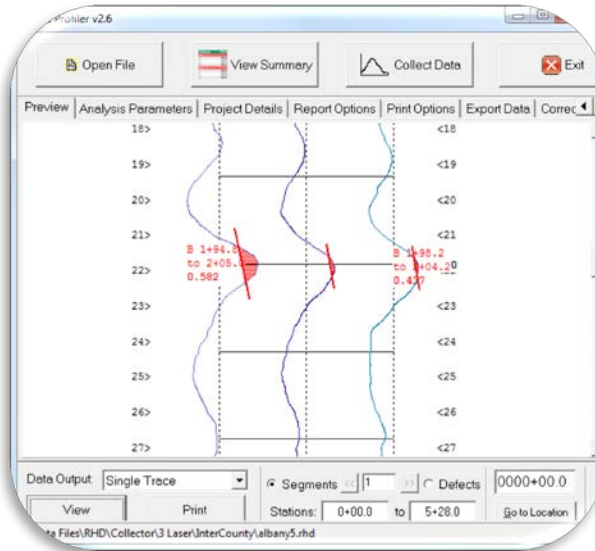
www.smoothroad.com

Custom Test Equipment • Mobile Technology Solutions

CS9200 Multiple Purpose Profiler



Custom Trailer Functions as a Self-Contained Lightweight or High Speed Profiling System



