diodeled®
a division of elemental LED

LM-79 Test Report

Relevant Standards

IES LM-79-2008
IES TM-30-2015
CIE 13.3-1995

Product SKU

LINAIRE® Flex Mini 3D
DI-24V-M3D-LIN-24-***

Test Conditions

Test Temperature: 25 °C
Luminaire Sample Length: 39.4 in.
Power Supply: Agilent E3634A DC Power Supply
Voltage: 24 VDC
Current: 0.2 A
Power Consumption: 4.8 W

Test Date

6/19/2024

The results contained in this report pertain only to the tested sample.
Photometric & Colorimetry data measured in accordance to IES LM-79-2008 standards, at the Elemental LED, Inc. Innovation Lab.

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Integrating Sphere

SUMMARY OF RESULTS

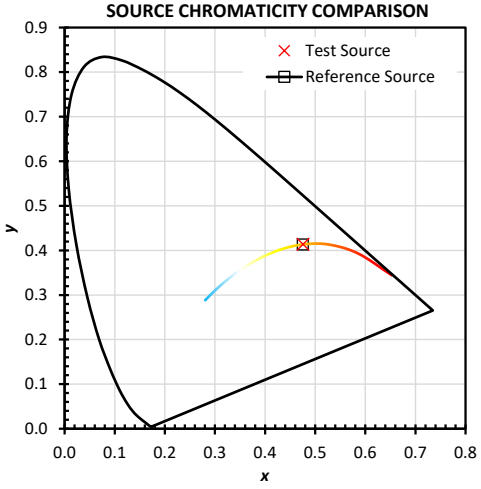
Metric	Test	Reference	Notes	Metric	Test	Reference	Notes
R_f	89	100	IES TM-30-15 Fidelity Index	CCT	2519	2519	Correlated Color Temperature
R_g	97	100	IES TM-30-15 Gamut Index	D_{uv}	0.0002	0.0000	Distance from the blackbody locus
R_a (CRI)	92	100	CIE Test Color Method General Index	x	0.4757	0.4753	CIE 1931 chromaticity coordinate
R_9	55	100	CIE Test Color Method Sample Nine Score	y	0.4140	0.4135	CIE 1931 chromaticity coordinate
LER	278	136	Luminous Efficacy of Radiation	u	0.2712	0.2712	CIE 1960 chromaticity coordinate
Lumens	253	1852	Luminous Flux	v	0.3540	0.3538	CIE 1960 chromaticity coordinate
$R_{f,skin}$	93	100	Average of CES15 and CES18 (skin)	u'	0.2712	0.2712	CIE 1976 chromaticity coordinate
				v'	0.5310	0.5308	CIE 1976 chromaticity coordinate

COLOR RENDERING INDEX

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
92.3	97.5	97.8	90.9	92.2	97.4	89.3	78.1	54.9	93.5	92.1	84.5	93.8	99.9

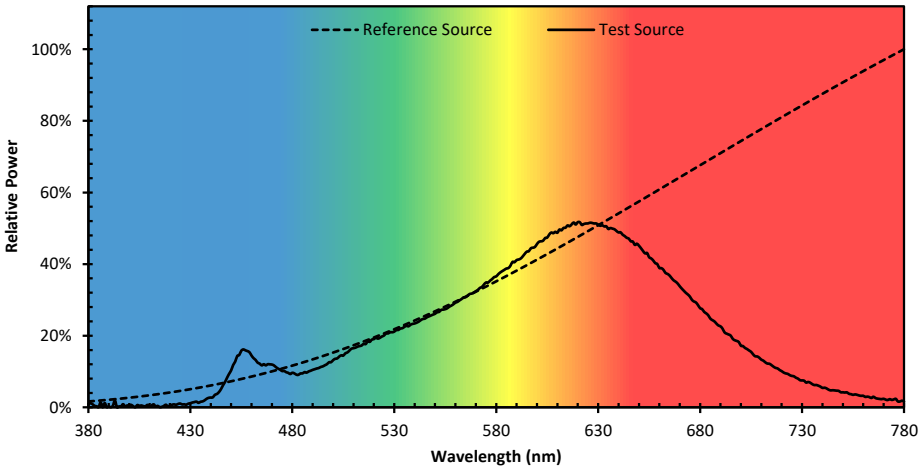
SOURCE PROPERTIES

SOURCE CHROMATICITY COMPARISON



This chart plots the chromaticity of the test and reference sources in the CIE 1931 chromaticity

