

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P823450

Luminaire Tested: **TTN-D3-740-U-WQ**

Issue Date: 4/16/2024

Test Information

Test Method: LM-79-08
Report Number: P823450
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-7)
Test Lab: INNOVATION CENTER
Issue Date: 4/16/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TTN-D3-740-U-WQ
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE
4000K, 70 CRI LEDS AND WIDE DISTRIBUTION
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7035 lumens
Efficiency: N/A
Efficacy: 118.8 lumens/watt
Luminous Opening: Circular (Dia: 0.71' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G2

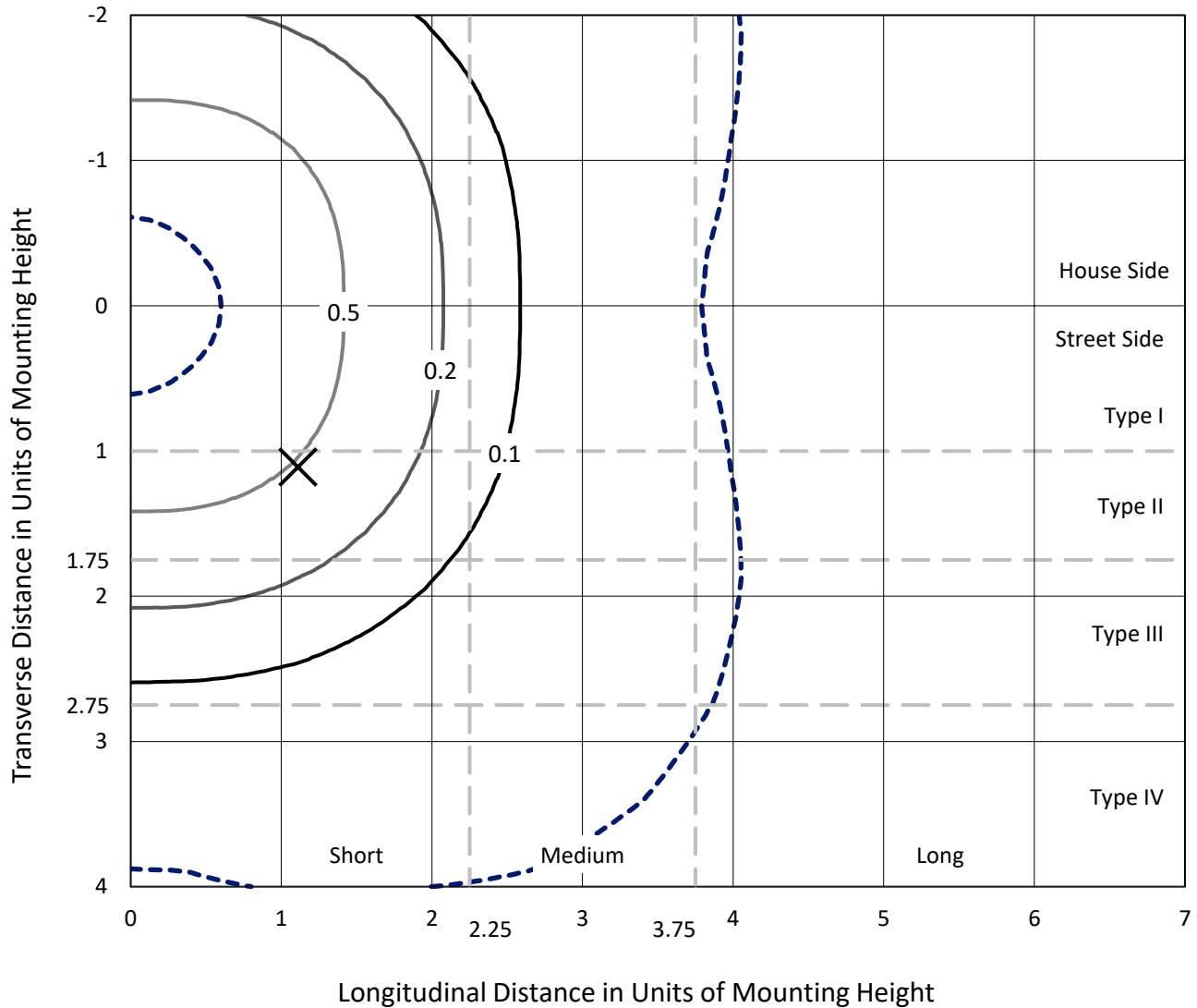
Input Watts (W): 59.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P823450
 CATALOG NUMBER: TTN-D3-740-U-WQ

