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: P832694

Luminaire Tested: **TTN-D3-750-U-WQ-CG**

Issue Date: 5/14/2024

Report Generated By 670246001

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

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P832694
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-12)
Test Lab:	INNOVATION CENTER
Issue Date:	5/14/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TTN-D3-750-U-WQ-CG
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE
	5000K, 70 CRI LEDS AND WIDE DISTRIBUTION WITH CLEAR GLASS
Light Source:	-
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	6682 lumens
Efficiency:	N/A
Efficacy:	112.9 lumens/watt
Luminous Opening:	Circular (Dia: 0.71' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G1

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

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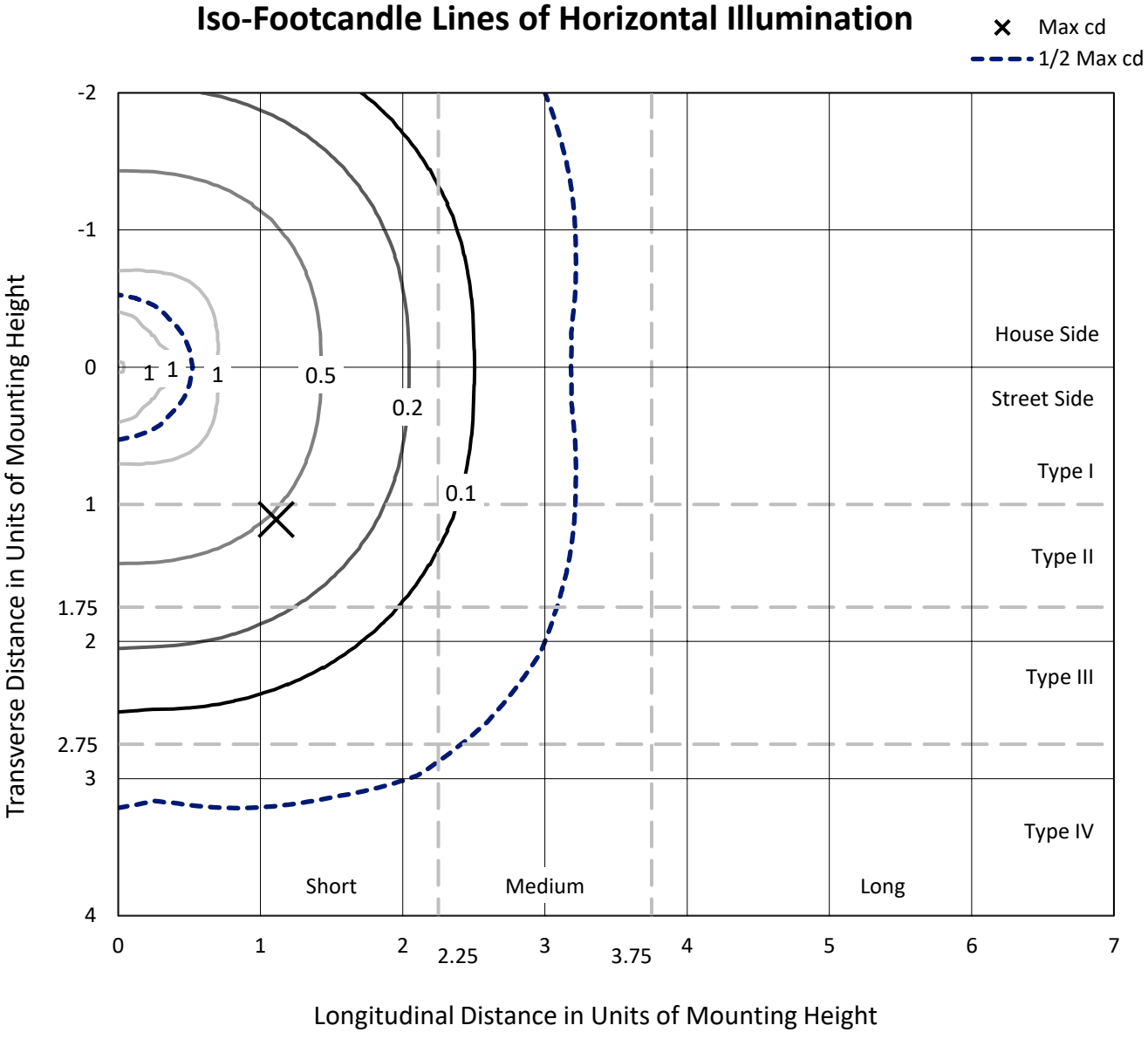
Scaled Data Report

REPORT NUMBER: P832694
CATALOG NUMBER: TTN-D3-750-U-WQ-CG

Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc
Type V - Short - N/A

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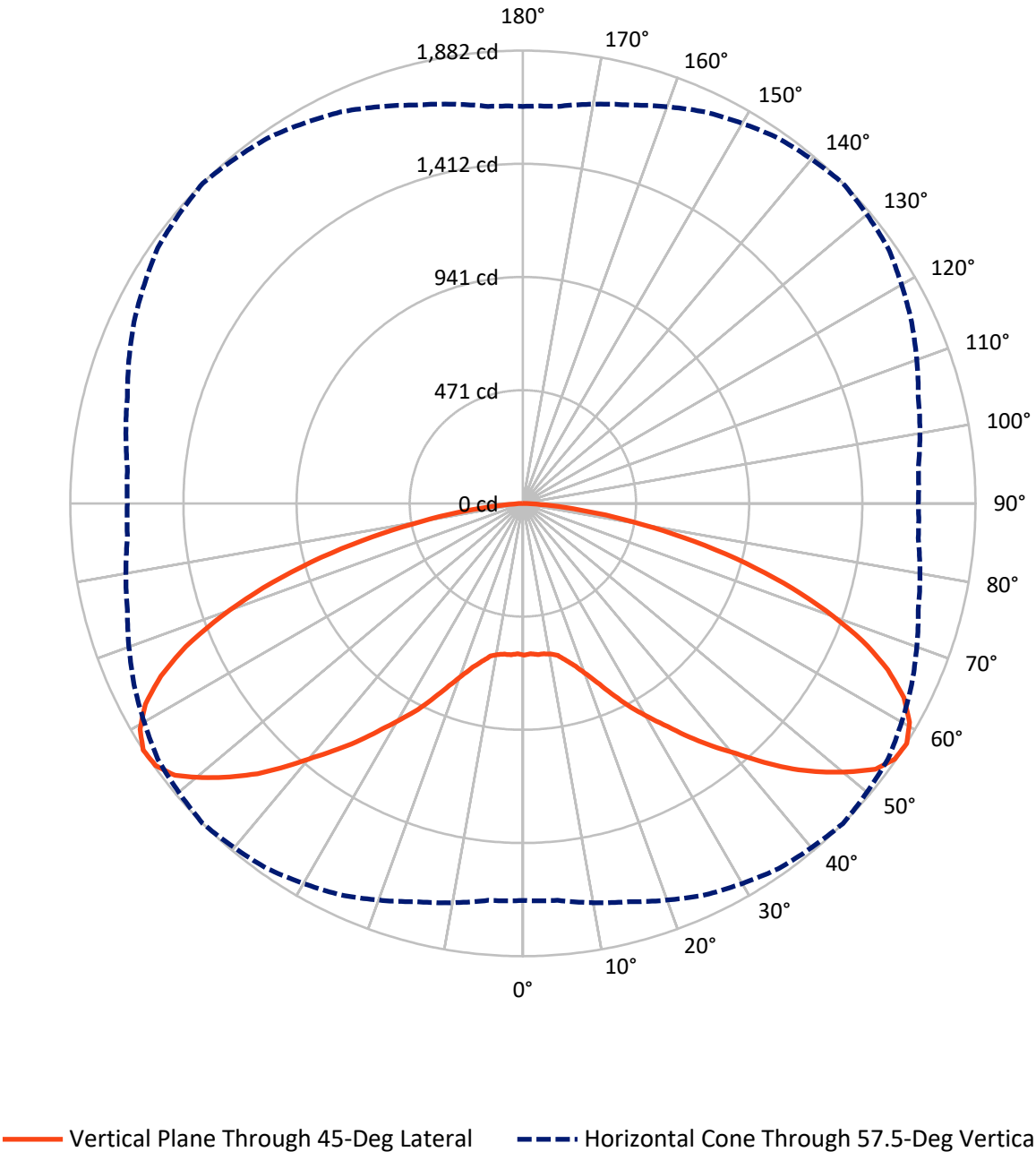
Luminous Intensity Polar Plot



