

Root Par IP (CLROOTPARIP)

PHOTOMETRIC TEST REPORT

Cameo® is a registered brand of the Adam Hall Group | Adam Hall GmbH | Adam-Hall-Str. 1 | 61267 Neu-Anspach | Germany | Phone: +49 6081 9419-0 | adamhall.com

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Report Introduction

About this report

We measure total luminous flux with state-of-the-art equipment, such as an integrating sphere and a goniophotometer, based on a 6-Axis industry Robot. In this process we rely on our professional Cameo photometric laboratory or certified partners. Our measurements reflect the utilised flux emitted from the luminaire at all radiating angles considering the zoom range.
We process our measurement data in a specialized software to calculate all photometric data. This photometric report includes spectra, light distribution, TM30-15, TLCI, and many other standardised reports. Additionally, we provide photometric data in IES and LDT file format.

Measurement conditions

- Stabilised laboratory room temperature for absolute consistency
- Stabilised luminaires (max. +-0.5% flux for at least 15min)
- Goniophotometer resolution: gamma = 5° and C-level = 0.1°
- Distance > photometric limit distance (tolerance < 1.0%)
- Calibrated and accurate tools

Equipment

- Goniometer with 6-Axis Robogonio by Opsira including Spectral Radiometer Spec`3 and frc-f-I, a fast Class-L Photometer for flicker etc.
- Integrating sphere UKU800 by Opsira
- Spectral Radiometer Spec`3 by Opsira
- Luxmeter Gossen MavoLux 5032-C
- Handheld-Spectrometer Gossen MavoSpec M600A
- Handheld-Spectrometer UPR-Tec MK350S Premium