Iso-Footcandle Lines of Horizontal Illumination

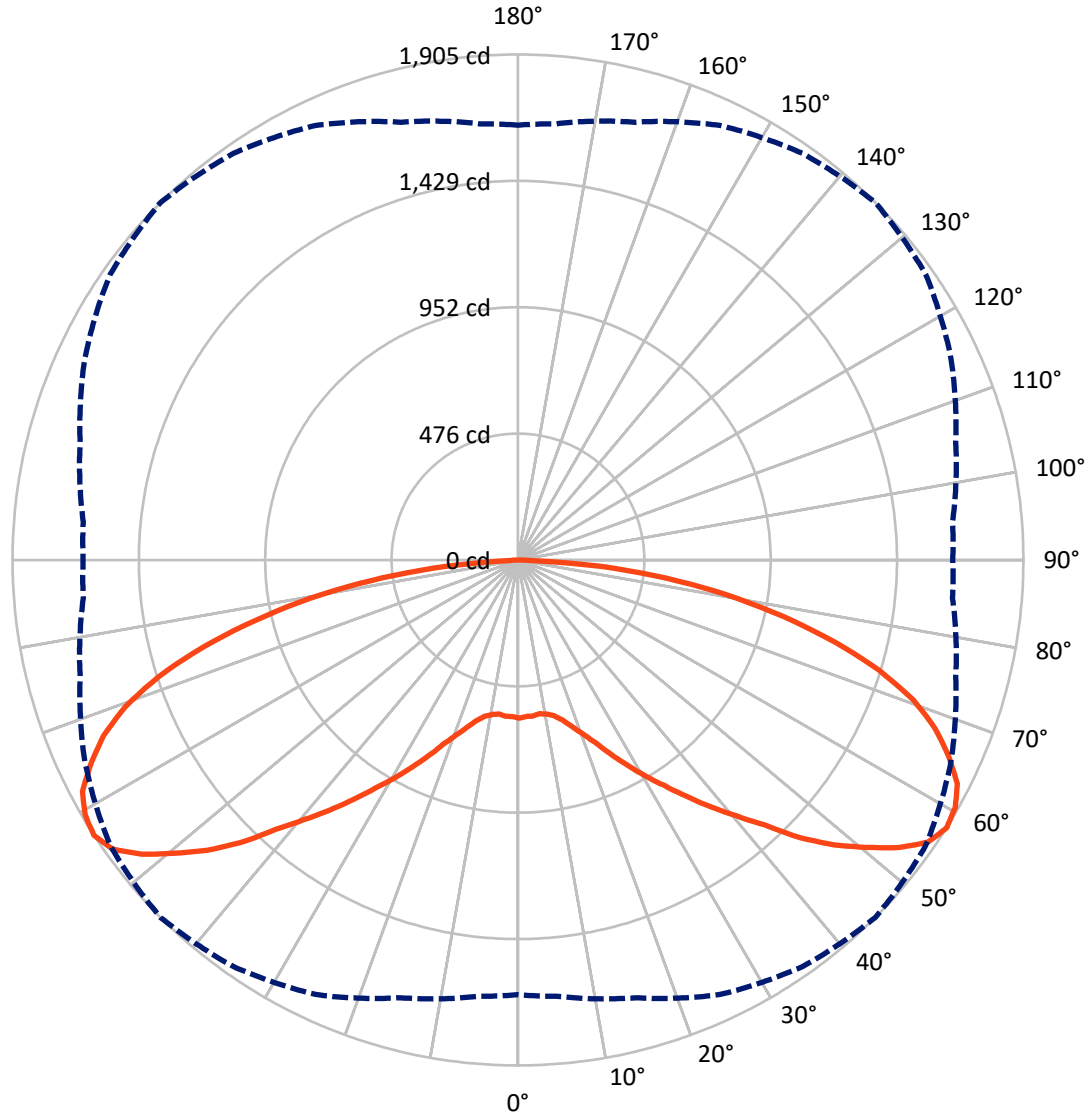
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1 fc
 Type V - Short - N/A

