

CMS4 : MULTI-SPECTRAL CAMERA

CAMERA IDENTIFICATION

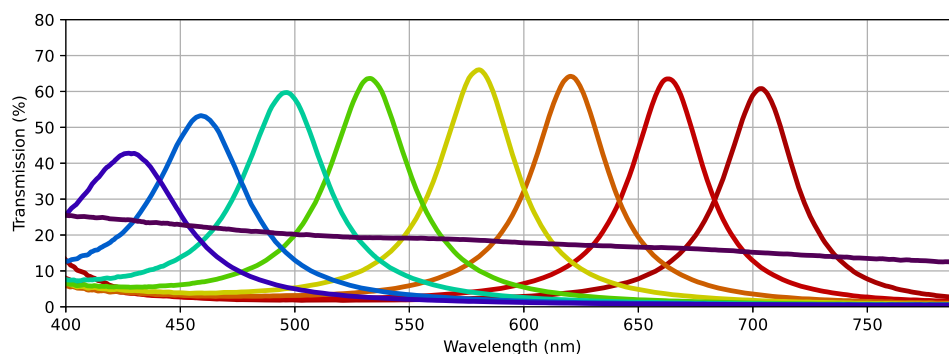
Reference	CMS-C1-C-CMO4M-USB3
Technology	COLOR-SHADES
S/N	CMS21060199

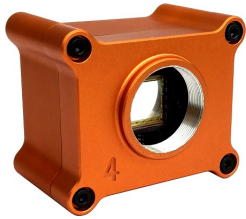
CMS SENSOR SPECIFICATIONS

Array type	CMOS (Si)
Spectral band	400 to 1000nm
Resolution	2048(H) x 2048(V)
Pixel pitch	5.5 μ m

FILTER SPECIFICATIONS

Macro-pixel size	3x3 bands		
Wavelength range	430 to 700 nm typical		
Type of pixel	8 colors (narrow bands) + 1 B&W		
Band 1	λ_c : 426nm	FWHM : 55nm	Tmax : 42%
Band 2	λ_c : 459nm	FWHM : 50nm	Tmax : 53%
Band 3	λ_c : 495nm	FWHM : 45nm	Tmax : 59%
Band 4	λ_c : 532nm	FWHM : 43nm	Tmax : 63%
Band 5	λ_c : 579nm	FWHM : 41nm	Tmax : 66%
Band 6	λ_c : 620nm	FWHM : 40nm	Tmax : 64%
Band 7	λ_c : 663nm	FWHM : 39nm	Tmax : 63%
Band 8	λ_c : 703nm	FWHM : 38nm	Tmax : 60%
Band 9	Neutral density : Tmean = 18 % over [400-800]nm		



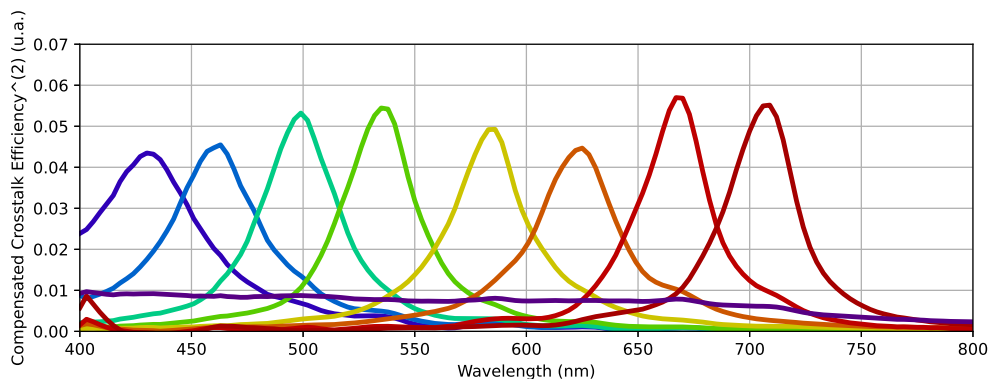
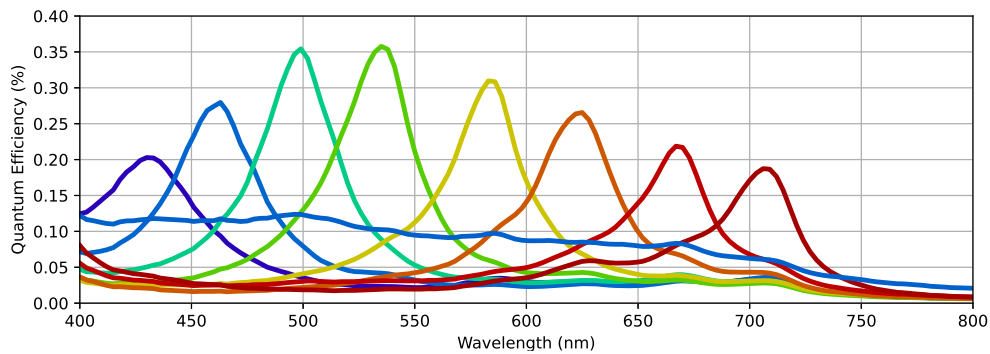


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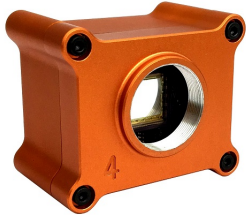
MULTISPECTRAL SENSOR SPECIFICATIONS

Macro-pixel size	3x3 bands		
Wavelength range	430 to 700 nm typical		
Type of pixel	8 colors (narrow bands) + 1 B&W		
Band 1	λ_c : 430nm	FWHM : 54nm	QE max : 20%
Band 2	λ_c : 460nm	FWHM : 49nm	QE max : 28%
Band 3	λ_c : 498nm	FWHM : 43nm	QE max : 35%
Band 4	λ_c : 534nm	FWHM : 44nm	QE max : 35%
Band 5	λ_c : 583nm	FWHM : 42nm	QE max : 31%
Band 6	λ_c : 622nm	FWHM : 46nm	QE max : 26%
Band 7	λ_c : 667nm	FWHM : 35nm	QE max : 22%
Band 8	λ_c : 705nm	FWHM : 37nm	QE max : 19%
Band 9	Neutral density : QE mean = 8% over [400-800]nm		
Pixel operability ⁽¹⁾	$\geq 99.94\%$		

(1) Deads pixels : the measurement is done by removing 30 pixels from each side.



(3) The CCE is extracted from the SILIOS post processing method for crosstalk correction (see Post-processing method for crosstalk reduction in multispectral data and images).



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CAMERA SPECIFICATIONS

Optical interface	CS-mount (C-mount compatible with additional C-ring)
Resolution (raw picture)	2048(H) x 2048(V)
Resolution (spectral pictures)	682(H) x 682(V)
Maximum frame rate	65 Hz (camera acquisition) / 20 Hz (COLOR SHADES Lab)
Exposure time range	100 μ s to 5s
ADC	10-bits
Camera control	USB 3.0
Digital output	12-bits USB 3.0
Power supply	USB 3.0
Dimension (W x H x L)	52 x 63 x 40 mm ³
Weight camera head	170 g