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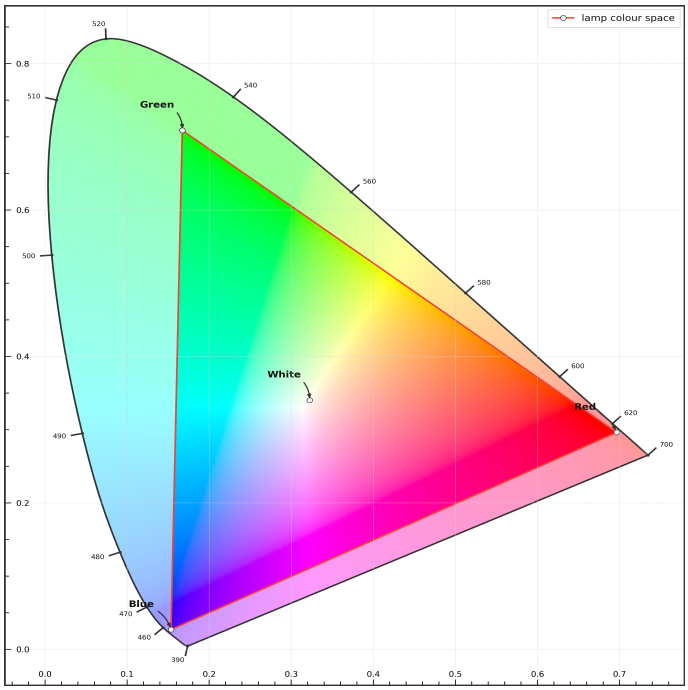
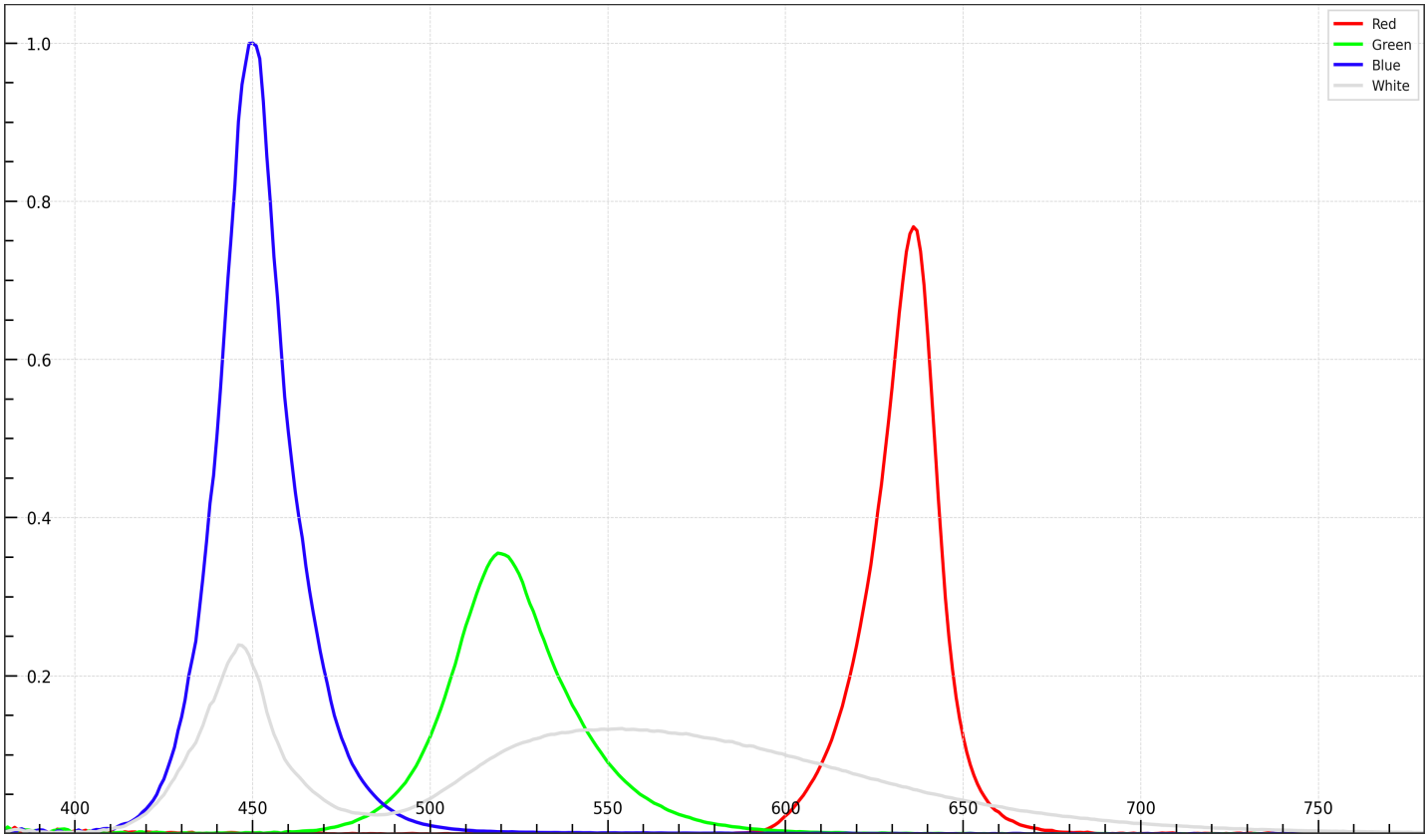
Overview

LED Colours	Lum flux [lm]	x	y
Red	589	0.6965	0.2964
Green	1159	0.1673	0.7088
Blue	186	0.1535	0.0271
White	1371	0.3224	0.3404

CIE 1931 Chromaticity Diagram - 2° Standard Observer



Spectral Distribution for Colours (Wavelength [nm] --> relative Intensity)



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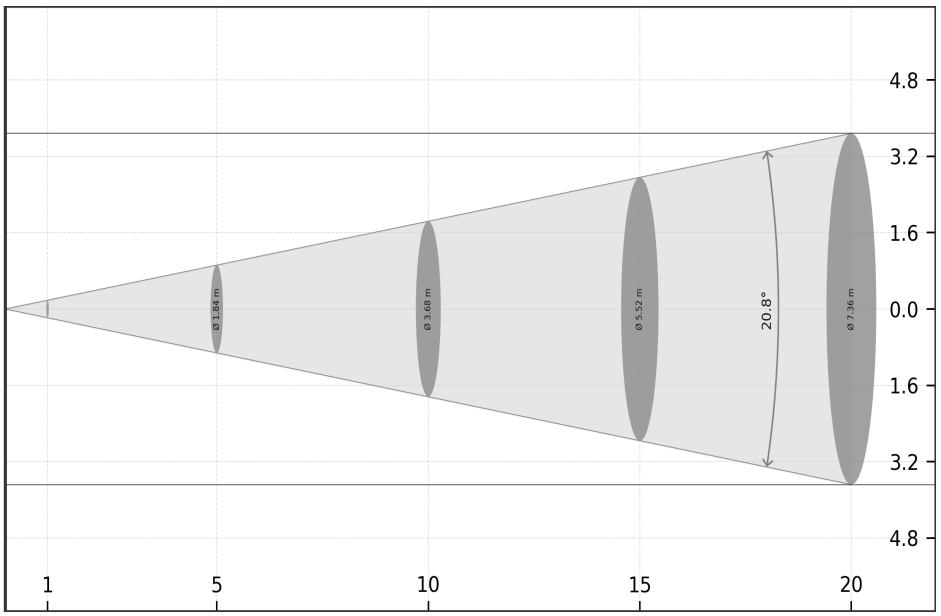
Full-On – Photometric Report