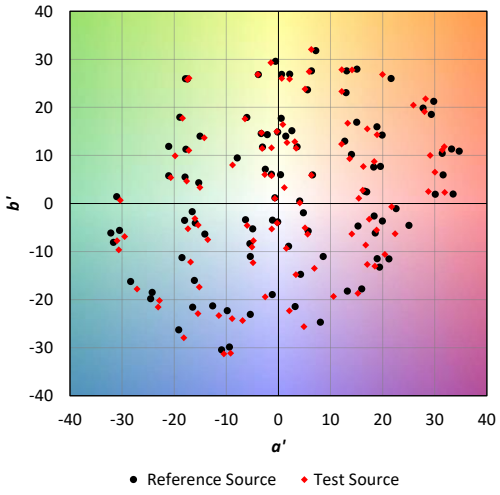
SPECTRAL POWER DISTRIBUTION COMPARISON



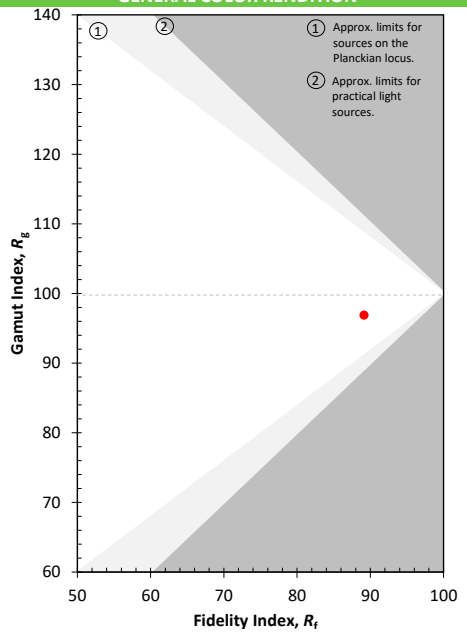
This chart displays the spectral power distributions for the test and reference source. Each SPD has been normalized so that the maximum values is 100%.

GENERAL COLOR RENDITION

CES CHROMATICITY COMPARISON

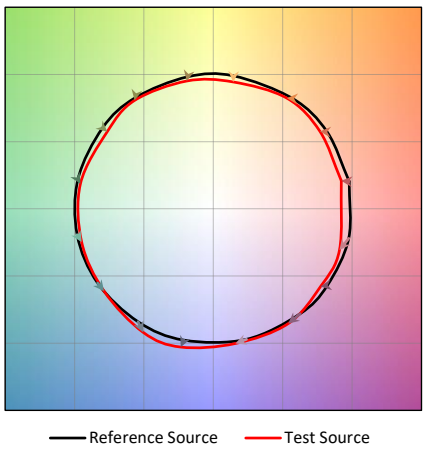


This plot shows the shift in chromaticity for each individual CES.



This plot shows the R_f and R_g values relative to possible values.

COLOR VECTOR GRAPHIC



This plot shows the average chromaticity shift for the samples within each of 16 hue bins. The values are normalized so that the reference is a circle.