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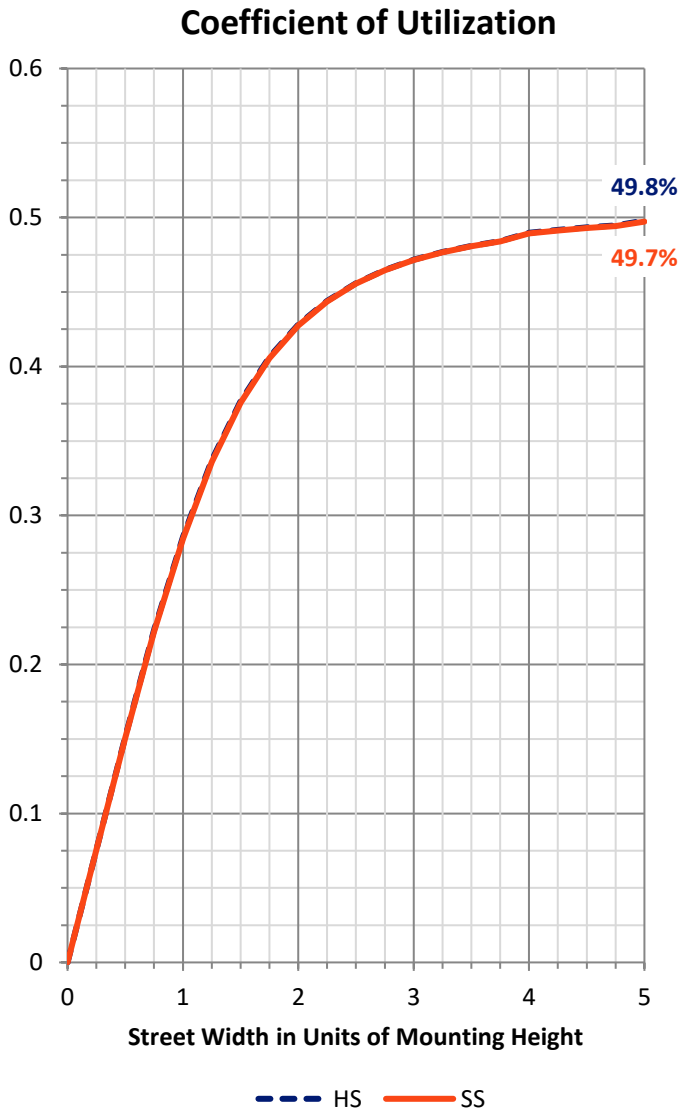
REPORT NUMBER: P832694
CATALOG NUMBER: TTN-D3-750-U-WQ-CG

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3341.0	0.0	3341.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3341.0	0.0	3341.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	6682.0	0.0	6682.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.2	0.9
10°-20°	194.6	2.9
20°-30°	409.5	6.1
30°-40°	738.2	11.0
40°-50°	1173.5	17.6
50°-60°	1565.7	23.4
60°-70°	1512.7	22.6
70°-80°	876.6	13.1
80°-90°	151.1	2.3
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°	6682.0	100.0
0°-180°	6682.0	100.0



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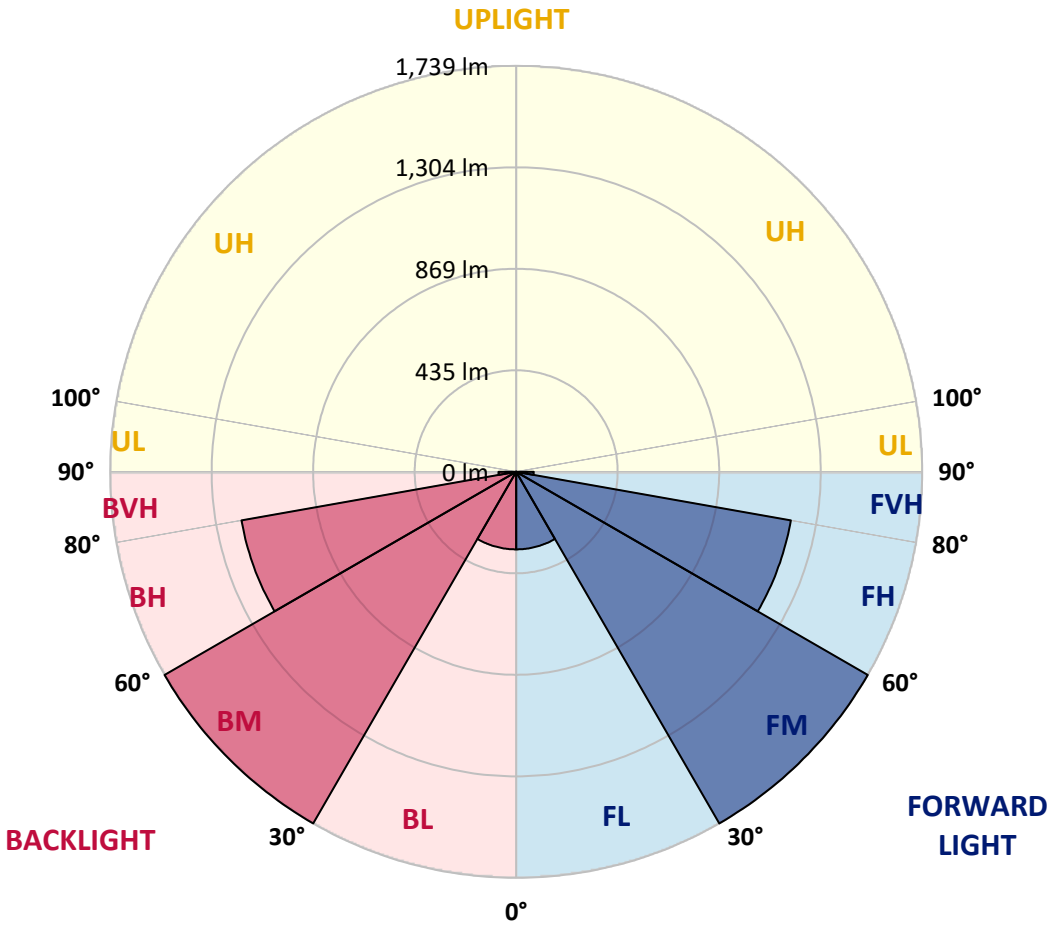
Scaled Data Report

