KONICA MINOLTA

Display Color Analyzer CA-410

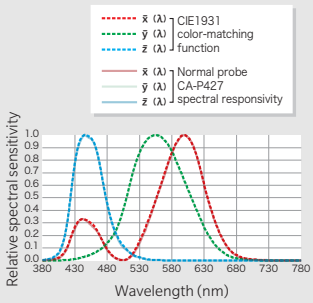
CIE 170-2:2015 Compliant Probe

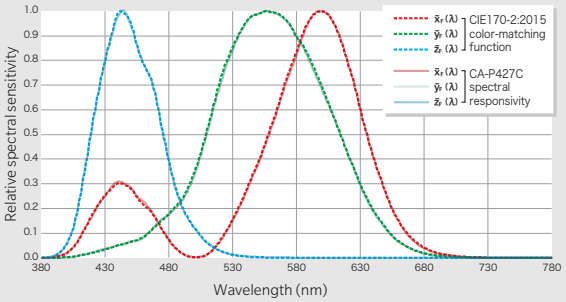
CA-P427C/P410C

CA-P427C

CA-P410C

CIE 170-2: 2015 is a chromaticity diagram with physiological axes defined by CIE and announced in 2015. This probe has color-matching functions conforming to the CIE 170-2: 2015 definition, and provides luminance and chromaticity data that have high correlation with visual results even when adjusting wide color gamut displays.





Model				CA-P427C	CA-P410C
Measurement area				Φ 27 mm	Φ 10 mm
Acceptance angle				± 2.5°	± 5°
Accuracy guaranteed measurement distance				30 ± 10 mm	30 ± 5 mm
Display range	Luminance			0.0001 to 5,000 cd/m²	0.0001 to 5,000 cd/m²
	Chromaticity			Displayed in 4 digits	Displayed in 4 digits
Luminance	Accuracy guaranteed range			0.001 to 5,000 cd/m²	0.01 to 5,000 cd/m²
	Accuracy (for white) *1, *3		> 0.001 cd/m²	± 9 %	---
			> 0.01 cd/m²	± 2 %	± 2.5 %
			> 0.1 cd/m²	± 1.5 %	± 2 %
			> 1 cd/m²	± 1.5 %	± 2 %
			> 10 cd/m²	± 1.5 %	± 1.5 %
			> 100 cd/m²	± 1.5 %	± 1.5 %
	Repeatability (2σ) *1	AUTO	> 0.001 cd/m²	10 %	---
			> 0.01 cd/m²	1 %	2%
			> 0.1 cd/m²	0.40 %	0.60 %
			> 1 cd/m²	0.10 %	0.20 %
			> 10 cd/m²	0.10 %	0.10 %
			> 100 cd/m²	0.10 %	0.10 %
Chromaticity	Accuracy guaranteed luminance range			0.01 to 5,000 cd/m²	0.01 to 5,000 cd/m²
	Accuracy (for white) *1, *3		> 0.01 cd/m²	± 0.003	± 0.006
			> 0.1 cd/m²	± 0.002	± 0.002
			> 1 cd/m²	± 0.002	± 0.002
			> 10 cd/m²	± 0.002	± 0.002
			> 100 cd/m²	± 0.002	± 0.002
		At 100 cd/m² (for monochrome) *2	100 cd/m²	± 0.003	± 0.003
	Repeatability (2σ) *1	AUTO	> 0.01 cd/m²	0.0035	0.0070
			> 0.1 cd/m²	0.0015	0.0020
			> 1 cd/m²	0.0004	0.0008
			> 10 cd/m²	0.0003	0.0005
			> 100 cd/m²	0.0002	0.0003
Flicker (Contrast)	Measurement luminance range			5 to 1,500 cd/m²	15 to 3,000 cd/m²
	Measurement target (Flicker frequency)			0.25 to 65 Hz	0.25 to 65 Hz
	Accuracy		30 Hz, AC/DC 10% sine wave	± 0.4%	± 0.4%
			60 Hz, AC/DC 10% sine wave	± 0.7%	± 0.7%
	Repeatability (2σ)		20-65 Hz, AC/DC 10% sine wave	0.3%	0.3%

