

Do your pavement markings pass the test?

Understanding the test methods for determining retroreflectivity will help you choose the right pavement markings for your roads and drivers.

EN1436 Retroreflectivity Test Methods.

Measured pavement marking reflectivity results vary widely depending on the condition of the test. Three methods have been established and can help you see the differences of reflectivity between pavement markings under different conditions of wetness.



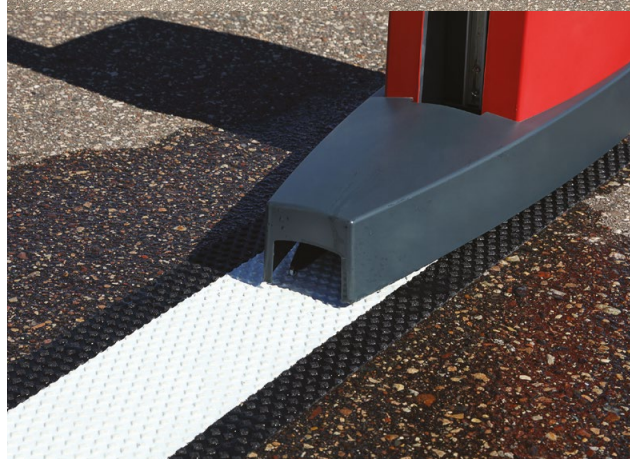
EN1436 Dry Method (RL)

This test method measures the dry retroreflective (RL) properties of horizontal pavement marking materials – such as traffic stripes and road surface symbols. It's performed using a portable or mobile retroreflectometer at the CEN-prescribed geometry in dry conditions.



EN1436 Wet-Continuous Method (Rain, RR)

This test method measures the retroreflective properties of horizontal pavement marking materials under simulated rain – in a way 'during the rain'. It's performed using a portable or mobile retroreflectometer to measure the retroreflection at the prescribed geometry in a standard condition of wetness – which is achieved with a wetting apparatus that continuously wets the measurement area with a consistent drop of water during measurement.



EN1436 Wet Recovery Method (Wetness, RW)

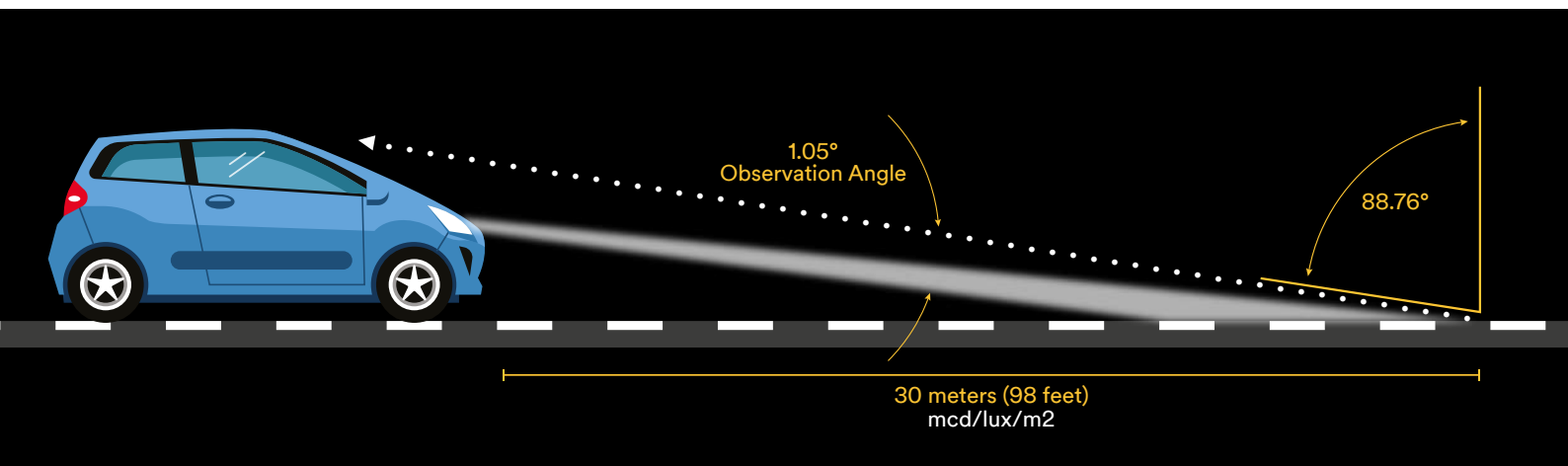
This test method measures the wet retroreflective (RL) properties of horizontal pavement marking materials – associated with 'after the rain'. It's performed using a portable or mobile retroreflectometer to measure the retroreflection at the prescribed geometry in a standard condition of wetness, 60 seconds after the measurement area of a pavement marking has been wetted with a minimum 3 liters of water (applied to the measurement area).

EN1436 Test Method Requirements.

	EN1436 Dry Method (RL)	EN1436 Wet-Continuous Method (Rain, RR)	EN1436 Wet Recovery Method (Wetness, RW)
	Measure reflectivity of pavement markings under dry conditions	Measure reflectivity of pavement markings during rain	Measure reflectivity of pavement markings during wetness
Sample requirements: minimum 2% grade, open to traffic two weeks	No requirements	Required	Required
Differentiate dry reflective materials	Excellent	N/A	N/A
Differentiate wet reflective materials	N/A	Excellent	Good
Instrument type	Internal or external beam	External beam	Internal or external beam
Measurement duration	10 sec	5 min	1 min
Total time including setup	2–3 min	5–10 min	3–5 min
Equipment requirements	Reflectometer	Reflectometer, rain box, spray unit, water, stopwatch	Reflectometer, 3 liter or greater water pitcher or bucket, water, stopwatch
Water requirements	None	<1 liter	3 liters

How the optics are measured.

Pavement markings are viewed at extreme horizontal angles that are very different from what is seen with sign sheeting. Modern instruments measure reflectivity approximate to what is seen at 30 meters from a vehicle. Due to the extreme angles and optical systems, pavement marking retroreflectivity numbers are extremely low and measured in millicandelas, which are one-thousandth of the unit used to measure sign sheeting.



Understanding the results.

Different test methods yield different reflectivity results. Specifications need to be aligned with desired test methods and all markings must be measured with the same method.

Pavement marking materials can be developed to deliver reflectivity performance over a wide range of values. There are trade-offs of wet and dry reflectivity for each product design. Dry reflective performance does not directly correlate to wet reflective performance.



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To learn about the products and solutions, please contact:

Mohamad Chahrour

3M Gulf Ltd. | Dubai Internet City | Building 20, 3rd Floor
PO Box 20191 | Dubai, United Arab Emirates
Phone +971 52 171 0635
Email mshahrour@mmm.com

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