REPORT NUMBER: P832694
CATALOG NUMBER: TTN-D3-750-U-WQ-CG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	332.2	5.0			
FM	(30°-60°)	1738.7	26.0			
FH	(60°-80°)	1194.6	17.9			G1/1800
FVH	(80°-90°)	75.5	1.1			G1/100
BL	(0°-30°)	332.2	5.0	B1/500		
BM	(30°-60°)	1738.7	26.0	B2/2500		
BH	(60°-80°)	1194.6	17.9	B3/2500		G1/1800
BVH	(80°-90°)	75.5	1.1			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G1
Type V Short



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REPORT NUMBER: P832694
CATALOG NUMBER: TTN-D3-750-U-WQ-CG

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	631.2	631.2	631.2	631.2	631.2	*631.2*	631.2	631.2	631.2	631.2	631.2
2.5°	625.4	625.4	625.4	625.4	625.4	*625.4*	625.4	625.4	625.4	625.4	625.4
5°	631.2	631.2	631.2	631.2	631.2	*631.2*	631.2	631.2	631.2	631.2	631.2
7.5°	625.4	625.4	631.2	631.2	631.2	*631.2*	631.2	631.2	631.2	625.4	625.4
10°	631.2	631.2	631.2	637.0	637.0	*637.0*	637.0	637.0	631.2	631.2	631.2
12.5°	642.8	642.8	648.6	648.6	648.6	*648.6*	648.6	648.6	648.6	642.8	642.8
15°	671.8	671.8	671.8	677.6	677.6	*677.6*	677.6	677.6	671.8	671.8	671.8
17.5°	700.7	700.7	706.5	706.5	712.3	*712.3*	712.3	706.5	706.5	706.5	706.5
20°	741.3	741.3	747.1	747.1	752.8	*758.6*	758.6	752.8	747.1	747.1	747.1
22.5°	793.4	799.2	799.2	799.2	805.0	*816.5*	810.8	805.0	799.2	799.2	799.2
25°	857.1	862.9	868.7	868.7	874.5	*886.0*	886.0	868.7	868.7	868.7	868.7
27.5°	932.4	938.2	944.0	944.0	949.7	*961.3*	955.5	944.0	944.0	938.2	938.2
30°	1001.9	1007.7	1013.4	1019.2	1025.0	*1030.8*	1030.8	1019.2	1013.4	1007.7	1001.9
32.5°	1071.4	1071.4	1082.9	1094.5	1106.1	*1106.1*	1111.9	1094.5	1082.9	1071.4	1065.6
35°	1140.8	1146.6	1152.4	1169.8	1187.2	*1193.0*	1187.2	1169.8	1152.4	1140.8	1140.8
37.5°	1216.1	1221.9	1227.7	1250.9	1268.3	*1279.8*	1268.3	1250.9	1227.7	1216.1	1210.3
40°	1297.2	1303.0	1308.8	1337.7	1355.1	*1366.7*	1349.3	1332.0	1308.8	1297.2	1291.4
42.5°	1372.5	1384.1	1395.7	1430.4	1459.4	*1470.9*	1453.6	1424.6	1401.4	1372.5	1366.7
45°	1465.1	1476.7	1494.1	1528.9	1557.8	*1575.2*	1552.0	1523.1	1488.3	1465.1	1459.4
47.5°	1540.4	1552.0	1569.4	1615.7	1656.3	*1667.8*	1644.7	1609.9	1563.6	1534.6	1528.9
50°	1598.3	1609.9	1644.7	1696.8	1743.1	*1754.7*	1731.5	1685.2	1633.1	1592.6	1586.8
52.5°	1644.7	1656.3	1696.8	1766.3	1818.4	*1835.8*	1806.8	1754.7	1685.2	1638.9	1633.1
55°	1667.8	1673.6	1725.7	1801.0	1853.2	*1876.3*	1847.4	1789.5	1714.2	1662.0	1656.3
57.5°	*1650.5*	*1656.3*	*1714.2*	*1795.2*	*1853.2*	*1882.1*	*1853.2*	*1783.7*	*1702.6*	*1650.5*	*1644.7*
60°	1615.7	1615.7	1667.8	1760.5	1830.0	*1847.4*	1818.4	1748.9	1662.0	1609.9	1604.1
62.5°	1552.0	1546.2	1609.9	1691.0	1760.5	*1777.9*	1754.7	1685.2	1598.3	1546.2	1540.4
65°	1430.4	1418.8	1511.5	1586.8	1650.5	*1667.8*	1650.5	1586.8	1505.7	1424.6	1413.0
67.5°	1285.6	1268.3	1355.1	1442.0	1499.9	*1523.1*	1499.9	1447.8	1355.1	1274.0	1268.3
70°	1135.1	1117.7	1187.2	1262.5	1326.2	*1337.7*	1314.6	1262.5	1175.6	1123.5	1123.5
72.5°	955.5	938.2	1001.9	1059.8	1123.5	*1135.1*	1111.9	1065.6	1001.9	949.7	944.0
75°	758.6	741.3	799.2	845.5	909.2	*915.0*	903.4	851.3	799.2	747.1	747.1
77.5°	561.7	544.4	590.7	631.2	683.4	*683.4*	677.6	637.0	590.7	555.9	555.9
80°	370.6	359.0	399.6	417.0	463.3	*463.3*	457.5	428.5	393.8	370.6	364.8
82.5°	208.5	196.9	231.6	237.4	272.2	*272.2*	266.4	243.2	220.1	202.7	202.7
85°	81.1	69.5	92.7	98.4	115.8	*115.8*	110.0	104.2	86.9	75.3	75.3
87.5°	5.8	5.8	11.6	11.6	17.4	*17.4*	17.4	11.6	11.6	5.8	5.8
90°	0.0	0.0	0.0	0.0	0.0	*0.0*	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-3

Test Date: 11/21/2024

Luminaire Tested: TTN-D0-750-U-WQ

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

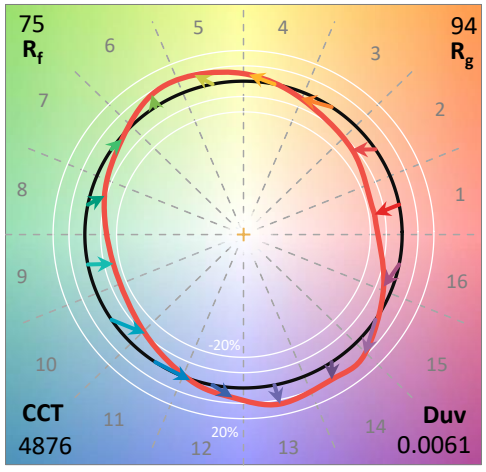
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2411-284-3
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	11/21/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	MCGRAW EDISON
Catalog Number:	**TTN-D0-750-U-WQ**
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 5000K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K):	4876
CIE u':	0.2086
CIE v':	0.4932
Duv:	0.0061
CIE x:	0.3502
CIE y:	0.3680
CIE z:	0.2818
Peak Wavelength (nm):	451
Dominant Wavelength (nm):	569
Purity:	15.51324
Rf:	74.6
Rg:	94.4

