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: P832687

Luminaire Tested: **TTN-D3-740-U-MQ-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:	P832687
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-13)
Test Lab:	INNOVATION CENTER
Issue Date:	5/14/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TTN-D3-740-U-MQ-CG
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE
	4000K, 70 CRI LEDS AND MEDIUM DISTRIBUTION WITH CLEAR GLASS
Light Source:	-
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	7133 lumens
Efficiency:	N/A
Efficacy:	120.5 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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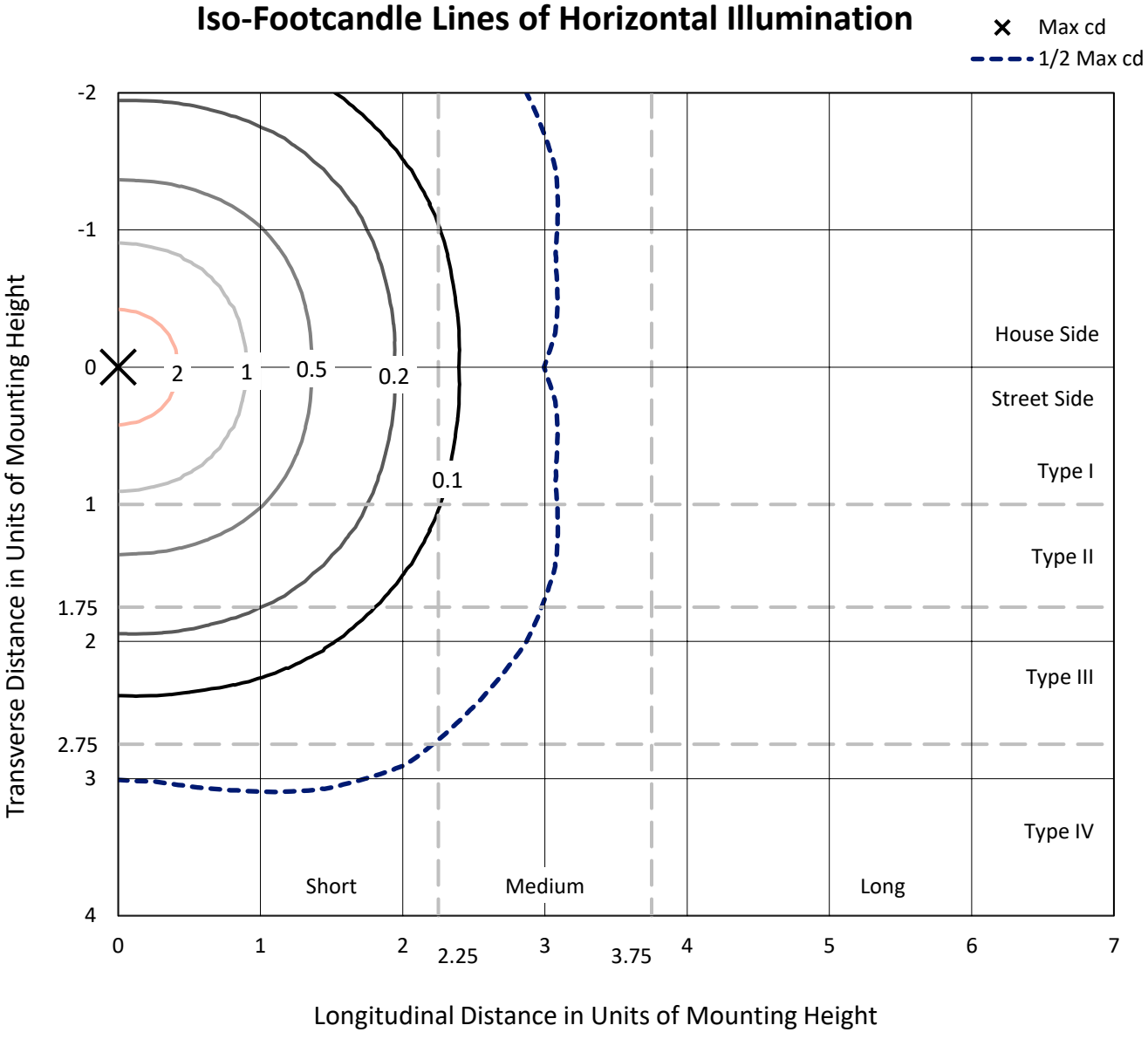
Scaled Data Report