Flicker (JEITA)	Measurement luminance range		5 to 1,500 cd/m²	15 to 3,000 cd/m²
	Measurement target (Flicker frequency)		0.42 to 65 Hz	0.42 to 65 Hz
	Accuracy	30 Hz, AC/DC 4% sine wave	± 0.35dB	± 0.35dB
		30 Hz, AC/DC 1.2% sine wave	± 0.35dB	± 0.35dB
	Repeatability (2σ)	30 Hz, AC/DC 4% sine wave	0.1dB	0.1dB
		30 Hz, AC/DC 1.2% sine wave	0.3dB	0.3dB
Accuracy guaranteed measurement speed *4	Lvxy	AUTO	1 time/sec (> 0.001 cd/m²)	1 time/sec (> 0.01 cd/m²)
			5 times/sec (> 0.15 cd/m²)	5 times/sec (> 0.15 cd/m²)
			20 times/sec (> 2 cd/m²)	20 times/sec (> 2 cd/m²)
	Flicker (Contrast)		20 times/sec	20 times/sec
	Flicker (JEITA)		0.5 times/sec (at 1HzPitch), 2.5 times/sec (at 10 HzPitch)	0.5 times/sec (at 1HzPitch), 2.5 times/sec (at 10 HzPitch)
Measurement synchronization mode			NTSC, PAL, EXT, UNIV, INT, MANU (4ms to 4s) INT, MANU (4ms to 4s)	NTSC, PAL, EXT, UNIV, INT, MANU (4ms to 4s) INT, MANU (4ms to 4s)
Measurement speed mode			AUTO, LTD. AUTO, SLOW, FAST	AUTO, LTD. AUTO, SLOW, FAST
Measurement target (Vertical synchronization frequency)			0.5 to 240 Hz (luminance and chromaticity) 0.5 to 130 Hz (flicker)	0.5 to 240 Hz (luminance and chromaticity) 0.5 to 130 Hz (flicker)
User calibration memory channel			99 channels	99 channels
Interface	Communication		USB2.0, RS-232C	USB2.0, RS-232C
	Trigger		In & Out [5V]	In & Out [5V]
Size (mm)			42 x 42 x 139.7	42 x 42 x 173.5
Weight			270 g (including mount)	280 g (including mount)
Power supply			DC 5 V (input from USB bus power line or RS communication connector)	
Operation temperature/humidity range *5			10 to 35°C, relative humidity 85% or less with no condensation	
Storage temperature/humidity range			0 to 45°C, relative humidity 85% or less (at 35°C) with no condensation	
Accessories	Standard		PC Software for Color Analyzer Ver.1.0 CA-S40 *6, SDK for Color Analyzer CA-SDK2, USB Cable for Probe-PC (2 m) IF-A28, Hood for Probe, Lens Cap for Probe	
	Optional		Conversion Cable IF-A29, BNC Conversion Cable IF-A35	

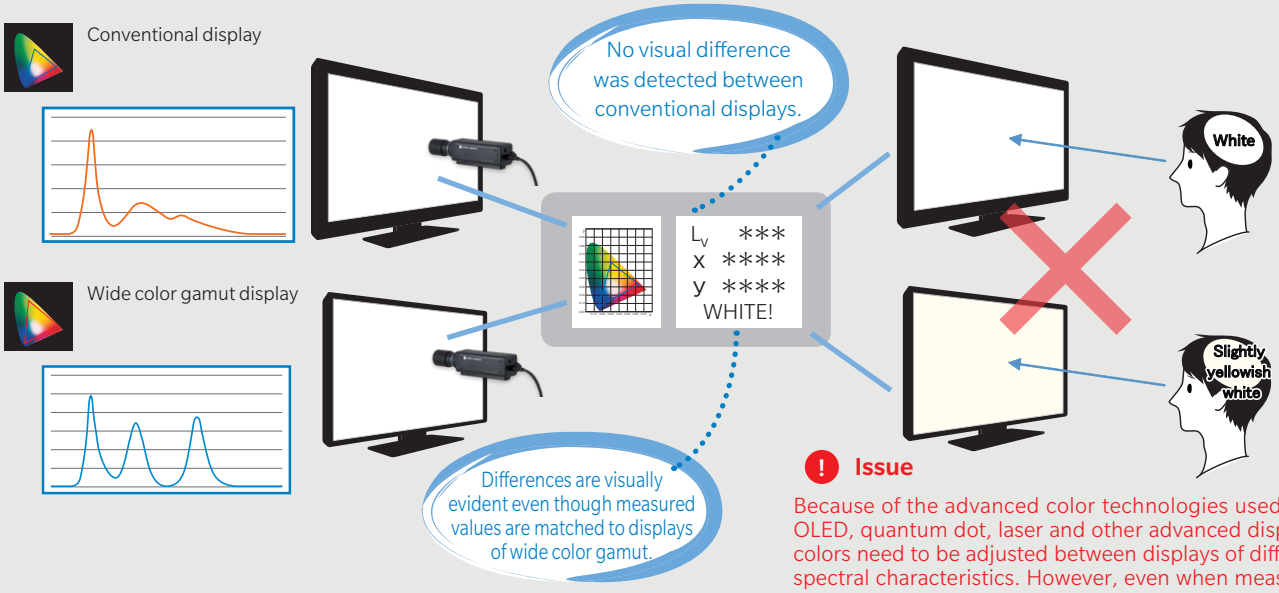
*1: Measured under Konica Minolta's standard light source (6,500K).
*2: Luminance for monochrome is measured when reading of luminance for white is 100 cd/m².
*3: Temperature 23°C/±2°C, relative humidity 40%±10%
*4: In NTSC synchronization mode using USB with one probe
*5: Reading fluctuation (compared to reference reading at 23°C, 40% RH): Luminance: ±2% for white; Chromaticity (at 100 cd/m²): ±0.002 for white, ±0.003 for monochrome
*6: The probe corresponding to CIE 170-2: 2015 can not be used under Ver. 1.30 or earlier.

