

AUTOMOTIVE EVALUATION INSTRUMENTS FOR MEASURING COLOR AND LIGHT



Light Measurements



Color Measurements

Automotive Evaluation Applications

License plate

■ Spectrophotometer CM-700d

Windshield

■ Spectrophotometer CM-700d
■ Spectrophotometer CM-5

Door mirrors, handles

Side mirrors
(Detection of cars that enter rear blind spots)

■ Spectrophotometer CM-512m3A ■ 2D Color Analyzer CA-2500A

Signal lights except headlights

(Side marker lights, side lights, taillights, rear fog lights, parking lights, rear upper-end lights, brake lights, auxiliary brake lights, turn signals, auxiliary turn signals, emergency flashing lights)

■ Illuminance Color Meter CL-200A
(For vehicle inspections)



» EXTERIOR

Headlights
(High luminance)

■ 2D Color Analyzer CA-2500A ■ Illuminance Meter T-10A (Multi-point measurement)
(For measurement of light distribution)

Alloy wheels and tires

■ Chroma Meter CR-400

Metallic exterior paint

■ Spectrophotometer CM-512m3A

- Light Measurements
- Color Measurements

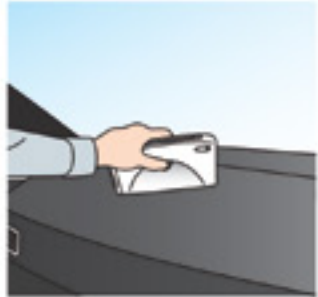
Dashboard



■ Spectrophotometer CM-700d
(Color management of intricate components with free-form surfaces and shapes)



■ Spectrophotometer CM-2500c
(Color management of components with different textures)



■ Gloss Meters UG-60Plus
■ Gloss Meters MG-268Plus

Interior ceiling lights, etc.



■ Illuminance Spectrophotometer CL-500A
■ Illuminance Meter T-10MA

Interior lighting LED guide lights



■ 2D Color Analyzer CA-2500A

Mirrors (Inside vehicle)



■ Spectrophotometer CM-700d
(For reflectance measurement)

Instrument panel

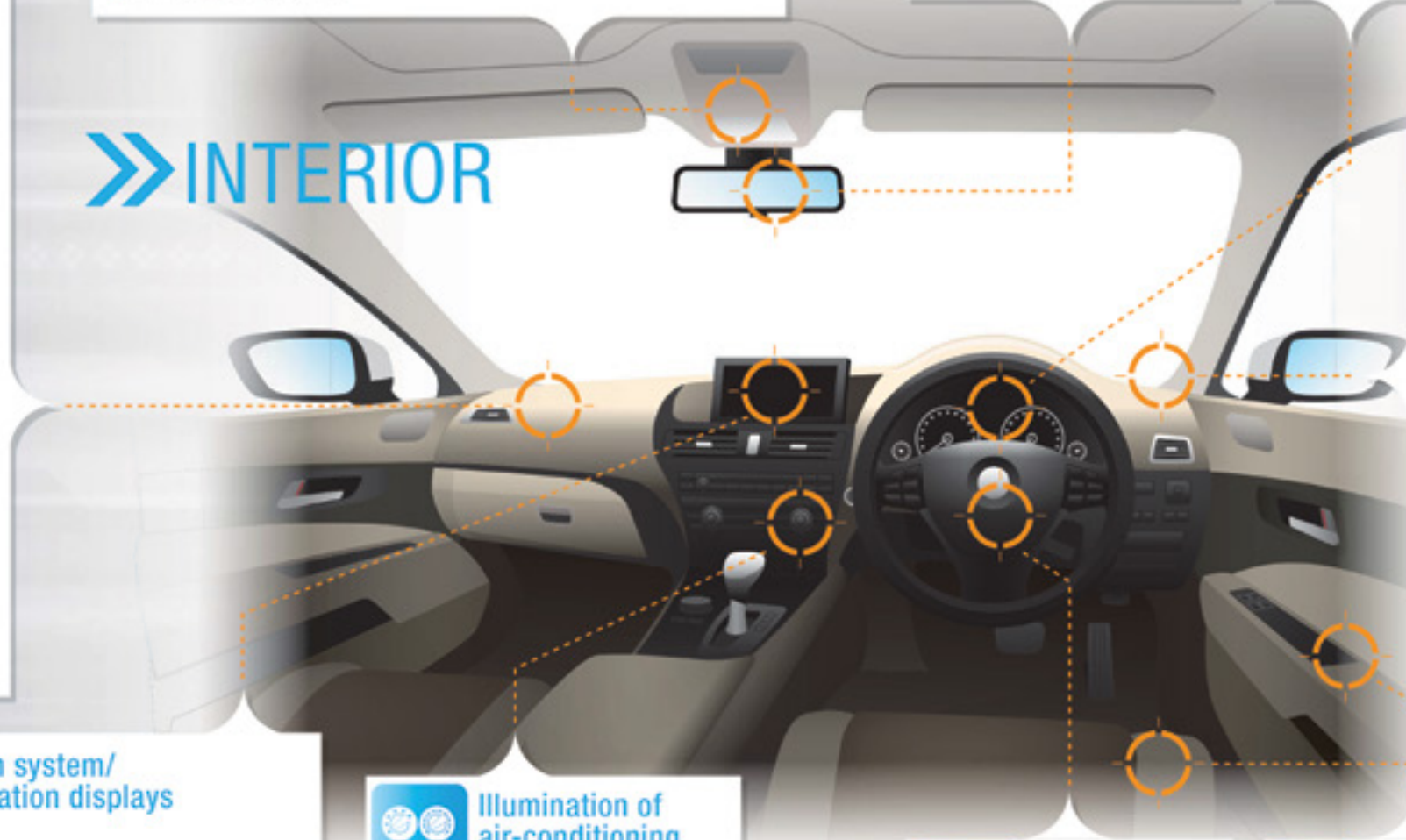


■ 2D Color Analyzer CA-2500A



■ Spectroradiometer CS-2000A

INTERIOR



Car-mounted cameras



■ Illuminance Spectrophotometer CL-500A
■ Chroma Meter CL-200A
(Ambient condition evaluation)