REPORT NUMBER: P832687
CATALOG NUMBER: TTN-D3-740-U-MQ-CG

Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 2.7 fc
Type V - Short - N/A

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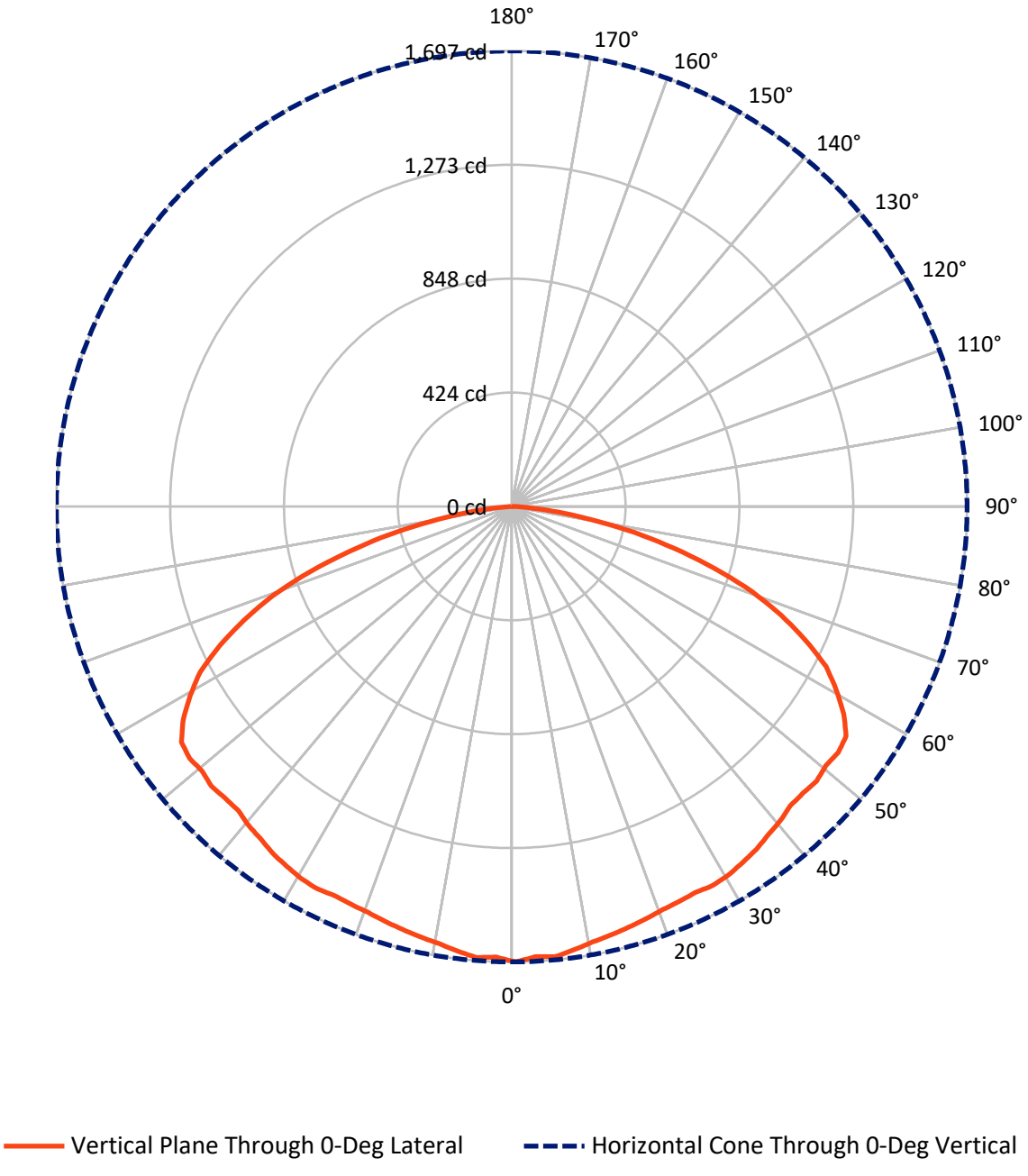
Luminous Intensity Polar Plot