Beam Angle [°]	Field Angle [°]	Luminous flux [lm]	Power [W]	Luminous Efficacy [lm/W]
20.8	35.1	3200	64	49.7

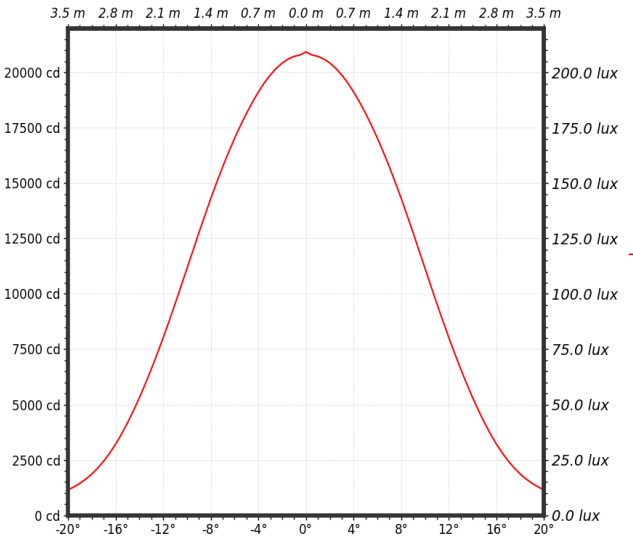


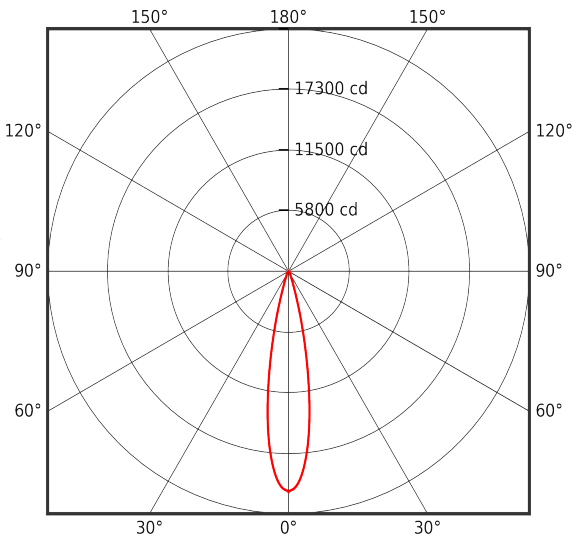
Distance-Diameter-Diagram (Distance [m] --> Beam Opening [m])



Distance [m]	1	5	10	15	20
Illuminance [lx]	20927	837	209	93	52
Diameter [m]	0.37	1.84	3.68	5.52	7.36

Light Distribution Diagrams / Illuminance





Fixture Settings: Full-On

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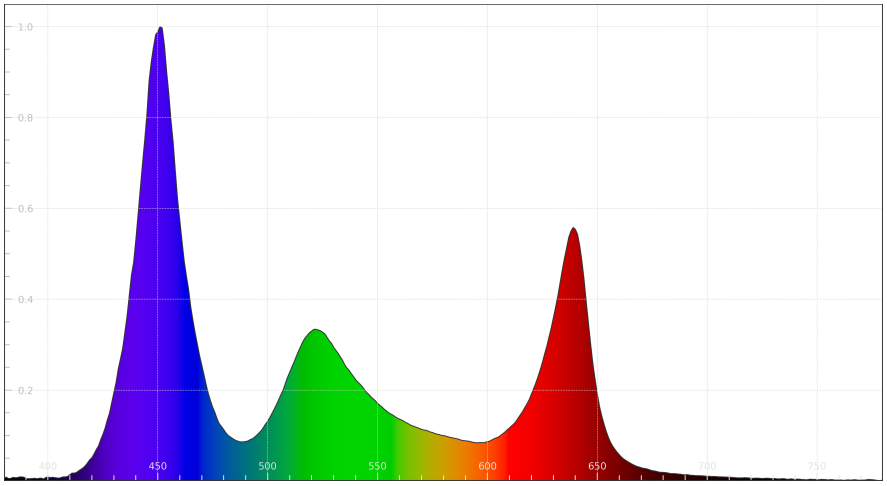
Full-On – Colorimetric Report