▲ In-Cab Touch-Screen Computer ▲

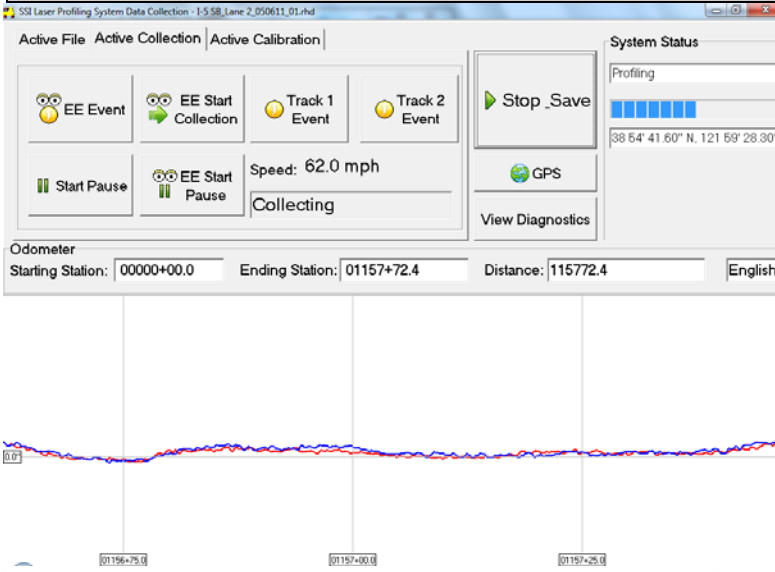


▲ Full Featured Collection & Analysis Software ▲



▲ Wide-Footprint Laser ▲

HARDWARE OVERVIEW	SOFTWARE OVERVIEW
<ul style="list-style-type: none"> • Professionally engineered trailer with embedded profiling system. • Low impact (lightweight) and fast (high speed) profiling system. • Adjustable air suspension • Interior storage • Amber strobe lights • Entire system runs on tow vehicle's 12VDC power supply. • 100% non-contact inertial system—no sensors touch road surface. 	<ul style="list-style-type: none"> • Self-instructing programs for calibration, collection and analysis. • Safe operation on touch-screen Toughbook computer. • On-Screen user's manual. • Real time diagnostics monitor profiling system health and facilitate prompt resolution of support issues.
<ul style="list-style-type: none"> • ASTM E950 Class 1 profiling system at all collection speeds. • Guaranteed compliance with agency specifications (State DOT, Transport Ministry, FHWA, AASHTO M328, R054, R056-R057). 	<ul style="list-style-type: none"> • Instant test results and on-screen view of profile traces and reports. • Collection system pauses when speed drops below <5mph (8 kph). • Add new profile data to existing files for comparison of original condition with constructed surfaces.
<ul style="list-style-type: none"> • Wide range of speeds (5-70 mph / 8-112 kph). • Modular design. All core components field replaceable with express shipment as spare parts. • Single, dual or 3 track systems available (field upgradable) 	<ul style="list-style-type: none"> • All industry standard profile indexes supported [International Roughness Index (IRI and MRI), Half Car Ride Index (HRI), Profile Ride Index (PRI or PI), and Ride Number (RN). • User-adjustable parameters to meet specifications (project details, data filters, bump/dip templates, blanking band, and user defined).
<ul style="list-style-type: none"> • In-vehicle works station with rugged suitcase and optional printer. • Choice of Toughbook 19 or Toughbook 31 fully rugged computer with daylight readable Touchscreen controls. • All-in-Cab operation—collect/analyze data without leaving vehicle. 	<ul style="list-style-type: none"> • Unmatched precision in detecting surface features exact dimensions of localized roughness—<i>Proven and Guaranteed!</i> • Localized roughness reported by adjustable height and length templates, or by IRI thresholds. • Length and peak amplitudes of grind/fill areas separately calculated.
<ul style="list-style-type: none"> • Multiple triggers for collection, pauses and events: (1) SSI reverse direction mode collects exact stations without pre-marking test sections, (2) right and left electric-eye sensors trigger by reflective tape, and (3) on-screen push button for manual triggering. 	<ul style="list-style-type: none"> • Profile results available on-screen and in PDF, ERD, PPF, and spreadsheet formats (with populated Excel templates supplied). • Colorized traces and highlighted areas of bonus/penalty. • Fully compatible with ProVal software.
<ul style="list-style-type: none"> • Optional wide footprint laser reduces impact of single point sensor on grooves, concrete tines, and coarse textures on ride index values and areas of localized roughness. 	<ul style="list-style-type: none"> • SSI Validation Engine software supplied for assessing same surface repeatability, accuracy and cross-correlation. • On-site assistance with configuration and operator training.
<ul style="list-style-type: none"> • GPS subsystem with real-time display of GPS position, GPS correlation with profile stations, and Google Earth integration. • Survey instrumentation option combines profile data, corrected GPS, and slope into topographies for design and control applications. 	<ul style="list-style-type: none"> • License supplied for use of Profiler software on desktop or multiple computers (allows viewing, analyzing, printing and emailing of profile data by multiple users). • Raw data encrypted for security and unlimited post-processing.



Segment	Station	End	Track 1	Track 2	Average	Defects	Notes
#	Start	End	Track 1	Track 2	Average	Track 1	Track 2
Summary	0+00.0	112+29.0	26.8	26.6	26.7	17	17
Speed (Ave, Max, Min) = 52.1, 95.6, 43.9							
1	0+00.0	5+28.0	34.0	33.0	33.5	2	2
2	5+28.0	10+56.0	23.0	20.0	21.5	0	0
3	10+56.0	15+84.0	26.0	24.0	25.0	0	0
4	15+84.0	21+12.0	22.0	22.0	22.0	0	0
5	21+12.0	26+40.0	32.0	30.0	31.0	0	1
6	26+40.0	31+68.0	17.0	18.0	17.5	0	0
7	31+68.0	36+96.0	38.0	44.0	41.0	4	4
8	36+96.0	42+24.0	23.0	28.0	25.5	0	3
9	42+24.0	47+52.0	26.0	24.0	25.0	0	0
10	47+52.0	52+80.0	23.0	23.0	26.0	0	0
11	52+80.0	58+08.0	26.0	23.0	24.5	1	0
12	58+08.0	63+36.0	20.0	20.0	20.0	0	0
13	63+36.0	68+64.0	21.0	18.0	19.5	0	0
14	68+64.0	73+92.0	19.0	20.0	19.5	0	0
15	73+92.0	79+20.0	44.0	43.0	43.5	7	4
16	79+20.0	84+48.0	28.0	28.0	28.5	0	0
17	84+48.0	89+76.0	30.0	19.0	24.5	1	1
18	89+76.0	95+04.0	29.0	23.0	26.0	0	0
19	95+04.0	100+32.0	20.0	23.0	21.5	0	0
20	100+32.0	105+60.0	21.0	24.0	22.5	0	0
21	105+60.0	110+88.0	21.0	14.0	17.5	0	0
22	110+88.0	112+29.0	101.1	116.1	108.6	2	2

▲ Computer Instructed Calibration and Data Collection Routines ▲

▲ Immediate Results and Advanced Data Analysis Functions ▲

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