REPORT NUMBER: P823450
CATALOG NUMBER: TTN-D3-740-U-WQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

REPORT NUMBER: P823450
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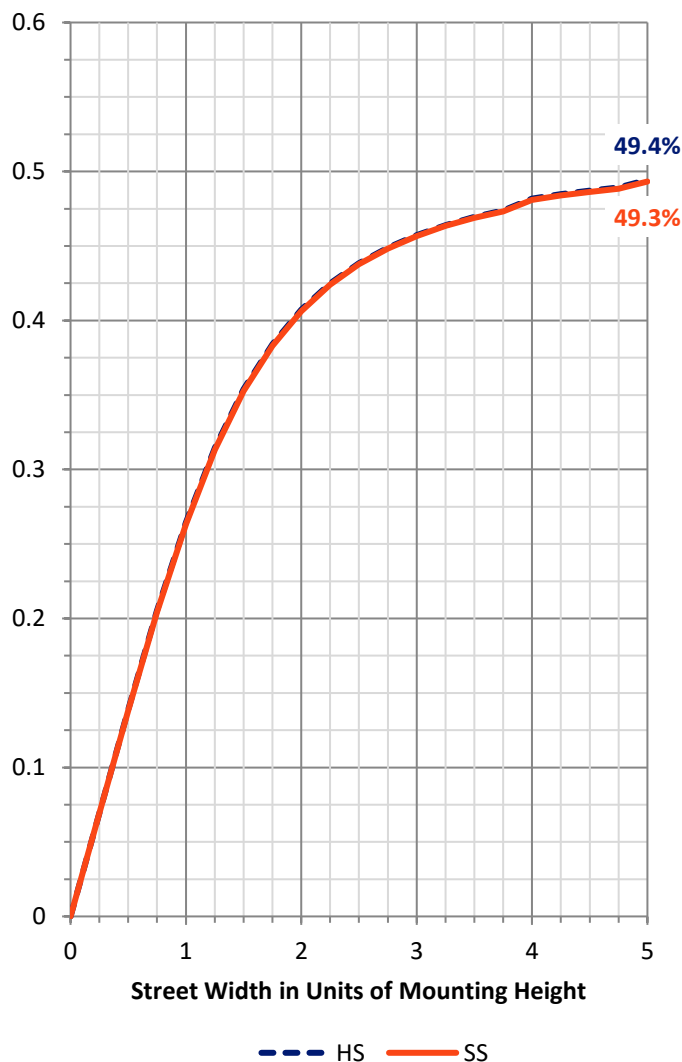
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3517.5	0.0	3517.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3517.5	0.0	3517.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	7035.0	0.0	7035.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.0	0.8
10°-20°	178.9	2.5
20°-30°	375.3	5.3
30°-40°	680.9	9.7
40°-50°	1109.9	15.8
50°-60°	1553.6	22.1
60°-70°	1621.9	23.1
70°-80°	1158.8	16.5
80°-90°	299.8	4.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	7035.0	100.0
0°-180°	7035.0	100.0