The Standard in Measuring Color & Light

Giving Shape to Ideas

Merits of using a CIE 170-2:2015-compliant probe

When adjusting color of conventional displays using our color analyzer probe conforming to CIE 1931

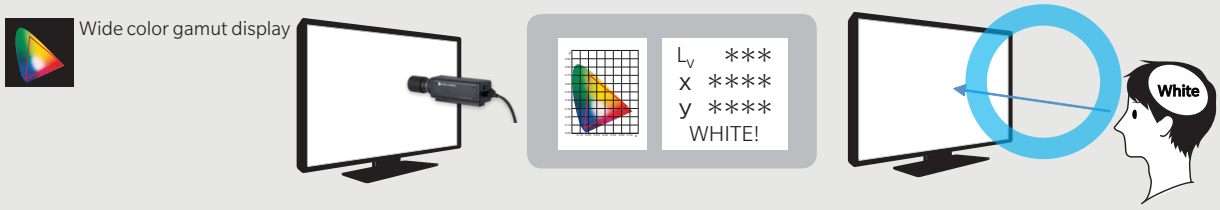


Issue

Because of the advanced color technologies used with OLED, quantum dot, laser and other advanced displays, colors need to be adjusted between displays of differing spectral characteristics. However, even when measured values are matched, colors do not always look the same.

Improvements made using CIE 170-2:2015

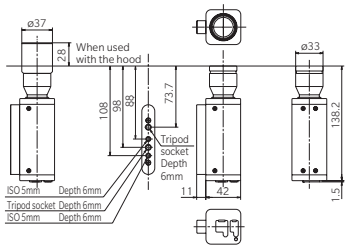
When adjusting color of wide color gamut displays using our CIE 170-2:2015-complaint probe



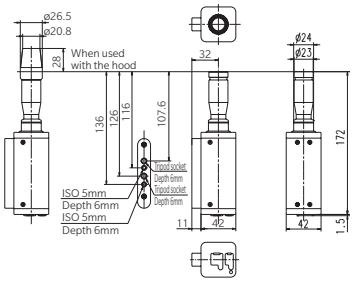
Colors can be adjusted to look the same even with displays of wide color gamut.

Dimensions (Units : mm)

CA-P427C



CA-P410C



SAFETY PRECAUTIONS

For correct use and for your safety, be sure to read the instruction manual before using the instrument.

- Always connect the instrument to the specified power supply voltage. Improper connection may cause a fire or electric shock.

ISO Certifications of KONICA MINOLTA, Inc., Sakai Site

ISO 9001 JQA-QMA15888 Design, development, manufacture/ manufacturing management, calibration, and service of measuring instruments

ISO 14001 JQA-E-80027 Design, development, manufacture, service and sales of measuring instruments

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https://konicaminolta.com/instruments/network

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