CRI (Ra):	72.6
R1:	69.5
R2:	77.0
R3:	82.2
R4:	72.6
R5:	69.3
R6:	67.6
R7:	83.7
R8:	58.6
R9:	-24.6
R10:	44.8
R11:	68.2
R12:	36.1
R13:	70.5
R14:	89.9
R15:	63.1



Test Conditions

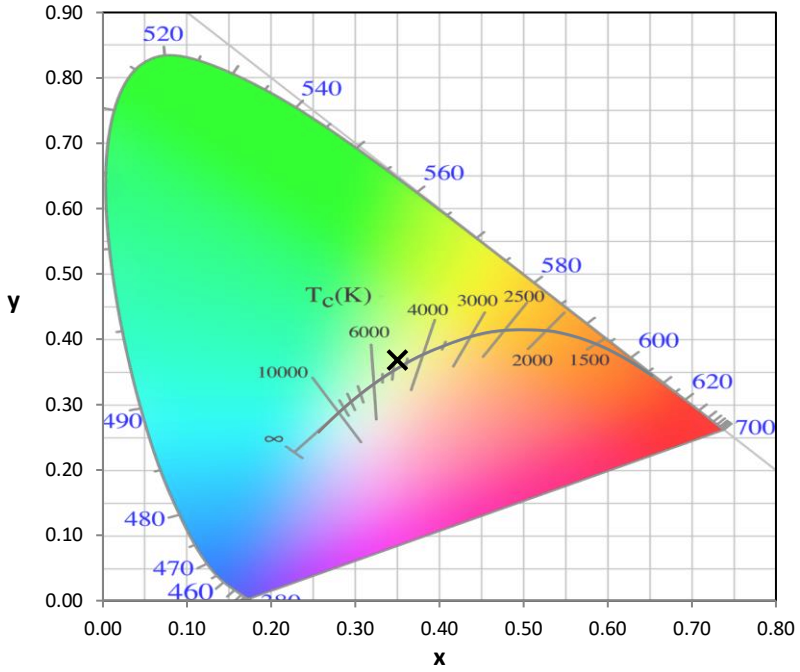
Stabilization Time:	51M
Operation Time:	1H 51M
Sphere Temperature (°C):	24.9

REPORT NUMBER: SP1-2411-284-3

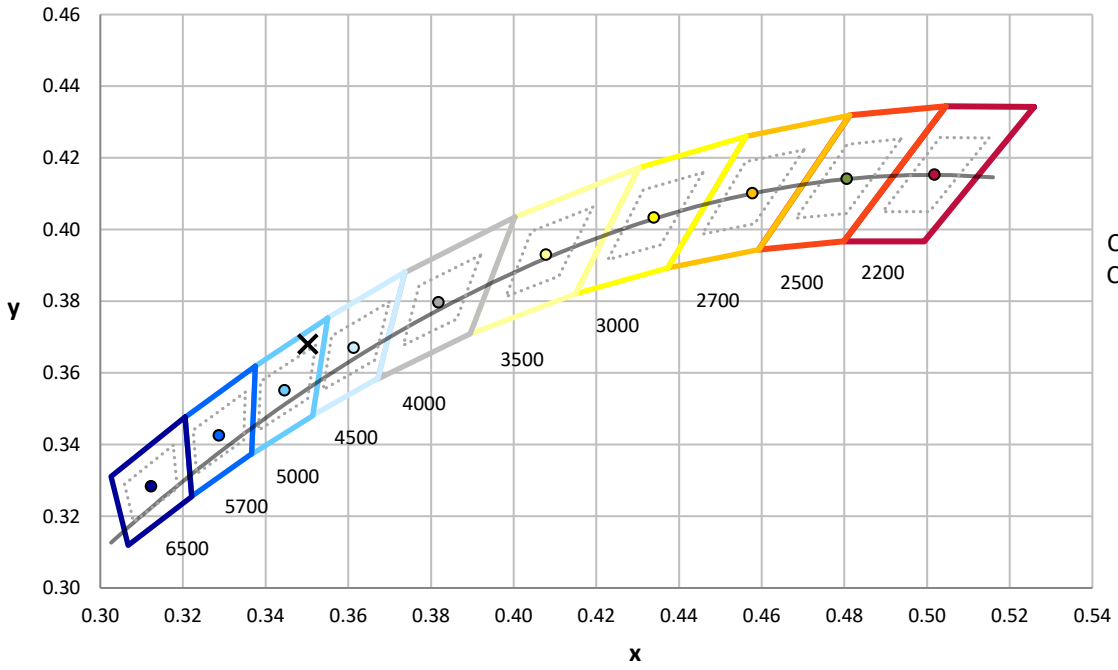
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-3

CIE 1931 Chromaticity Diagram



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



CCT = 4876K
CIE x = 0.3502
CIE y = 0.3680
Duv = 0.0061

Point lies inside the ANSI 5000K 7-step quadrangle

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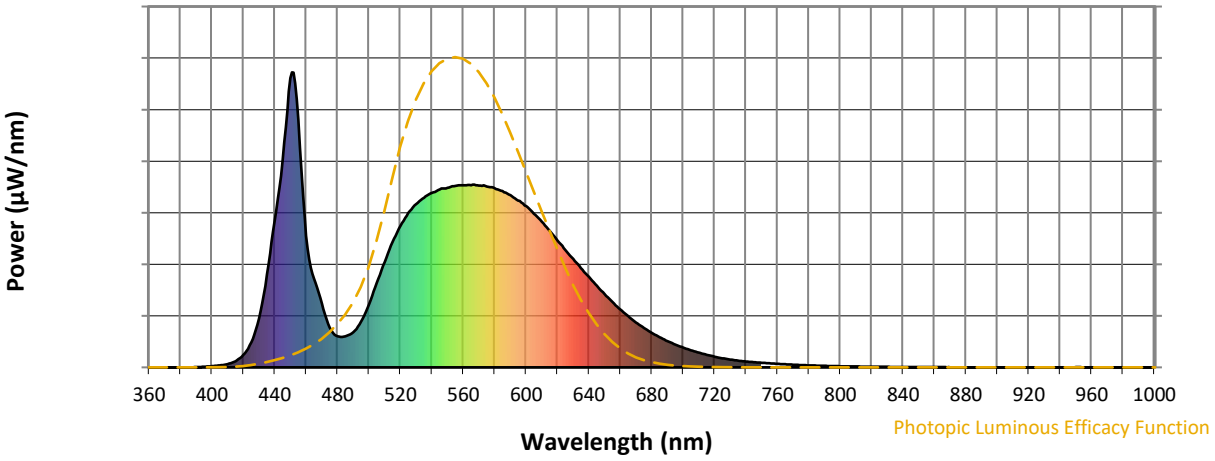
Photopic Flux vs. Wavelength