Coefficient of Utilization

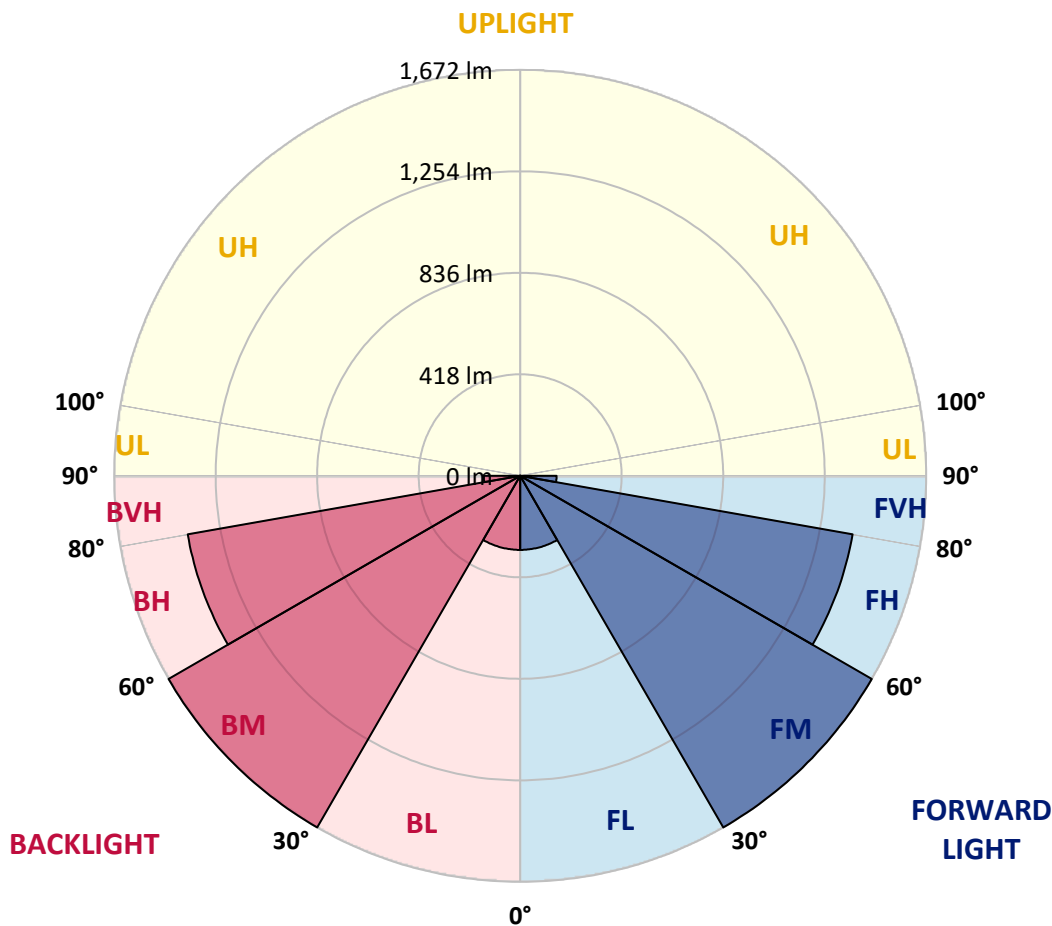


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 CATALOG NUMBER: TTN-D3-740-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	305.1	4.3			
FM (30°-60°)	1672.2	23.8			
FH (60°-80°)	1390.3	19.8			G1/1800
FVH (80°-90°)	149.9	2.1			G2/225
BL (0°-30°)	305.1	4.3	B1/500		
BM (30°-60°)	1672.2	23.8	B2/2500		
BH (60°-80°)	1390.3	19.8	B3/2500		G1/1800
BVH (80°-90°)	149.9	2.1			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G2
 Type V Short