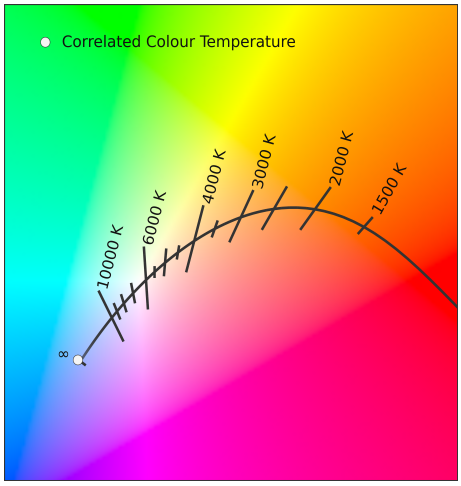
Colorimetric Characteristics

Correlated Colour Temperature [K]	**CCT**	111102	Luminous Flux [lm]	**Lum Flux**	3200
Colour Deviation from Black	**D_{uv}**	-0.0211	Colour Rendering Index	**CRI Ra**	58
Colour Coordinate CIE 1931	**x**	0.2600	Red Component	**CRI R9**	-169
Colour Coordinate CIE 1931	**y**	0.2246	Colour Fidelity	**TM30 R_f**	68
Colour Coordinate CIE 1976	**u'**	0.2010	Colour Gamut	**TM30 R_g**	122
Colour Coordinate CIE 1976	**v'**	0.3906	Television Lighting Consistency Index	**TLCI**	43
Spectral Similarity Index	**SSI[CIE D111102]**	31			

CIE 1931 2° Standard Observer (Wavelength [nm] --> relative Spectral Distribution)

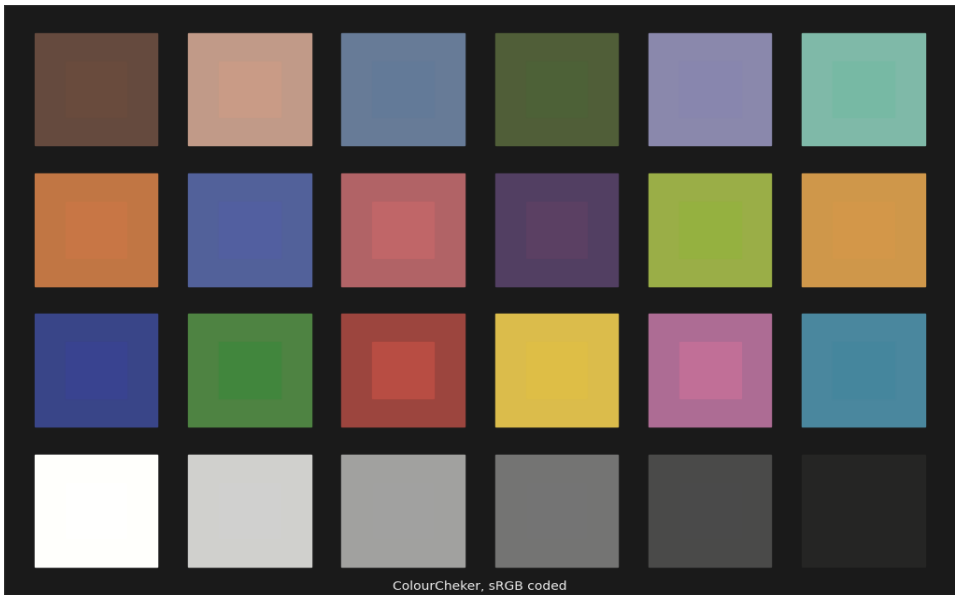


Colour Temperature

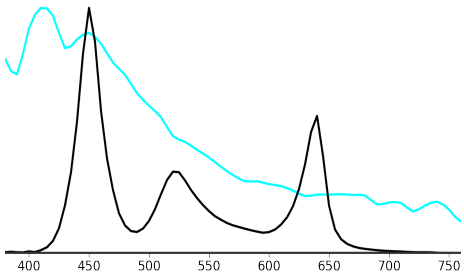


Television Lighting Consistency Index-2012

CCT = D111102 (-3.9) TLCI-2012 : 43 (D111102)