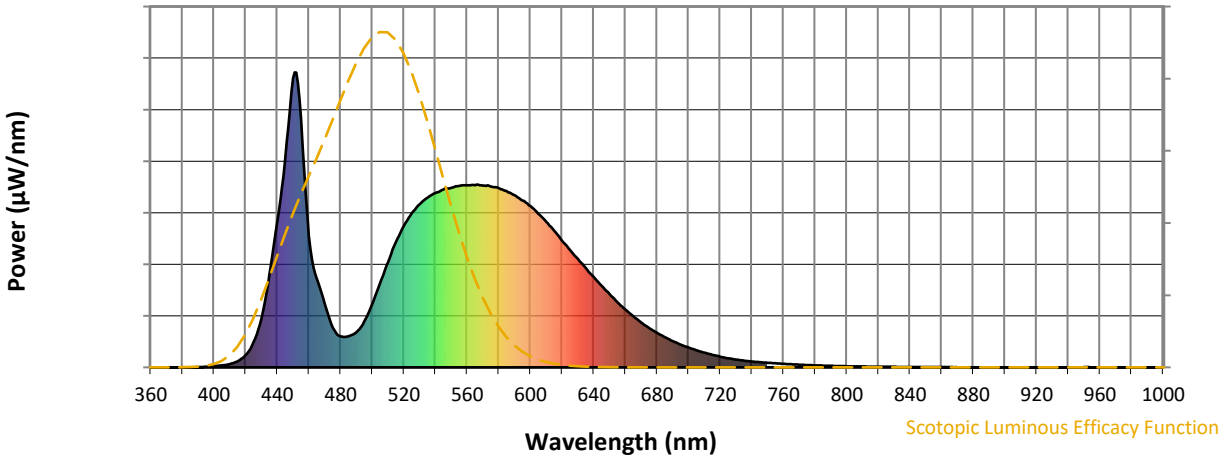


Photopic Lumens: NR

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	119	NR	620	430	NR	750	16	NR	880	0	NR
365	0	NR	495	156	NR	625	398	NR	755	14	NR	885	0	NR
370	0	NR	500	214	NR	630	368	NR	760	12	NR	890	0	NR
375	0	NR	505	286	NR	635	336	NR	765	11	NR	895	0	NR
380	0	NR	510	357	NR	640	306	NR	770	9	NR	900	0	NR
385	0	NR	515	425	NR	645	276	NR	775	8	NR	905	0	NR
390	1	NR	520	480	NR	650	248	NR	780	7	NR	910	0	NR
395	2	NR	525	523	NR	655	221	NR	785	6	NR	915	0	NR
400	4	NR	530	554	NR	660	196	NR	790	5	NR	920	0	NR
405	7	NR	535	575	NR	665	173	NR	795	4	NR	925	0	NR
410	11	NR	540	592	NR	670	152	NR	800	4	NR	930	0	NR
415	21	NR	545	603	NR	675	133	NR	805	3	NR	935	0	NR
420	42	NR	550	609	NR	680	117	NR	810	3	NR	940	0	NR
425	85	NR	555	615	NR	685	102	NR	815	3	NR	945	0	NR
430	165	NR	560	617	NR	690	89	NR	820	2	NR	950	1	NR
435	316	NR	565	617	NR	695	77	NR	825	2	NR	955	0	NR
440	497	NR	570	616	NR	700	67	NR	830	2	NR	960	0	NR
445	702	NR	575	613	NR	705	58	NR	835	2	NR	965	0	NR
450	981	NR	580	607	NR	710	50	NR	840	1	NR	970	0	NR
455	840	NR	585	598	NR	715	43	NR	845	1	NR	975	0	NR
460	446	NR	590	583	NR	720	36	NR	850	1	NR	980	0	NR
465	300	NR	595	566	NR	725	31	NR	855	1	NR	985	0	NR
470	215	NR	600	546	NR	730	26	NR	860	1	NR	990	0	NR
475	135	NR	605	521	NR	735	23	NR	865	1	NR	995	0	NR
480	105	NR	610	494	NR	740	20	NR	870	1	NR	1000	0	NR
485	106	NR	615	463	NR	745	18	NR	875	0	NR			

REPORT NUMBER: SP1-2411-284-3

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.74**

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	119	NR	620	430	NR	750	16	NR	880	0	NR
365	0	NR	495	156	NR	625	398	NR	755	14	NR	885	0	NR
370	0	NR	500	214	NR	630	368	NR	760	12	NR	890	0	NR
375	0	NR	505	286	NR	635	336	NR	765	11	NR	895	0	NR
380	0	NR	510	357	NR	640	306	NR	770	9	NR	900	0	NR
385	0	NR	515	425	NR	645	276	NR	775	8	NR	905	0	NR
390	1	NR	520	480	NR	650	248	NR	780	7	NR	910	0	NR
395	2	NR	525	523	NR	655	221	NR	785	6	NR	915	0	NR
400	4	NR	530	554	NR	660	196	NR	790	5	NR	920	0	NR
405	7	NR	535	575	NR	665	173	NR	795	4	NR	925	0	NR
410	11	NR	540	592	NR	670	152	NR	800	4	NR	930	0	NR
415	21	NR	545	603	NR	675	133	NR	805	3	NR	935	0	NR
420	42	NR	550	609	NR	680	117	NR	810	3	NR	940	0	NR
425	85	NR	555	615	NR	685	102	NR	815	3	NR	945	0	NR
430	165	NR	560	617	NR	690	89	NR	820	2	NR	950	1	NR
435	316	NR	565	617	NR	695	77	NR	825	2	NR	955	0	NR
440	497	NR	570	616	NR	700	67	NR	830	2	NR	960	0	NR
445	702	NR	575	613	NR	705	58	NR	835	2	NR	965	0	NR
450	981	NR	580	607	NR	710	50	NR	840	1	NR	970	0	NR
455	840	NR	585	598	NR	715	43	NR	845	1	NR	975	0	NR
460	446	NR	590	583	NR	720	36	NR	850	1	NR	980	0	NR
465	300	NR	595	566	NR	725	31	NR	855	1	NR	985	0	NR
470	215	NR	600	546	NR	730	26	NR	860	1	NR	990	0	NR
475	135	NR	605	521	NR	735	23	NR	865	1	NR	995	0	NR
480	105	NR	610	494	NR	740	20	NR	870	1	NR	1000	0	NR
485	106	NR	615	463	NR	745	18	NR	875	0	NR			