REPORT NUMBER: P823450

CATALOG NUMBER: TTN-D3-740-U-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	596.3	596.3	596.3	596.3	596.3	596.3	596.3	596.3	596.3	596.3	596.3
2.5°	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5
5°	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5	590.5
7.5°	578.9	578.9	584.7	584.7	584.7	584.7	584.7	584.7	584.7	584.7	584.7
10°	578.9	578.9	584.7	584.7	590.5	590.5	590.5	584.7	584.7	578.9	578.9
12.5°	590.5	590.5	590.5	596.3	602.1	602.1	602.1	596.3	596.3	590.5	590.5
15°	607.9	613.7	613.7	619.5	625.3	625.3	625.3	619.5	619.5	613.7	613.7
17.5°	642.6	642.6	642.6	648.4	654.2	660.0	660.0	648.4	648.4	642.6	648.4
20°	677.4	683.2	683.2	688.9	694.7	700.5	694.7	688.9	683.2	683.2	683.2
22.5°	729.5	729.5	735.3	735.3	746.8	746.8	746.8	735.3	735.3	735.3	735.3
25°	787.4	787.4	793.2	798.9	810.5	810.5	804.7	793.2	793.2	793.2	798.9
27.5°	856.8	856.8	862.6	862.6	874.2	874.2	868.4	862.6	862.6	862.6	868.4
30°	920.5	920.5	932.1	937.9	943.7	943.7	943.7	932.1	932.1	926.3	926.3
32.5°	978.4	984.2	990.0	1007.4	1018.9	1013.2	1018.9	1007.4	995.8	990.0	990.0
35°	1042.1	1047.9	1059.5	1076.8	1094.2	1094.2	1094.2	1076.8	1065.3	1053.7	1059.5
37.5°	1117.4	1117.4	1134.7	1152.1	1175.3	1181.0	1175.3	1157.9	1140.5	1128.9	1128.9
40°	1198.4	1198.4	1215.8	1233.2	1262.1	1267.9	1262.1	1238.9	1215.8	1210.0	1210.0
42.5°	1279.5	1279.5	1302.6	1320.0	1354.7	1366.3	1354.7	1325.8	1302.6	1285.3	1291.0
45°	1366.3	1372.1	1401.0	1435.8	1476.3	1493.7	1476.3	1441.6	1406.8	1372.1	1372.1
47.5°	1464.7	1464.7	1499.5	1540.0	1586.3	1603.7	1580.5	1545.8	1499.5	1470.5	1470.5
50°	1528.4	1534.2	1580.5	1632.6	1690.5	1702.1	1684.7	1632.6	1580.5	1540.0	1534.2
52.5°	1592.1	1597.9	1650.0	1725.3	1783.1	1800.5	1777.4	1725.3	1650.0	1597.9	1597.9
55°	1632.6	1644.2	1702.1	1783.1	1846.8	1875.8	1841.0	1783.1	1696.3	1638.4	1632.6
57.5°	1638.4	1650.0	1707.9	1806.3	1870.0	1904.7	1875.8	1800.5	1707.9	1644.2	1638.4
60°	1626.8	1632.6	1690.5	1794.7	1870.0	1893.1	1870.0	1788.9	1684.7	1632.6	1621.0
62.5°	1597.9	1609.5	1667.4	1754.2	1841.0	1858.4	1835.3	1748.4	1661.6	1597.9	1586.3
65°	1505.3	1516.8	1603.7	1690.5	1765.8	1783.1	1765.8	1690.5	1597.9	1505.3	1493.7
67.5°	1401.0	1406.8	1493.7	1597.9	1667.4	1696.3	1667.4	1603.7	1487.9	1401.0	1389.5
70°	1291.0	1296.8	1366.3	1476.3	1545.8	1580.5	1551.6	1482.1	1360.5	1285.3	1279.5
72.5°	1163.7	1163.7	1233.2	1320.0	1389.5	1424.2	1401.0	1314.2	1221.6	1146.3	1134.7
75°	990.0	995.8	1071.0	1134.7	1210.0	1233.2	1210.0	1140.5	1053.7	978.4	966.8
77.5°	810.5	816.3	880.0	932.1	1001.6	1018.9	1001.6	943.7	862.6	798.9	793.2
80°	613.7	619.5	671.6	717.9	775.8	798.9	781.6	723.7	660.0	602.1	584.7
82.5°	399.5	405.3	457.4	492.1	544.2	561.6	550.0	497.9	445.8	387.9	382.1
85°	179.5	185.3	231.6	260.5	301.1	318.4	306.8	260.5	220.0	167.9	156.3
87.5°	17.4	17.4	17.4	17.4	17.4	23.2	23.2	17.4	17.4	17.4	17.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-2