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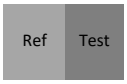
COLOR SAMPLE COMPARISON (APPROXIMATION)

CES 1 Type C	CES 2 Type C	CES 3 Type A	CES 4 Type A	CES 5 Type D	CES 6 Type C	CES 7 Type E	CES 8 Type D
CES 9 Type F	CES 10 Type G	CES 11 Type C	CES 12 Type A	CES 13 Type F	CES 14 Type E	CES 15 Type B	CES 16 Type C
CES 17 Type C	CES 18 Type B	CES 19 Type E	CES 20 Type F	CES 21 Type D	CES 22 Type D	CES 23 Type G	CES 24 Type E
CES 25 Type A	CES 26 Type C	CES 27 Type A	CES 28 Type G	CES 29 Type C	CES 30 Type A	CES 31 Type D	CES 32 Type C
CES 33 Type D	CES 34 Type G	CES 35 Type G	CES 36 Type A	CES 37 Type A	CES 38 Type A	CES 39 Type F	CES 40 Type F
CES 41 Type C	CES 42 Type F	CES 43 Type C	CES 44 Type F	CES 45 Type G	CES 46 Type E	CES 47 Type C	CES 48 Type D
CES 49 Type D	CES 50 Type F	CES 51 Type F	CES 52 Type F	CES 53 Type E	CES 54 Type F	CES 55 Type G	CES 56 Type G
CES 57 Type C	CES 58 Type D	CES 59 Type E	CES 60 Type G	CES 61 Type F	CES 62 Type C	CES 63 Type F	CES 64 Type E
CES 65 Type F	CES 66 Type E	CES 67 Type E	CES 68 Type F	CES 69 Type F	CES 70 Type F	CES 71 Type F	CES 72 Type F
CES 73 Type F	CES 74 Type C	CES 75 Type F	CES 76 Type F	CES 77 Type A	CES 78 Type F	CES 79 Type C	CES 80 Type G
CES 81 Type A	CES 82 Type C	CES 83 Type C	CES 84 Type F	CES 85 Type A	CES 86 Type C	CES 87 Type F	CES 88 Type F
CES 89 Type A	CES 90 Type E	CES 91 Type A	CES 92 Type A	CES 93 Type D	CES 94 Type C	CES 95 Type A	CES 96 Type A
CES 97 Type F	CES 98 Type A	CES 99 Type E					

NOTE: CES stands for "Color Evaluation Sample", these 99 samples are used in place of the 16 R values. The colors shown are approximate and depend on proper monitor calibration. Some colors may be outside of the gamut of the monitor, and will not be displayed accurately. For each sample, the color on the left represents the reference source, and the color on the right represents the test source.

