

## UDT Illumina Tramp™ - Headlight Test System



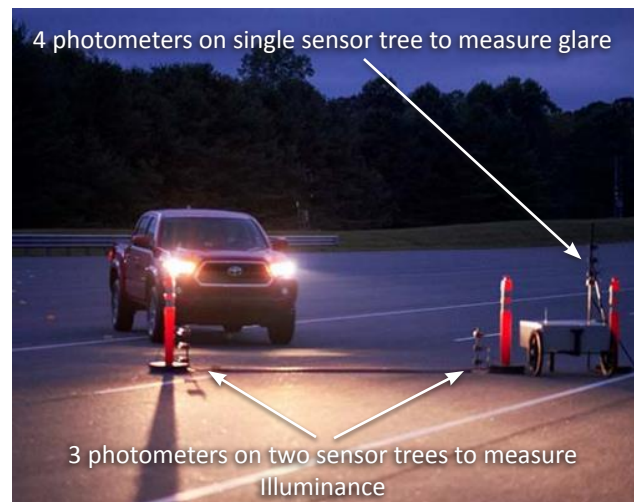
Advancements in headlight technology, including HID, LED and even laser-based sources, combined with curve-adaptive and high-beam assist technology require precise and repeatable measurement systems to ensure regulatory and safety compliance.

Measurement and comparison of glare and illuminance parameters requires a controlled test environment that considers illuminance as a function of distance, but also accounts for vehicle pitch angle, headlight height and road curvature.

The Illumina Tramp™ system from Gamma Scientific combines multiple sensors with data acquisition and GPS information to provide highly accurate and repeatable information which feeds directly into IHS analytical applications to ensure accurate, repeatable and highly reliable lighting information.

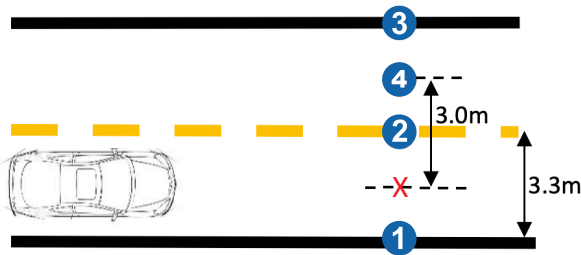
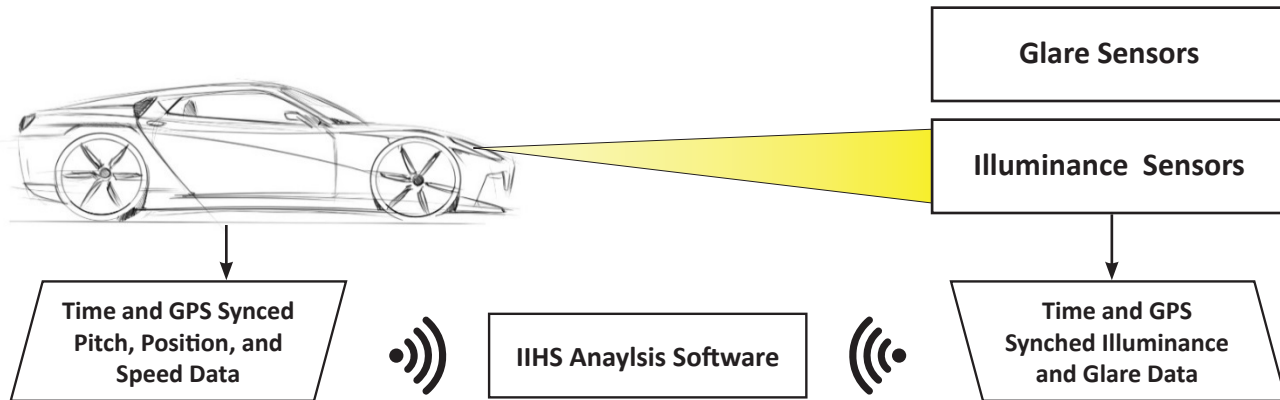
## IIHS Compatible Test Solutions Full Feature Set for Direct Download to IIHS Software

- Illuminance and Glare Versus Distance
- Accurately Measures Pulse Width Modulated LED Sources
- Exceeds Flicker Fusion Threshold
- Real-time Data Collection via Wi-Fi or Ethernet
- Matched Cosine Response up to 25 Degrees
- GPS Time Synchronization at 200 Hz
- cRIO Data Acquisition System Software
- 16-bit A/D Conversion Modules



For over 50 years, Gamma Scientific has delivered highly unique, state-of-the-art measurement solutions for manufacturers and users of light sources, sensors and displays. Products include high precision spectroradiometers, calibration light sources, goniophotometers, integrating spheres, thin film measurement systems, and LED testers and sorters. In addition to our exceptional technical and functional capabilities, Gamma Scientific is ISO/IEC 17025 accredited by NVLAP (NAVLAP lab code 20083-0).

## Typical System Configuration



1	2	3	Visibility Illuminance, 25 cm from ground
4			Glare Illuminance, 110 cm from ground
X			Origin of measurement coordinate system

HSE 15010 2016 Halogen/Halogen													
		5 Lux Distance											
		Left Edge			Right Edge								
HL Condition	Curve Type	Avg	Min	Max	Avg	Min	Max	Glare OK?	Glare Average OK?	Demerits			
										Demerits with HBA (if equipped)			
High Beams	150L	36.3	36.2	36.4	44.1	43.9	44.3	No	No	1.685			
High Beams	250L	44.5	44.1	45.1	57.0	56.1	57.6	No	No	1.773			
High Beams	150R	49.7	49.3	50.0	41.7	40.7	42.3	No	No	1.417			
High Beams	250R	63.3	62.5	64.6	50.6	50.4	50.7	No	No	1.469			
High Beams	Straight	73.7	66.9	79.3	125.2	123.5	126.9	No	No	7.631	2.481	N/A	
Low Beams	150L	32.6	32.4	32.8	39.8	39.6	40.1	Yes	Yes	4.113			
Low Beams	250L	37.6	37.4	37.8	48.1	47.6	48.3	Yes	Yes	4.855			
Low Beams	150R	47.9	47.6	48.3	39.9	39.8	40.1	Yes	Yes	3.012			
Low Beams	250R	59.4	58.4	60.7	48.7	47.7	49.4	Yes	Yes	3.196			
Low Beams	Straight	30.5	29.1	31.3	93.5	92.7	94.5	Yes	Yes	13.255	1.937	8.837	1.292
										46.825		41.047	

Specifications are subject to change without notice.