Test Date: 11/20/2024

Luminaire Tested: TTN-D0-740-U-WQ

Data in this report applies to TT and TTN families of products

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-740-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 4000K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 3863
 CIE u': 0.2247
 CIE v': 0.5111
 Duv: 0.0055
 CIE x: 0.3911
 CIE y: 0.3954
 CIE z: 0.2136
 Peak Wavelength (nm): 448
 Dominant Wavelength (nm): 577
 Purity: 36.03443
 Rf: 74.7
 Rg: 95.4

CRI (Ra):	71.9		
R1:	69.4	R9:	-23.5
R2:	76.9	R10:	45.4
R3:	83.3	R11:	68.7
R4:	72.7	R12:	38.7
R5:	68.4	R13:	70.0
R6:	67.5	R14:	90.3
R7:	82.0	R15:	62.1
R8:	55.3		



Test Conditions

Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-2

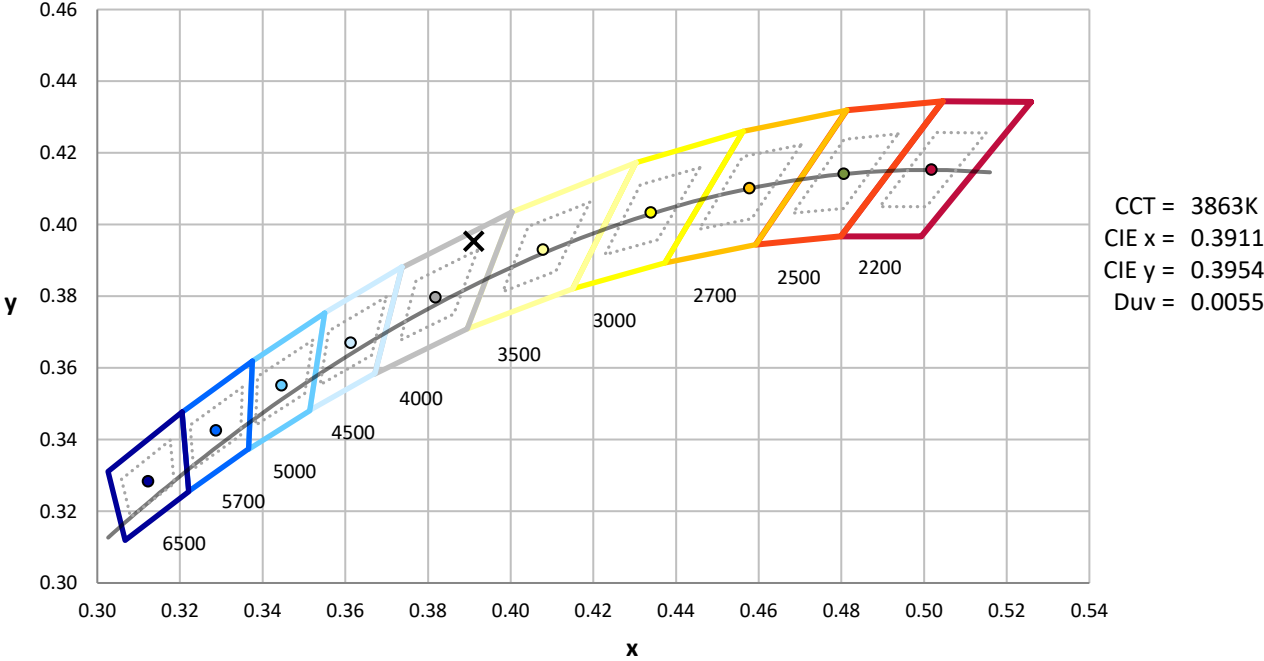
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: NR

λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.45

λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.72

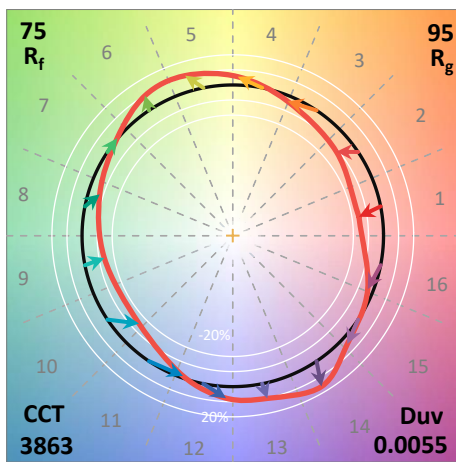
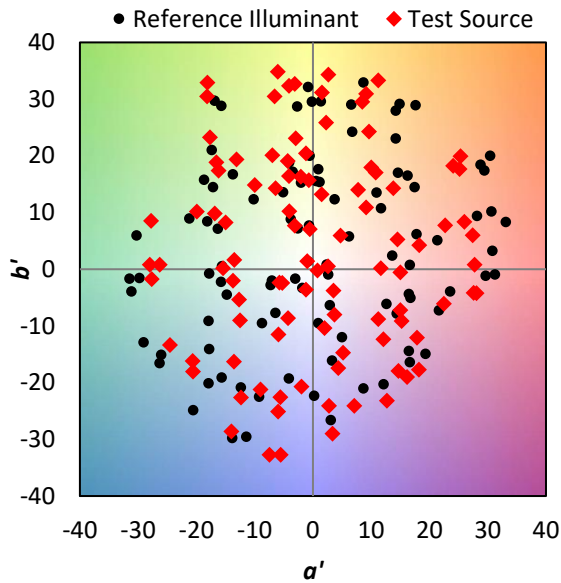
λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)
360	0	NR	490	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