Sample Type:
- A - Nature
- B - Skin
- C - Textiles
- D - Paints



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Competitor

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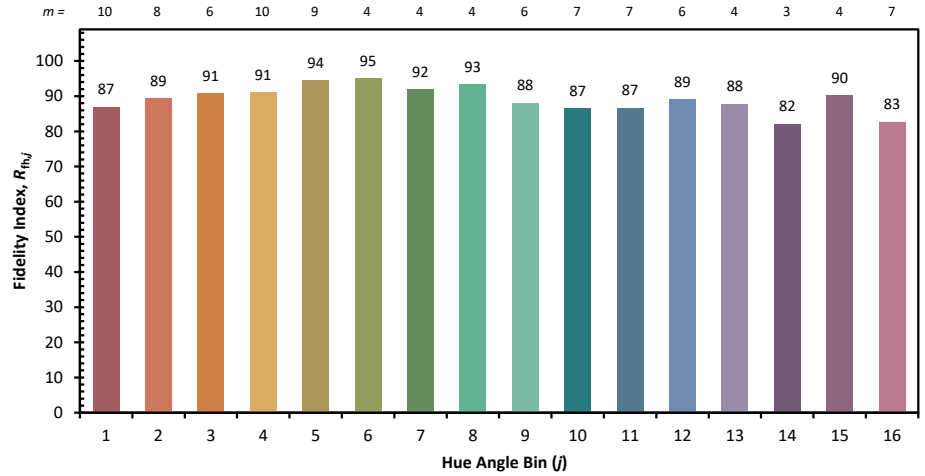
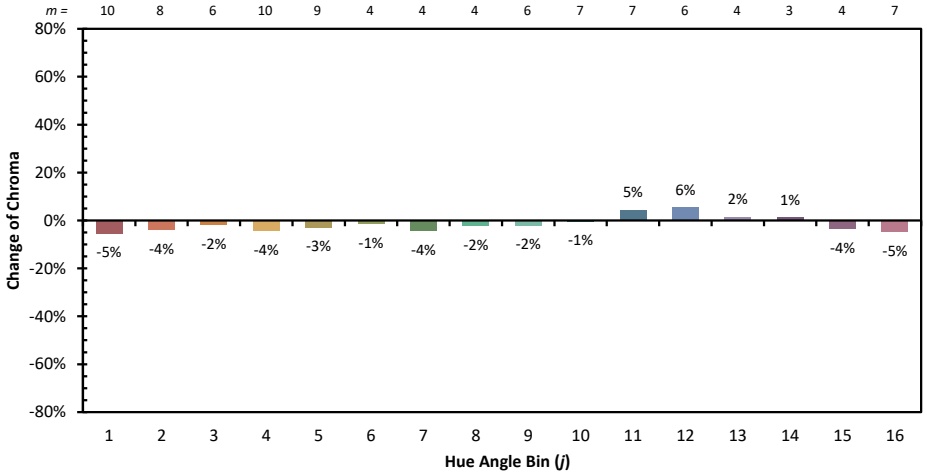
COLOR RENDITION BY HUE



This chart displays the average Fidelity Index for all samples within the hue bin. The number of samples per bin, which can vary based on the CCT used for the calculation, is shown at the top. The color of the bar is based on the average chromaticity under the 5000 K reference illuminant; the colors may not display accurately depending on the calibration of the monitor, and should be used for orientation only.

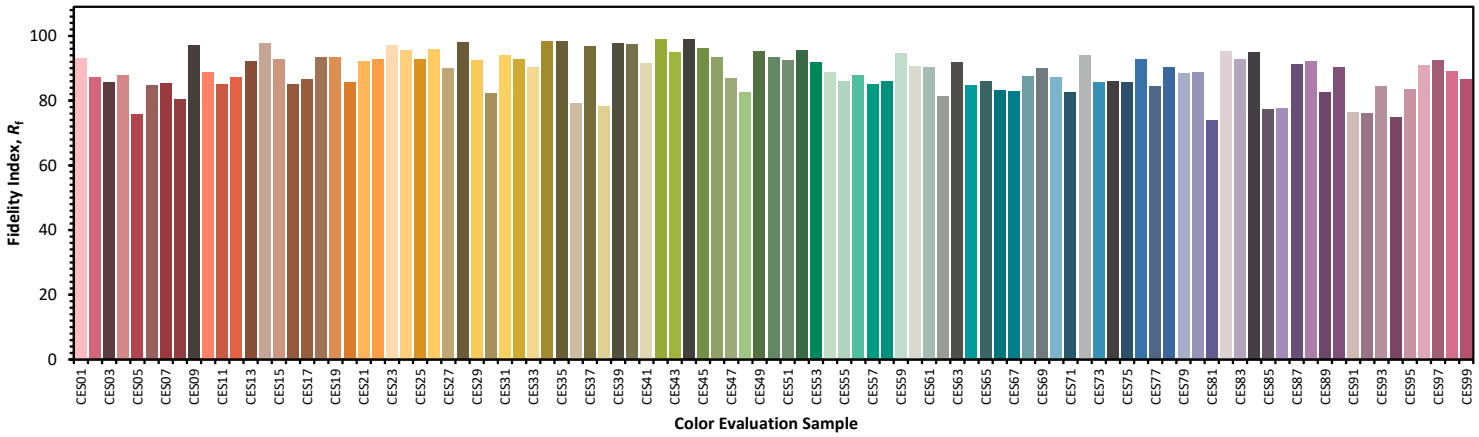
j	Hue Angle
1	0.0°–22.5°
2	22.5° - 45.0°
3	45.0° - 67.5°
4	67.5° - 90.0°
5	90.0°-112.5°
6	112.5°-135.0°
7	135.0°-157.5°
8	157.5°-180.0°
9	180.0°-202.5°
10	202.5°-225.0°
11	225.0°-247.5°
12	247.5°-270.0°
13	270.0°-292.5°
14	292.5°-315.0°
15	315.0°-337.5°
16	337.5°-360.0°