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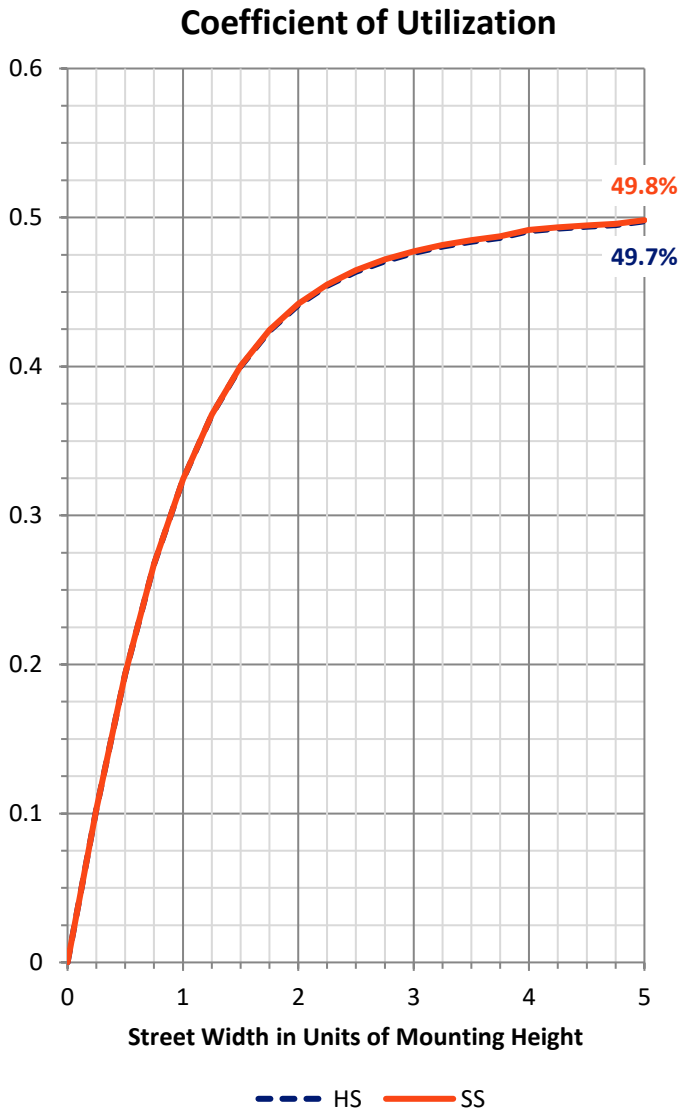
REPORT NUMBER: P832687
CATALOG NUMBER: TTN-D3-740-U-MQ-CG

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3566.5	0.0	3566.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3566.5	0.0	3566.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	7133.0	0.0	7133.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.4	2.2
10°-20°	461.0	6.5
20°-30°	741.6	10.4
30°-40°	990.7	13.9
40°-50°	1203.7	16.9
50°-60°	1398.6	19.6
60°-70°	1290.3	18.1
70°-80°	755.4	10.6
80°-90°	132.3	1.9
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°	7133.0	100.0
0°-180°	7133.0	100.0