Summary

$R_f = 74.7$
 $R_g = 95.4$
 CIE $R_a = 71.9$
 $R_g = -23.5$

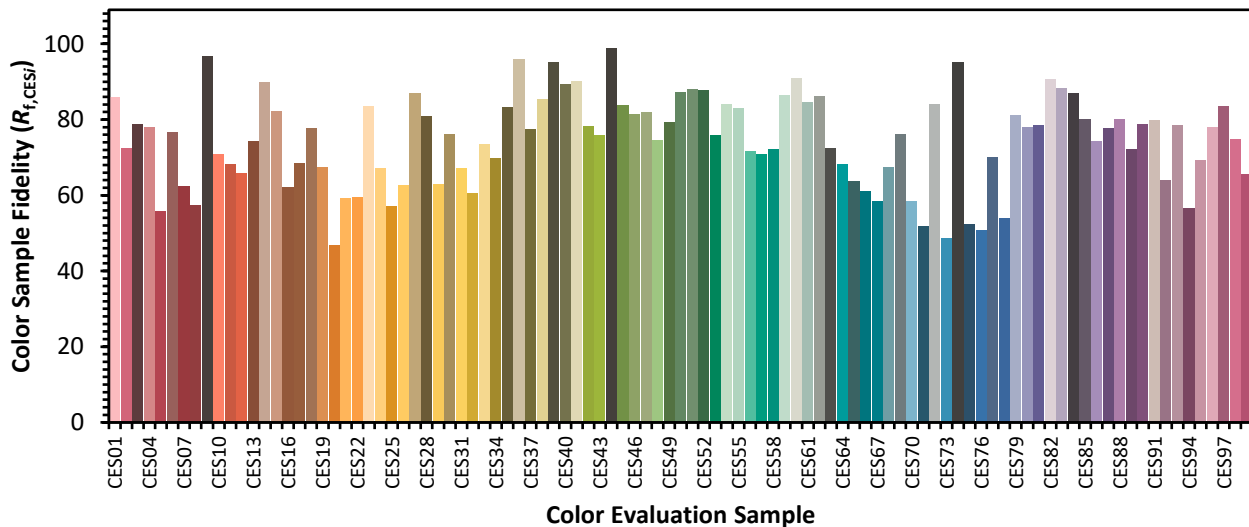


Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

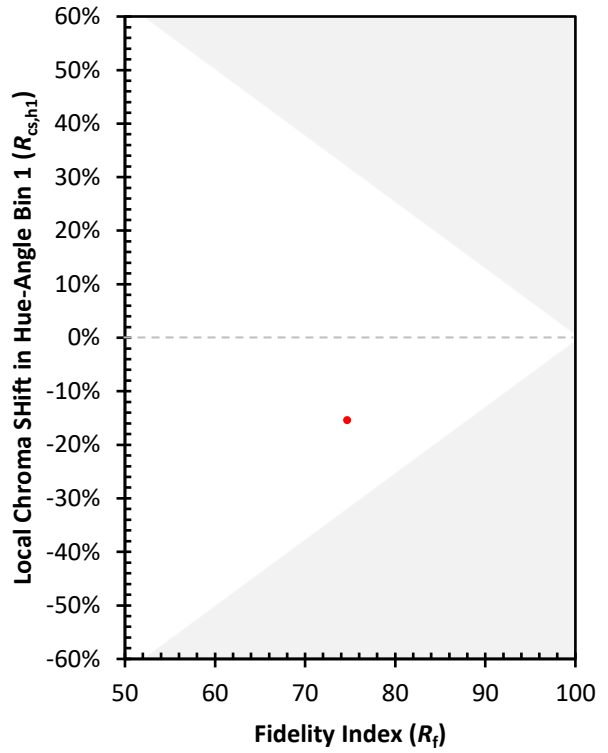
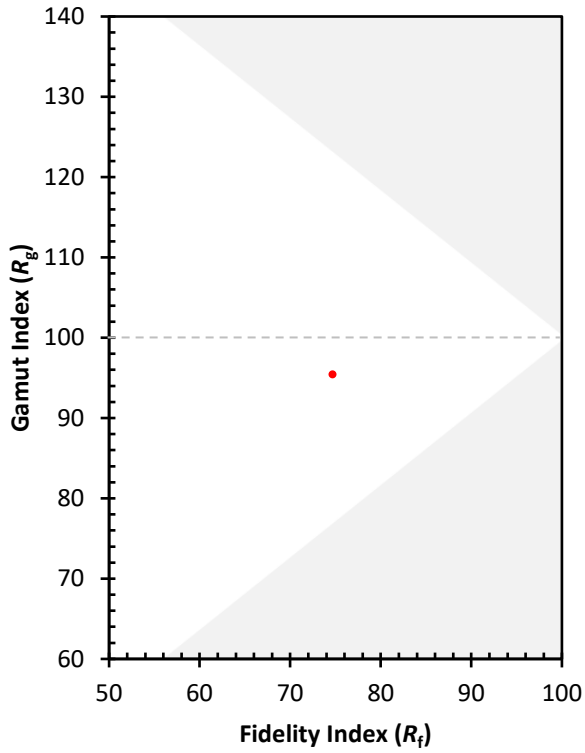
CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 51
CES02 = 61	CES27 = 87	CES52 = 88	CES77 = 70
CES03 = 30	CES28 = 81	CES53 = 76	CES78 = 54
CES04 = 70	CES29 = 63	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 76	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 67	CES56 = 72	CES81 = 79
CES07 = 40	CES32 = 61	CES57 = 71	CES82 = 91
CES08 = 39	CES33 = 73	CES58 = 72	CES83 = 88
CES09 = 29	CES34 = 70	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 83	CES60 = 91	CES85 = 80
CES11 = 57	CES36 = 96	CES61 = 85	CES86 = 74
CES12 = 63	CES37 = 77	CES62 = 86	CES87 = 78
CES13 = 42	CES38 = 85	CES63 = 72	CES88 = 80
CES14 = 74	CES39 = 95	CES64 = 68	CES89 = 72
CES15 = 71	CES40 = 89	CES65 = 64	CES90 = 79
CES16 = 46	CES41 = 90	CES66 = 61	CES91 = 80
CES17 = 49	CES42 = 78	CES67 = 58	CES92 = 64
CES18 = 56	CES43 = 76	CES68 = 67	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 76	CES94 = 57
CES20 = 65	CES45 = 84	CES70 = 58	CES95 = 69
CES21 = 86	CES46 = 81	CES71 = 52	CES96 = 78
CES22 = 78	CES47 = 82	CES72 = 84	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 66
CES25 = 72	CES50 = 87	CES75 = 52	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)