m = Samples per Angle Bin



This chart displays the change in chroma for the average sample within each hue bin. The number of samples per bin, which can vary based on the CCT used for the calculation, is shown at the top. The color of the bar is based on the average chromaticity under the 5000 K reference illuminant; the colors may not display accurately depending on the calibration of the monitor, and should be used for orientation only.

COLOR FIDELITY BY SAMPLE



This chart displays the Fidelity Index for each of the 99 CES. The CES are arranged by their hue angle under the 5000 K reference source, which was also used to determine th e color of each bar. The colors are approximate and depend on proper monitor calibration. Some colors may be outside of the gamut of the monitor, and will not be displayed accurately.

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Goniophotometer Test

SUMMARY OF RESULTS

Luminaire: LINAIRE® Flex Mini 3D
SKU: DI-24V-M3D-LIN-24-***
Luminous Flux: 260 Lumens
Power Consumption: 4.8 Watts
Efficacy: 54.16 Lumens/Watt
Spacing Criterion (0-180): 1.3
Spacing Criterion (90-270): 1.26

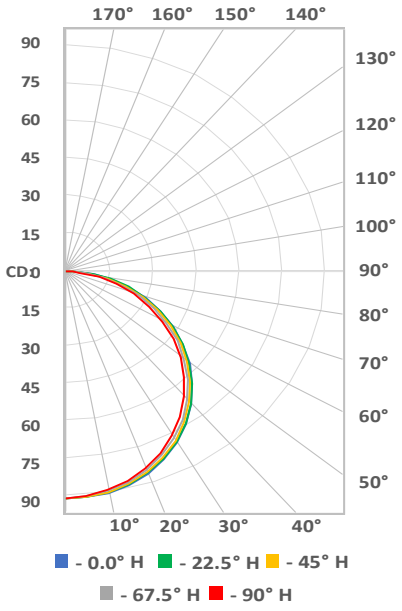
Graphs below are for reference, full IES files are available on Diode LED website

DISTRIBUTION CHARTS AND TABLES

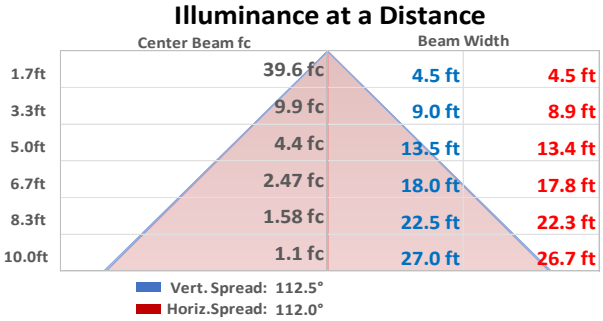
Zonal Lumen Data

Zone	Lumens	%Luminaire
0-20	32.40	12.40
0-30	68.66	26.40
0-40	112.23	43.10
0-60	198.72	76.30
0-80	252.21	96.80
0-90	260.48	100.00
20-40	79.83	30.60
20-50	125.05	48.00
40-70	119.14	45.70
60-80	53.48	20.50
70-80	20.84	8.00
80-90	8.27	3.20
90-180	0.00	0.00
0-180	260.48	100.00

Polar Candela Distribution



Illuminance at a Distance



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