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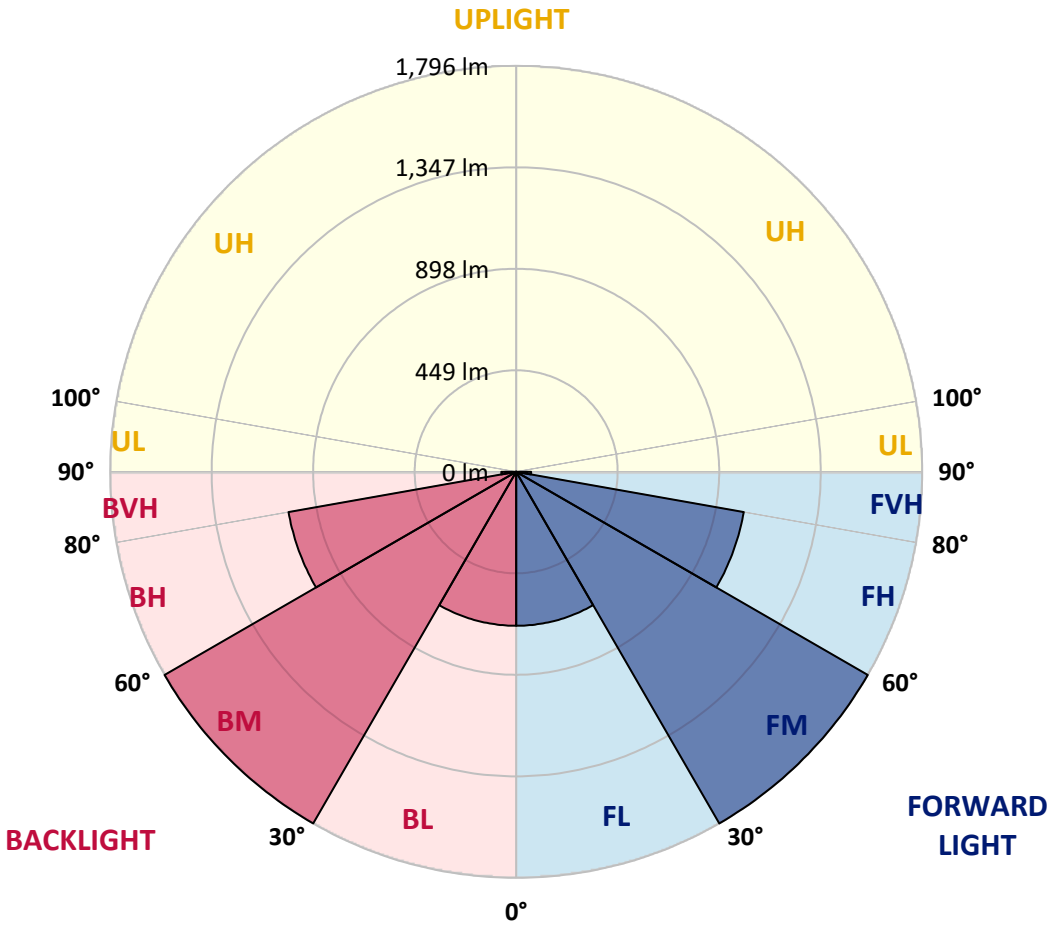
Scaled Data Report

REPORT NUMBER: P832687
CATALOG NUMBER: TTN-D3-740-U-MQ-CG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	681.0	9.5			
FM	(30°-60°)	1796.5	25.2			
FH	(60°-80°)	1022.8	14.3			G1/1800
FVH	(80°-90°)	66.2	0.9			G1/100
BL	(0°-30°)	681.0	9.5	B2/1000		
BM	(30°-60°)	1796.5	25.2	B2/2500		
BH	(60°-80°)	1022.8	14.3	B3/2500		G1/1800
BVH	(80°-90°)	66.2	0.9			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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Scaled Data Report