Sector	Lightness	Chroma	Hue
R	--------	----	0
R/Y	-	-	+
Y	-	-	0
Y/G	-	--	---
G	0	----	--
G/C	0	---	+
C	0	--	0
C/B	0	-	0
B	0	---	-
B/M	0	--	--
M	-	-	----
M/R	------	---	-----



Fixture Settings: Full-On

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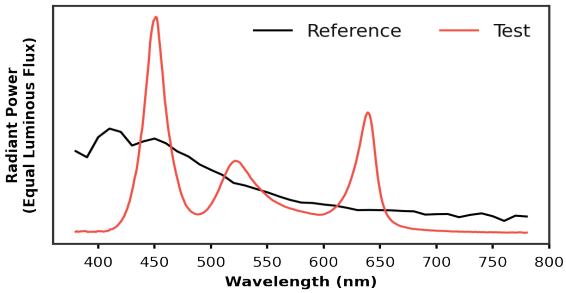
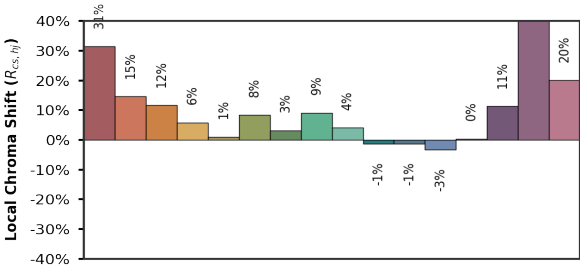
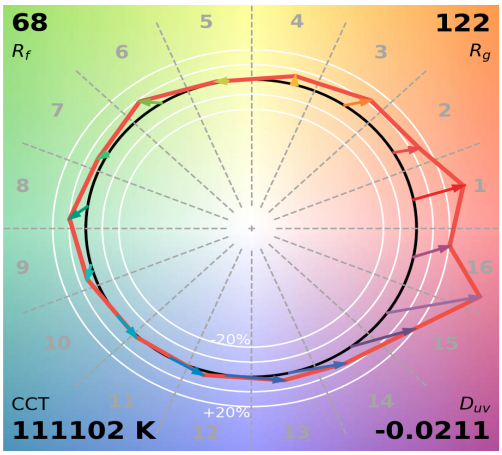
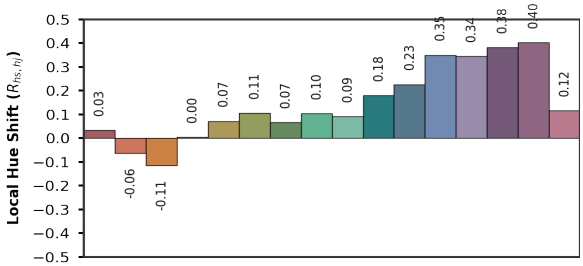
Full-On – Colorimetric Report