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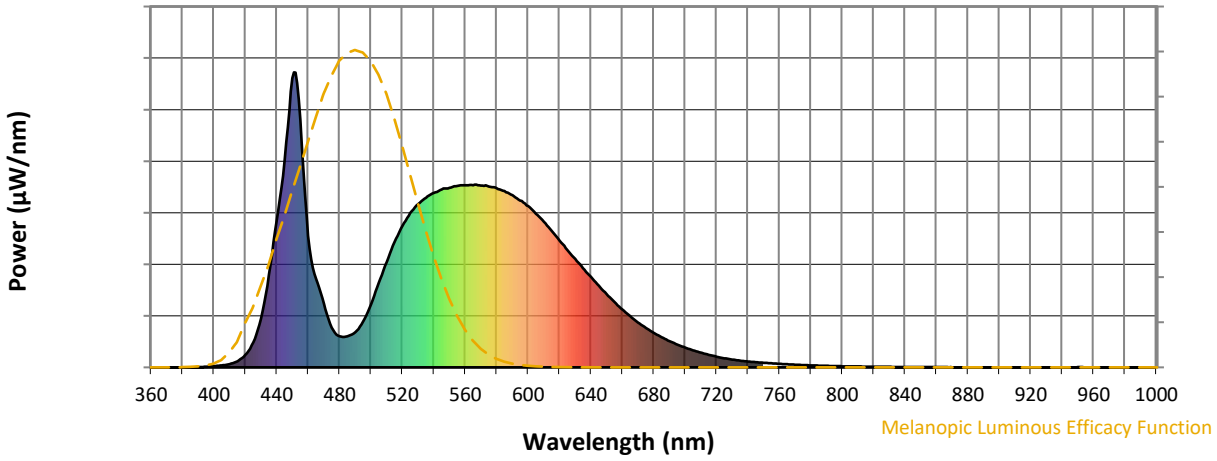
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 3.51**

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	119	NR	620	430	NR	750	16	NR	880	0	NR
365	0	NR	495	156	NR	625	398	NR	755	14	NR	885	0	NR
370	0	NR	500	214	NR	630	368	NR	760	12	NR	890	0	NR
375	0	NR	505	286	NR	635	336	NR	765	11	NR	895	0	NR
380	0	NR	510	357	NR	640	306	NR	770	9	NR	900	0	NR
385	0	NR	515	425	NR	645	276	NR	775	8	NR	905	0	NR
390	1	NR	520	480	NR	650	248	NR	780	7	NR	910	0	NR
395	2	NR	525	523	NR	655	221	NR	785	6	NR	915	0	NR
400	4	NR	530	554	NR	660	196	NR	790	5	NR	920	0	NR
405	7	NR	535	575	NR	665	173	NR	795	4	NR	925	0	NR
410	11	NR	540	592	NR	670	152	NR	800	4	NR	930	0	NR
415	21	NR	545	603	NR	675	133	NR	805	3	NR	935	0	NR
420	42	NR	550	609	NR	680	117	NR	810	3	NR	940	0	NR
425	85	NR	555	615	NR	685	102	NR	815	3	NR	945	0	NR
430	165	NR	560	617	NR	690	89	NR	820	2	NR	950	1	NR
435	316	NR	565	617	NR	695	77	NR	825	2	NR	955	0	NR
440	497	NR	570	616	NR	700	67	NR	830	2	NR	960	0	NR
445	702	NR	575	613	NR	705	58	NR	835	2	NR	965	0	NR
450	981	NR	580	607	NR	710	50	NR	840	1	NR	970	0	NR
455	840	NR	585	598	NR	715	43	NR	845	1	NR	975	0	NR
460	446	NR	590	583	NR	720	36	NR	850	1	NR	980	0	NR
465	300	NR	595	566	NR	725	31	NR	855	1	NR	985	0	NR
470	215	NR	600	546	NR	730	26	NR	860	1	NR	990	0	NR
475	135	NR	605	521	NR	735	23	NR	865	1	NR	995	0	NR
480	105	NR	610	494	NR	740	20	NR	870	1	NR	1000	0	NR
485	106	NR	615	463	NR	745	18	NR	875	0	NR			

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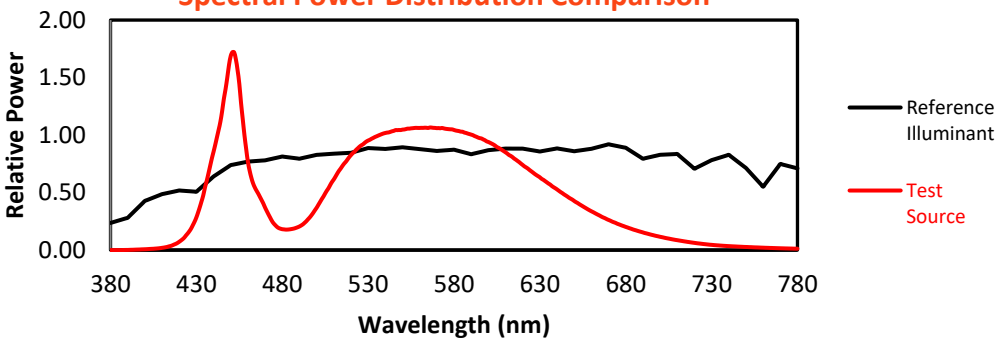
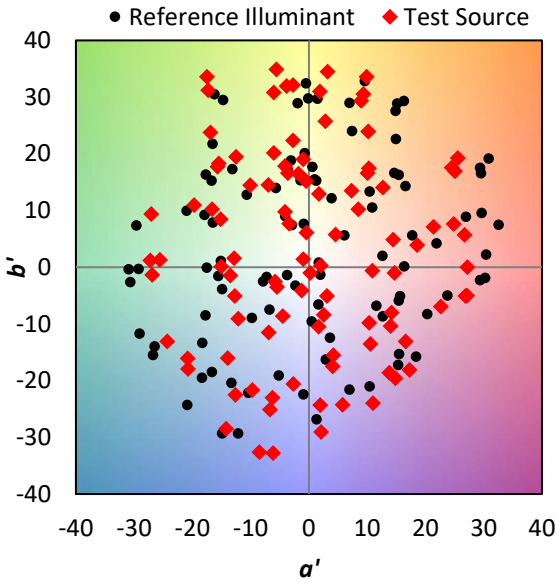
Summary

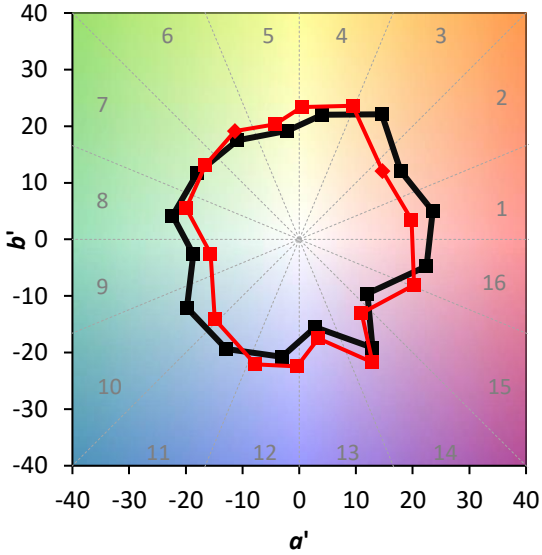
R_f = 74.6
R_g = 94.4
CIE R_a = 72.6
R_9 = -24.6