REPORT NUMBER: P832687
CATALOG NUMBER: TTN-D3-740-U-MQ-CG

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*	*1696.9*
2.5°	*1679.6*	1685.3	1679.6	1679.6	1679.6	1679.6	1679.6	1679.6	1679.6	1679.6	1685.3
5°	*1685.3*	1685.3	1685.3	1685.3	1679.6	1679.6	1679.6	1679.6	1679.6	1685.3	1685.3
7.5°	*1668.0*	1668.0	1668.0	1668.0	1668.0	1662.2	1668.0	1668.0	1668.0	1668.0	1668.0
10°	*1650.6*	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
12.5°	*1639.0*	1639.0	1639.0	1639.0	1639.0	1639.0	1639.0	1639.0	1639.0	1633.2	1633.2
15°	*1627.4*	1627.4	1627.4	1627.4	1633.2	1633.2	1627.4	1627.4	1627.4	1627.4	1627.4
17.5°	*1615.8*	1615.8	1615.8	1615.8	1621.6	1621.6	1621.6	1615.8	1615.8	1615.8	1615.8
20°	*1604.3*	1604.3	1604.3	1604.3	1610.1	1610.1	1610.1	1610.1	1610.1	1604.3	1604.3
22.5°	*1598.5*	1598.5	1598.5	1598.5	1604.3	1604.3	1604.3	1604.3	1598.5	1598.5	1598.5
25°	*1592.7*	1598.5	1598.5	1598.5	1604.3	1610.1	1610.1	1604.3	1598.5	1592.7	1592.7
27.5°	*1598.5*	1598.5	1598.5	1604.3	1604.3	1610.1	1610.1	1604.3	1598.5	1598.5	1598.5
30°	*1592.7*	1592.7	1592.7	1598.5	1604.3	1610.1	1604.3	1604.3	1598.5	1592.7	1592.7
32.5°	*1581.1*	1581.1	1586.9	1592.7	1598.5	1598.5	1598.5	1592.7	1586.9	1581.1	1581.1
35°	*1569.5*	1569.5	1569.5	1575.3	1586.9	1586.9	1586.9	1581.1	1575.3	1569.5	1563.7
37.5°	*1552.1*	1557.9	1557.9	1569.5	1575.3	1581.1	1575.3	1569.5	1557.9	1552.1	1552.1
40°	*1540.6*	1540.6	1546.3	1557.9	1569.5	1569.5	1563.7	1557.9	1546.3	1540.6	1540.6
42.5°	*1523.2*	1523.2	1534.8	1546.3	1563.7	1563.7	1557.9	1546.3	1534.8	1523.2	1523.2
45°	*1523.2*	1523.2	1534.8	1557.9	1569.5	1581.1	1569.5	1557.9	1534.8	1523.2	1517.4
47.5°	*1529.0*	1529.0	1540.6	1569.5	1592.7	1604.3	1586.9	1563.7	1540.6	1529.0	1523.2
50°	*1517.4*	1523.2	1546.3	1575.3	1604.3	1610.1	1604.3	1569.5	1546.3	1517.4	1517.4
52.5°	*1523.2*	1523.2	1552.1	1598.5	1627.4	1639.0	1627.4	1598.5	1546.3	1517.4	1517.4
55°	*1511.6*	1505.8	1546.3	1598.5	1644.8	1668.0	1644.8	1598.5	1540.6	1505.8	1500.0
57.5°	*1459.5*	1459.5	1511.6	1563.7	1621.6	1633.2	1615.8	1563.7	1505.8	1459.5	1447.9
60°	*1390.0*	1395.8	1447.9	1505.8	1557.9	1563.7	1552.1	1505.8	1447.9	1395.8	1378.4
62.5°	*1314.7*	1326.3	1378.4	1436.3	1500.0	1511.6	1494.2	1436.3	1366.8	1332.1	1303.1
65°	*1204.6*	1222.0	1279.9	1343.6	1413.1	1407.3	1407.3	1337.9	1285.7	1227.8	1198.9
67.5°	*1083.0*	1100.4	1140.9	1227.8	1285.7	1279.9	1274.1	1227.8	1140.9	1100.4	1083.0
70°	*949.8*	961.4	1001.9	1088.8	1140.9	1146.7	1129.4	1083.0	1001.9	973.0	944.0
72.5°	*793.4*	799.2	857.2	926.6	978.8	973.0	967.2	926.6	851.4	822.4	787.7
75°	*625.5*	631.3	683.4	747.1	787.7	781.9	776.1	747.1	683.4	648.7	619.7
77.5°	*469.1*	463.3	515.4	561.8	584.9	590.7	579.2	556.0	509.7	480.7	463.3
80°	*307.0*	301.2	347.5	382.2	399.6	399.6	393.8	376.5	341.7	318.5	307.0
82.5°	*173.7*	168.0	196.9	220.1	237.5	231.7	225.9	214.3	196.9	179.5	168.0
85°	*63.7*	63.7	81.1	92.7	104.2	104.2	98.5	92.7	75.3	69.5	63.7
87.5°	*5.8*	5.8	11.6	17.4	17.4	17.4	11.6	11.6	5.8	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: SP1-2411-284-2