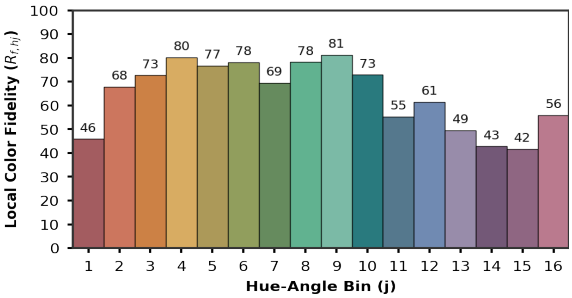
IES TM-30-18 Colour Rendition Report

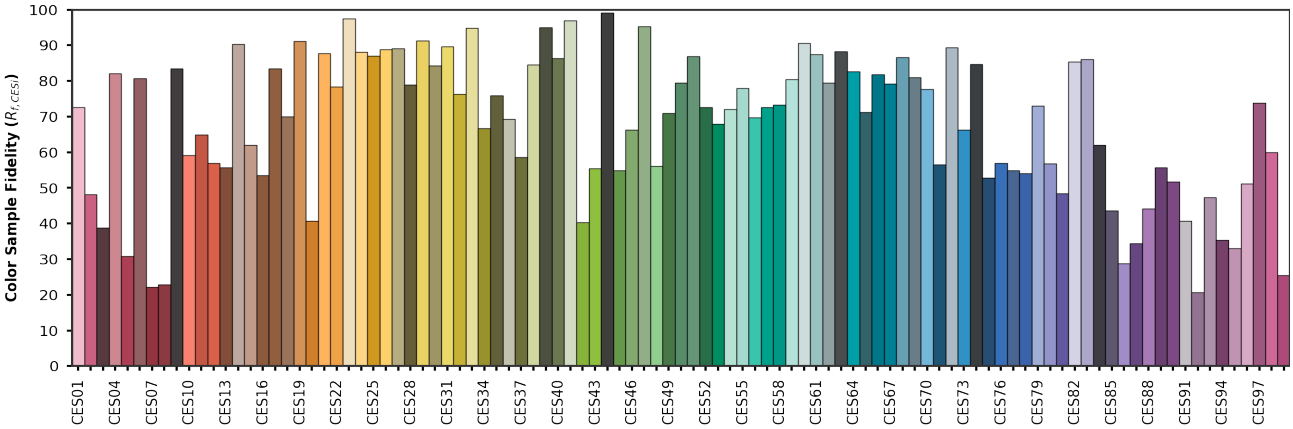












x	0.2600
y	0.2246
u'	0.2010
v'	0.3906

CIE 13.31-1995
(CRI)
R_a **58**
R_9 **-169**

Fixture Settings: Full-On

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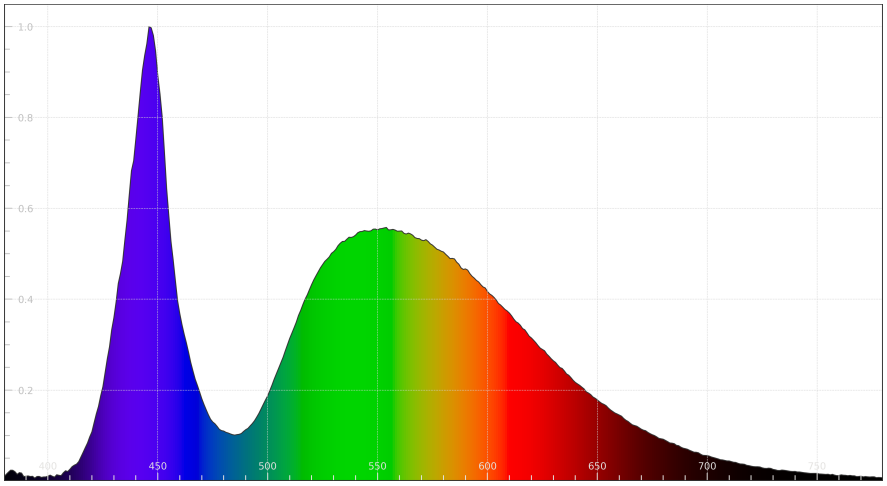
White – Colorimetric Report

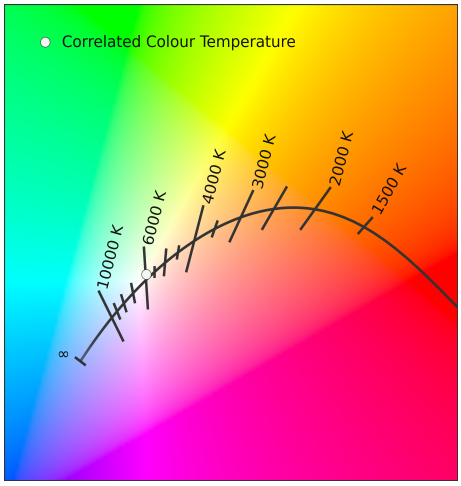
Colorimetric Characteristics

Correlated Colour Temperature [K]	**CCT**	5959	Luminous Flux [lm]	**Lum Flux**	1300
Colour Deviation from Black	**D_{uv}**	0.0043	Colour Rendering Index	**CRI Ra**	70
Colour Coordinate CIE 1931	**x**	0.3224	Red Component	**CRI R9**	-31
Colour Coordinate CIE 1931	**y**	0.3404	Colour Fidelity	**TM30 R_f**	71
Colour Coordinate CIE 1976	**u'**	0.2002	Colour Gamut	**TM30 R_g**	94
Colour Coordinate CIE 1976	**v'**	0.4757	Television Lighting Consistency Index	**TLCI**	45
Spectral Similarity Index	**SSI[CIE D5959]**	57			

