

Simple, fast, accurate measurement of β and Qd luminance of road markings

- RetroTek-QD is the world's first full lane width mobile measurement device for Beta luminance and Qd of road marking providing agencies with a fast reliable method to measure road markings for suitability of ADAS safe operation in daytime
- Until now markings were only accessed using night visibility (retroreflectivity) and relative day visibility (WEBER) contrast
- RetroTek-QD provides a method to measure in stable ambient conditions, and when used in conjunction with RetroTek-D can provide the following two key measurements required for ADAS
 1. Night Visibility
 2. Day visibility in ambient conditions

The RetroTek-QD enables Road Agencies, Road Profilers and Survey Contractors to use the latest technology on a survey vehicle to measure β and calculate Qd luminance of road markings with the same level of accuracy as QD handheld devices.

That means:

- Safer surveys by removing workers from the road and eliminating traffic management and lane closures
- Faster data collection with a dual system capturing left and right longitudinal line measurements in lane travelled at normal traffic speeds in one pass day or night
- Accurate and repeatable β and Qd luminance measurements of pavement markings
- Accurate monitoring the day visibility of markings for safe operation of ADAS / Autonomous vehicles
- Can be operated simultaneously with RetroTek-D retroreflectometer.

The RetroTek-QD is the latest innovation in road condition surveys leveraging developments in lighting and camera technology with advanced software algorithms to accurately measure β and Qd luminance of road markings. The system can measure white/yellow and dash/continuous markings on asphalt/concrete by day/night in dry conditions. It is securely fitted to a vehicles roof racking system using the brackets supplied.



Survey vehicle with Qd system (roof) and D system (front)

When combined with a RetroTek-D mobile retroreflectometer unit, the same computer can process retroreflectivity and the luminance factors automatically. As a result, only one vehicle & one survey operator necessary to capture all the road marking data required.

Survey Reporting

All data from the RetroTek-QD is recorded to the in-vehicle tablet during the survey and can be transferred to QuickView-Pro survey visualisation software platform to show colour coded results, with GPS tags and video footage of the survey. Data is available in CSV, KML, SHP, PDF & video files.

Road Agencies can rapidly pinpoint and prioritise restriping where it is needed most to ensure the safe operation of vehicles with ADAS systems & Autonomous vehicles on the road network.

Specifications

Measuring Standard	Observation Angle CEN EN 1436
Measurement Geometry	45/0 Degree
Width of measuring field Right & Left side of vehicle	~1 Meter (39 inches)
Measuring Distance	~2 Meter (78 inches) – typically within length of vehicle
Measuring Speed- minimum	20 KPH (12 MPH)
Measuring Speed - maximum	Evaluated to 120 KPH (75 MPH)
Measuring Range	~40-318 mcd-m-2.lx-1
Lane Width	Measurement of Lanes 2.75-4.0 Meters (9-13 feet) without adjustment
Line Marking Color	Yellow and White Markings
Marking Type / Materials	TP: Thermo Plastics (extrusion) CP: Cold Plastics (2 component material) Ag/dot: Marking Consisting on agglomerates with irregular arranged elements Ta/lb: Tape with large beads Ta/d: Tape with diamond pattern
Marking Material Excluded	Ag/irr: Marking consisting of agglomerates with irregular arranged elements
Driver display	Microsoft Surface Pro
Camera rate	40 Frames per second
Measurements per second	50 lines per frame = 1,000 lines per second
Results	Reported as Ratio
QD Results	Reported as Unit: mcd-m-2.lx-1
Contrast	Option to output QD as Ratio to Road Surface (Weber Contrast)
Coverage	Reported as % of expected marking (Dashed or Continuous)
Accuracy	Typically ±7.5%
Repeatability	Typically ±5%
GPS System	Multi constellation GNSS , Reads GPS, GLONAS, Galileo & Baidu
GPS Accuracy	Accurate to ~1.5m (5 Feet) with UDR (untethered dead reckoning) Works in long tunnels up to 5km long
Light Source	Customized LED Projectors
Output results formats	GPS tagged, CSV, KML, SHP, PDF & video files
Video format	HD Video Monochrome (mono)
Connection to laptop	Gigabit Ethernet Cable
Image output	Color image stream
Operating Temperature	32°F - 131°F (0°C to 55°C)
Storage Temperature	5°F - 140°F (-15°C to 60°C)
Humidity Range	85% Non-condensing
Dimensions (L x W x H)	Illumination Unit ~800x300x200 (32x12x8inches) including bracket Sensor Unit: ~300x100x200mm (12x4x8inches) including bracket In Vehicle Controller ~600x400x200 (24x16x8 inches)
Weight	~30 Kg (66 lbs) fully loaded (Both Sides)
Vehicle Mounting	To Vehicle Roof Rack with supplied brackets
Typical Mounted Dimensions	Typical 300mm (12 inches) protrusion for side of typical vehicle (similar to wing mirrors) – No front or rear of vehicle protrusion
Power Requirements	Standard 12V vehicle connected to DC-DC converter (supplied)
Dust/Water Proofing	IP66

Other Road Marking Solutions

RetroTek-D

Secure front-mounted Mobile Retroreflectometer Unit surveying full lane width travelled and safety-critical centre lane markings in one survey pass at traffic speed, day or night.

QuickView-Pro

Survey results visualisation mapping software with GPS tags, integral survey video and color-coded results enabling road agencies to pinpoint and prioritise maintenance requirements.

Quick-Tracker

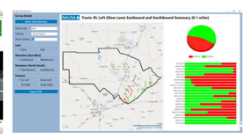
FHWA MUTCD Pavement Marking Compliance planning software that enables road agencies to manage the data and demonstrate compliance with the New FHWA Mandatory Minimum Pavement Marking Retroreflectivity Requirements from September 2026.



RetroTek-D



QuickView-Pro



Quick-Tracker