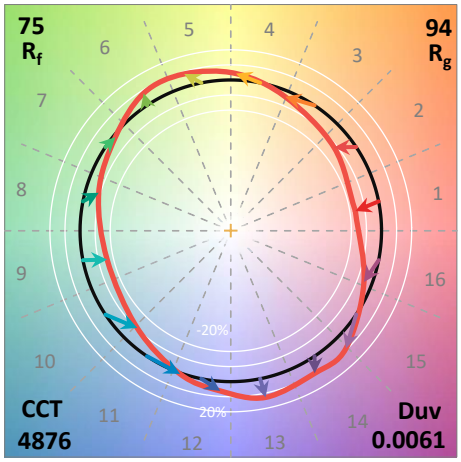
Spectral Power Distribution Comparison

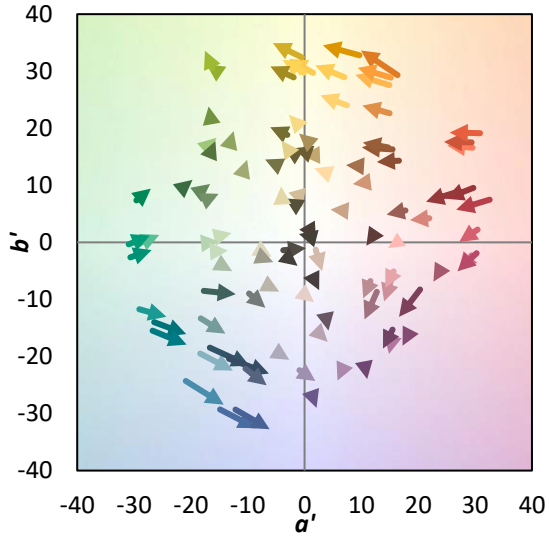


Color Vector Graphics









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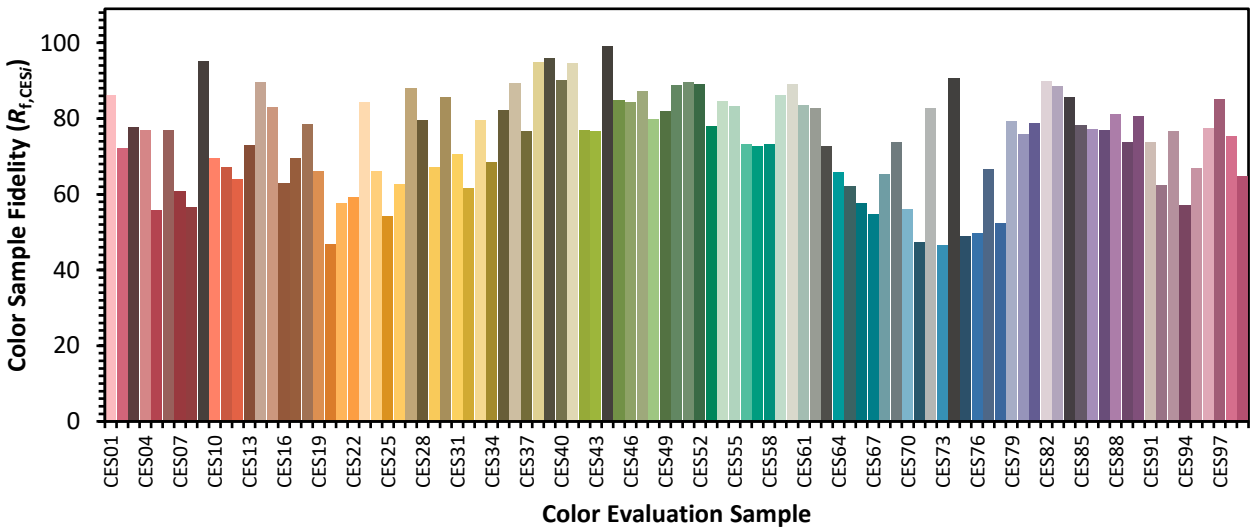
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 63	CES51 = 90	CES76 = 50
CES02 = 59	CES27 = 88	CES52 = 89	CES77 = 67
CES03 = 30	CES28 = 80	CES53 = 78	CES78 = 52
CES04 = 69	CES29 = 67	CES54 = 85	CES79 = 79
CES05 = 46	CES30 = 86	CES55 = 83	CES80 = 76
CES06 = 50	CES31 = 70	CES56 = 73	CES81 = 79
CES07 = 39	CES32 = 62	CES57 = 73	CES82 = 90
CES08 = 38	CES33 = 80	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 69	CES59 = 86	CES84 = 86
CES10 = 72	CES35 = 82	CES60 = 89	CES85 = 78
CES11 = 55	CES36 = 89	CES61 = 83	CES86 = 77
CES12 = 61	CES37 = 77	CES62 = 83	CES87 = 77
CES13 = 41	CES38 = 95	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 66	CES89 = 74
CES15 = 70	CES40 = 90	CES65 = 62	CES90 = 81
CES16 = 46	CES41 = 95	CES66 = 58	CES91 = 74
CES17 = 49	CES42 = 77	CES67 = 55	CES92 = 62
CES18 = 55	CES43 = 77	CES68 = 65	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 74	CES94 = 57
CES20 = 64	CES45 = 85	CES70 = 56	CES95 = 67
CES21 = 85	CES46 = 84	CES71 = 47	CES96 = 77
CES22 = 77	CES47 = 87	CES72 = 83	CES97 = 85
CES23 = 91	CES48 = 80	CES73 = 46	CES98 = 75
CES24 = 90	CES49 = 82	CES74 = 91	CES99 = 65
CES25 = 71	CES50 = 89	CES75 = 49	