CIE 1931 2° Standard Observer (Wavelength [nm] --> relative Spectral Distribution)

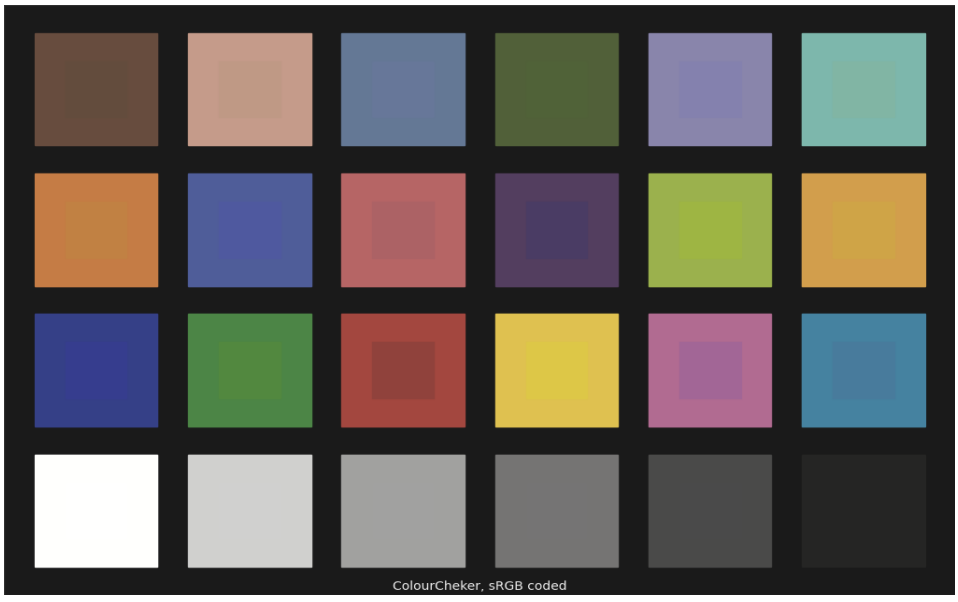


Colour Temperature

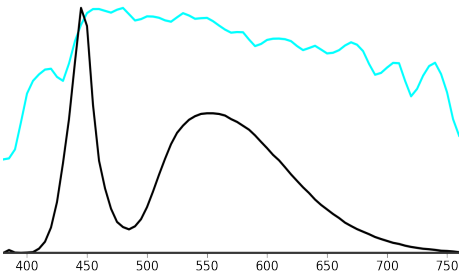


Television Lighting Consistency Index-2012

CCT = D5959 (0.8) TLCI-2012 : 45 (D5959)



Sector	Lightness	Chroma	Hue
R	+++++	+++	+
R/Y	0	+	----
Y	-	-	------
Y/G	-	--	0
G	--	--	++++
G/C	+	0	++++
C	++	0	0
C/B	++++	0	----
B	0	---	----
B/M	++	---	+++
M	+++	-	+++++
M/R	+++++	0	+++++++



