Phoenix Scientific Inc.
Pavement Range Finder (PRF-3000)

The PRF-3000 is a state-of-art implementing of Laser Radar optimized for highway-speed pavement macrotexture profiling with performance that exceeds existing products in virtually every aspect. The PFR-3000 is designed to enable pavement research unimpeded by the sensor performance.

Accuracy - (Precision)	Phase I proved 3X improvement over current hardware with first generation scanners. With final hardware 5X improvement is reasonable to expect.
Data Rate	Phase I demonstrated performance 10X greater than specification. PRF-3000 enables researchers to trade-off precision and data rate with firmware control.
Dynamic Range	Phase II going to 14 bit A/D technology and wideband microstrip attenuator based receiver gain and transmitted power automatic control. Opens the potential to profile pavement markings.
Digital Interface	While the Phase II sensor will present a compatible analog signal with 12 bit resolution matched to current ROSAN 12 bit A/Ds, The PRF-3000 is inherently digital and will provide a modern digital interface to support low cost PCMIA interface and/or multi-sensor bused applications
Coaxial Optics	PRF-3000 is based on coaxial transmit and receive optics that eliminates the artifacts caused by shadowing inherent with triangulation sensors in use today.
Operational Range	With the evolution to dual tone transmission in the PPS-2002 scanners, which is being folded into the PRF-3000, long range resolved ambiguity overcomes the limitations of fixed depth-of-field performance inherent in triangulation lasers
Size and Weight	Coaxial architecture combined with the state-of-art RF and digital electronics are resulting in a compact light weight sensor.
Cost	PRF-3000 is being targeted at a price similar to the low cost pavement triangulation lasers used for profiling (nominally $7K) while have performance that exceeds that of the high-end lasers used for Macrotexture (>15K).
Spin-off Applications	Unparalleled product of high data rate times high precision form the foundation for economical solutions for many other related and unrelated applications. Some examples are high-resolution bridge movement and rail, tunnel and over-head transit structures profiling
Foundation for Next Generation Research	The Laser Radar technology and underlying Laser Optical Engineering are pointing the way to and laying the foundation for future research topics such as highway speed measurements that can be correlated to microtexture and ultimately traction and skid resistance.