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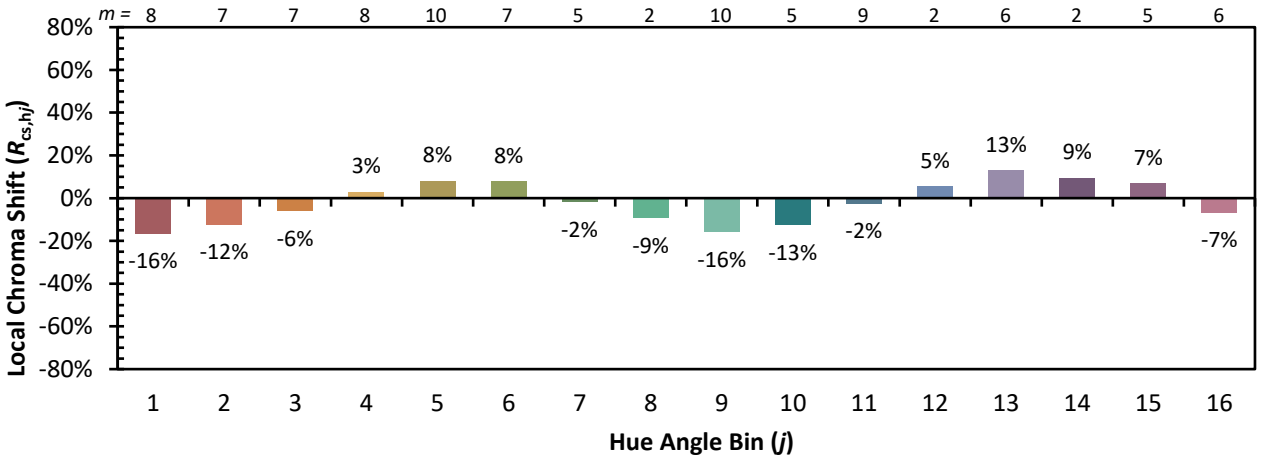
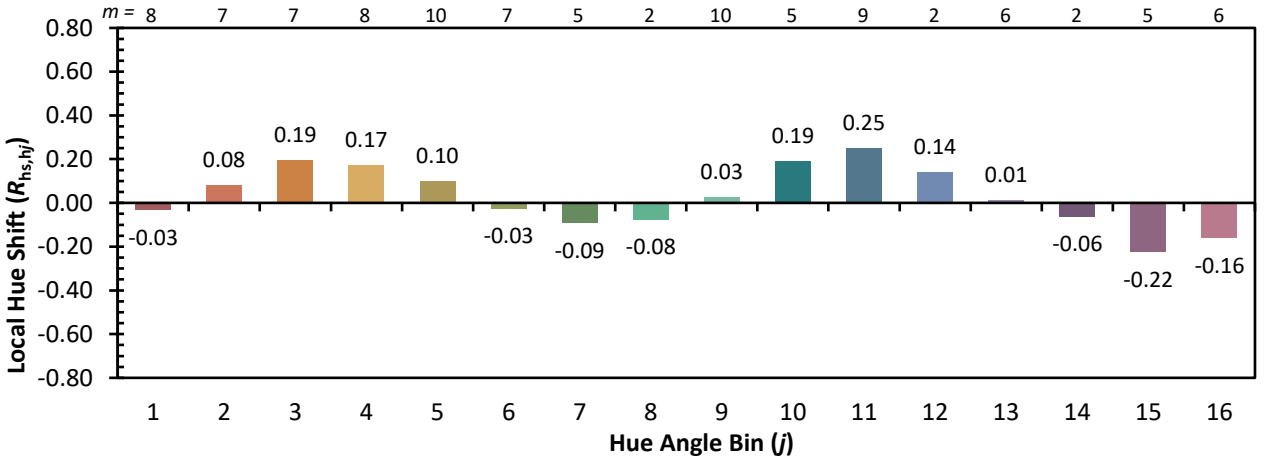
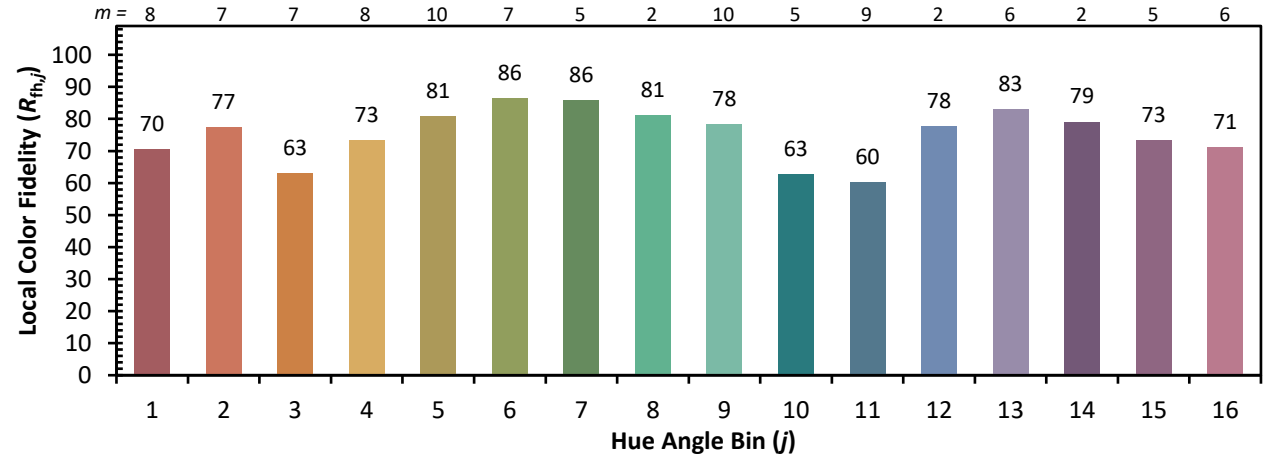
Color Rendition by Hue-Angle Bin







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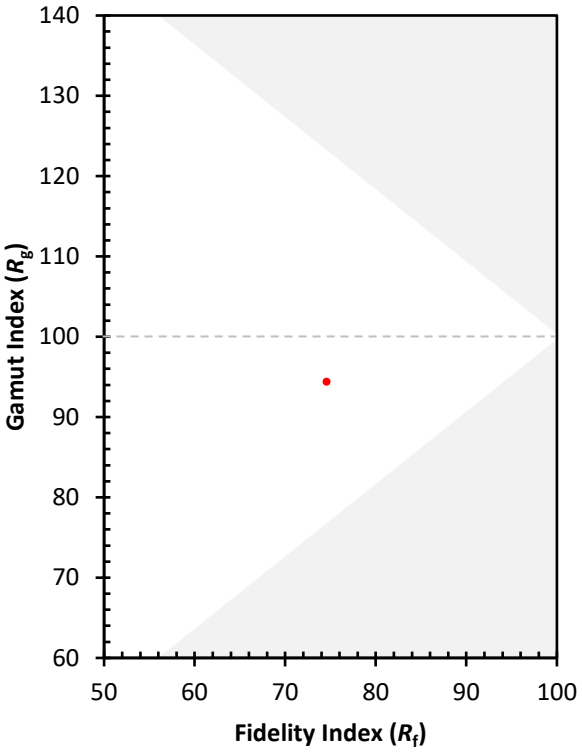
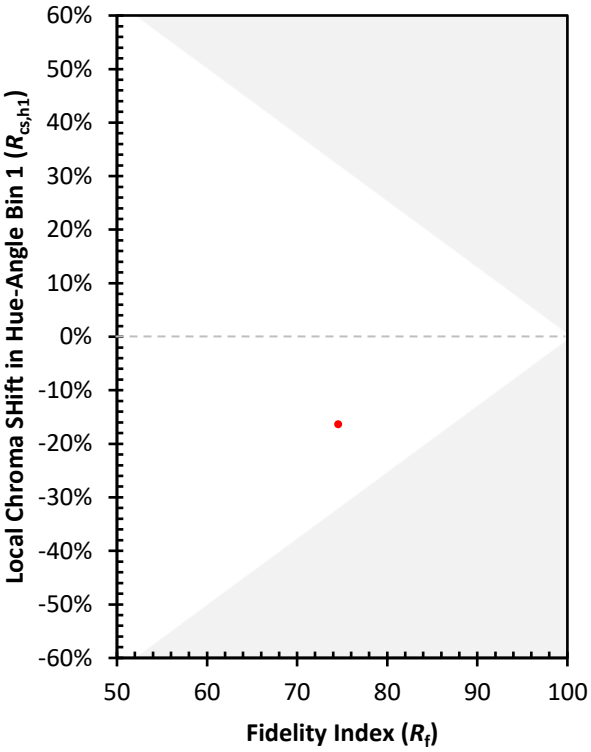
Measure Comparisons





(END OF REPORT)