Heads-up display



■ 2D Color Analyzer CA-2500A
■ Luminance Chroma Meter CS-200

- Light Measurements
- Color Measurements
- Gloss

Car navigation system/ Center information displays



■ 2D Color Analyzer CA-2500A



■ Spectroradiometer CS-2000A
■ Display Color Analyzer CA-310



■ Spectrophotometer CM-700d
(For reflectance measurement)

Illumination of air-conditioning and media system switches



■ 2D Color Analyzer CA-2500A
■ Spectroradiometer CS-2000A

Steering wheel



■ Spectrophotometer CM-700d

Car seats and ceiling material



■ Chroma Meter CR-410

Interior door trim parts



■ Spectrophotometer CM-700d

Instruments for Color and Light Measurements

Color Measurements

Spectrophotometers



CM-700d

The CM-700d is a portable spectrophotometer that brings together Konica Minolta's proprietary cutting-edge optical technologies to provide high precision and high functionality of bench-top instruments in a low-cost, compact unit with excellent mobility and operability. The CM-700d is ideal for color measurement of interior automotive components. Measurement area: $\varnothing 8$ mm / $\varnothing 3$ mm (changeable)



CM-2500c

The newly developed $45^\circ \text{a}: 0^\circ$ geometry (45° annular illumination, 0° vertical viewing) allows for unsurpassed accuracy and repeatability. The CM-2500c's $45^\circ \text{a}: 0^\circ$ optical system offers an evaluation method that makes this instrument ideal for color measurements of interior automotive components. Measurement area: $\varnothing 7$ mm



CM-512m3A

The CM-512m3A is a multi-angle spectrophotometer for metallic paints. Capable of measuring 3 angles—highlight (25°), general (45°), and shade (75°)—simultaneously, the instrument is suitable for applications such as measuring metallic and pearl effect coatings used on automotive exteriors. The CM-512m3A is also ideal for evaluating such colors on curved surfaces. Measurement area: $\varnothing 12$ mm



CM-5

The CM-5 is a lightweight, easy-to-use compact spectrophotometer with a top port and a variety of new features. This all-in-one spectrophotometer also features a large color LCD screen and is ideal for transmittance measurement of windshield glass.

Chroma Meters



CR-400

The CR-400, a classic handheld color difference measurement instrument, has been a worldwide best-seller since its launch. Measurement area: $\varnothing 8$ mm

CR-410

The handheld CR-410 offers one of the largest-diameter measurement areas, making it ideal for averaged measurements of samples with uneven surfaces or patterns. Measurement area: $\varnothing 50$ mm

Gloss Meters



UG-60Plus/MG-268Plus

The UG-60Plus and MG-268Plus gloss meters are used to measure the degree of gloss on a surface. These instruments are ideal for managing gloss in order to reduce dashboard glare on the front windshield. The wide measurement range of 0.0 to 2,000 GU allows for measurement of everything from plastics to high-gloss metallic surfaces.

Light and Displays Measurements

2D Color Analyzer



CA-2500A

The CA-2500A offers high-resolution, two-dimensional measurement of luminance and chromaticity distribution of in-vehicle displays. Processes from measurement to data analysis and evaluation can be performed efficiently in a short time, making the CA-2500A ideal for both development evaluation and product inspection. Interchangeable lenses enable measurements of various areas.

Spectroradiometer



CS-2000A

Featuring Konica Minolta's proprietary optical design and signal processing technology, the CS-2000A is a spectroradiometer capable of accurate luminance and chromaticity measurement even at an ultra-low luminance of 0.0005 cd/m^2 .

Chroma Meter



CS-200

The CS-200 is a luminance and color meter that features a spectral fitting method that enables highly accurate luminance and chromaticity measurements comparable to those of spectroradiometers.

Color Analyzer



CA-310

The CA-310 allows luminance and chromaticity measurement of in-vehicle displays such as car navigation systems. With this instrument, measurements can be performed at high speed and high accuracy.

Illuminance Spectrophotometer



CL-500A

The CL-500A can be used for inspection and measurement of interior LED lighting. The hand-held design allows for easy measurement of various locations in a vehicle, including around the steering wheel and under the seat. This compact, lightweight illuminance spectrophotometer is ideal for evaluation and measurement of CRI (color rendering index) of any light source. The CL-500A also conforms to both DIN and JIS standards. Measurement and display of a light source's average CRI, illuminance (lx), scotopic illuminance (lx), correlated color temperature (K), and chromaticity (xy) are possible.

Chroma Meter



CL-200A

The CL-200A is a compact and lightweight illuminance colorimeter that is ideal for measuring the color temperatures of white LEDs. It is capable of measuring and displaying a light source's correlated color temperature (K), chromaticity (xy), illuminance (lx), tristimulus values (XYZ), dominant wavelength, and excitation purity.

Illuminance Meter



T-10A/T-10MA

The T-10A and T-10MA high-precision illuminance meters conform to JIS AA Class and DIN Class B standards. The ability to accurately measure next-generation pulse width modulation (PWM) controlled light sources makes these instruments ideal for illuminance measurement system applications including incorporation in multi-point measurement systems and testing equipment.