Fixture Settings: White-LED

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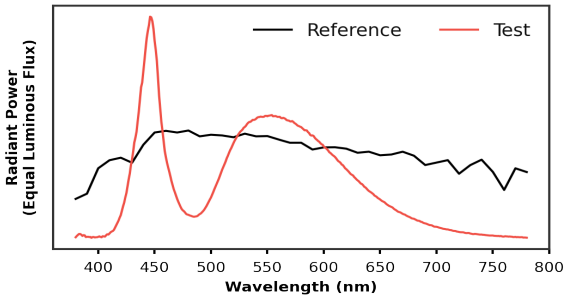
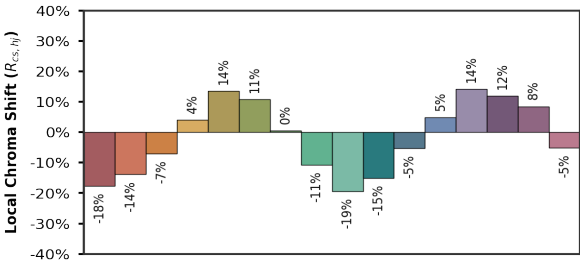
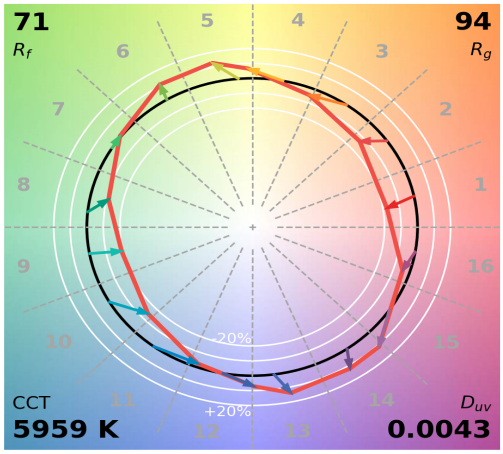
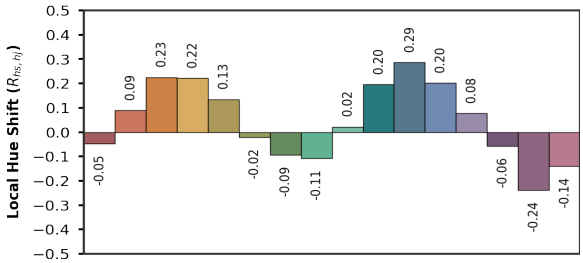
White – Colorimetric Report

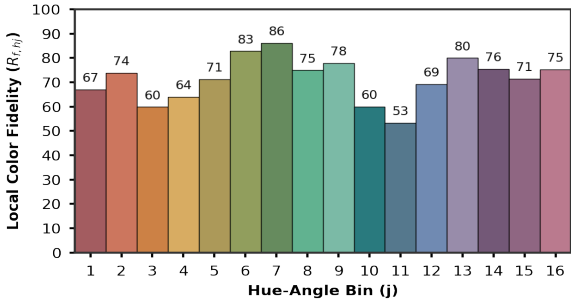
IES TM-30-18 Colour Rendition Report

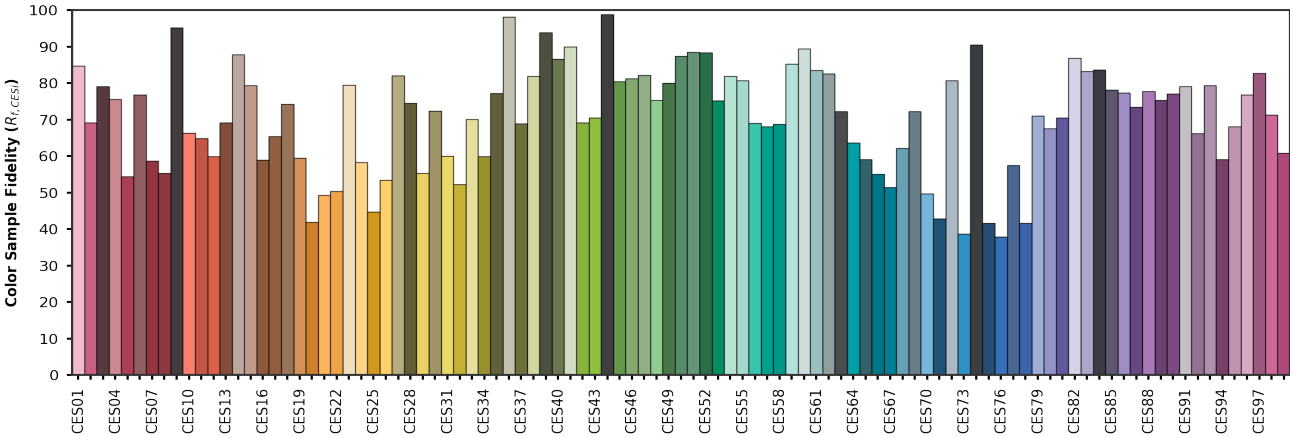












x	0.3224
y	0.3404
u'	0.2002
v'	0.4757

CIE 13.31-1995
(CRI)
R_a **70**
R_9 **-31**

Fixture Settings: White-LED

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