Test Date: 11/20/2024

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

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

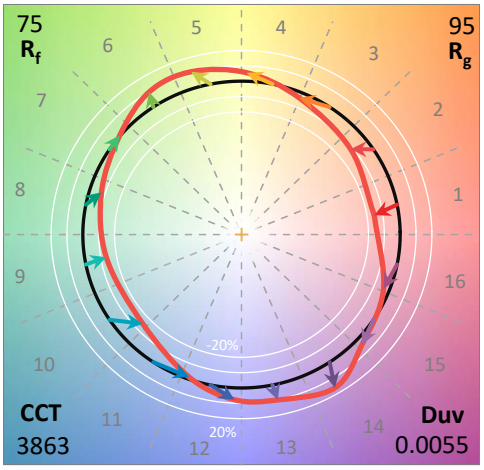
Test Information

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



Test Conditions

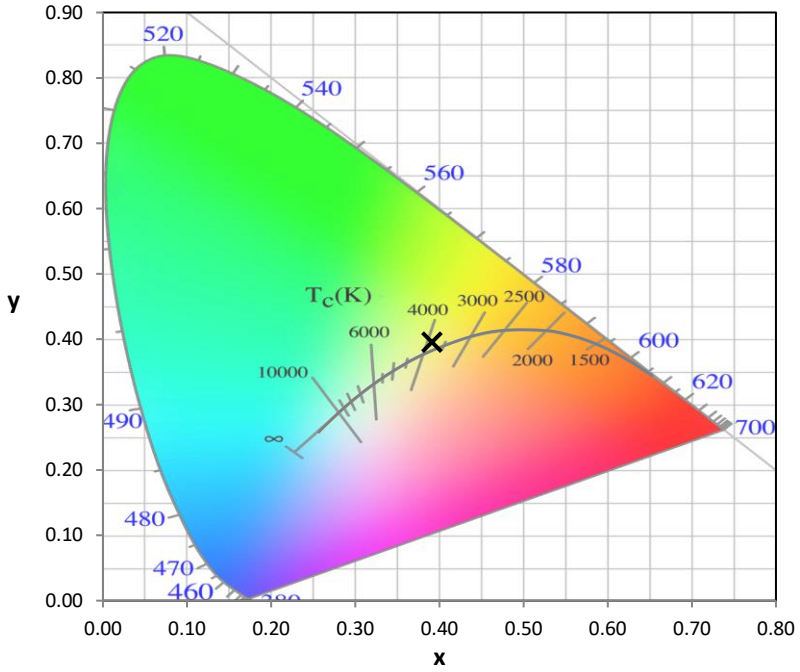
Stabilization Time:	37M
Operation Time:	1H 37M
Sphere Temperature (°C):	25.0

REPORT NUMBER: SP1-2411-284-2

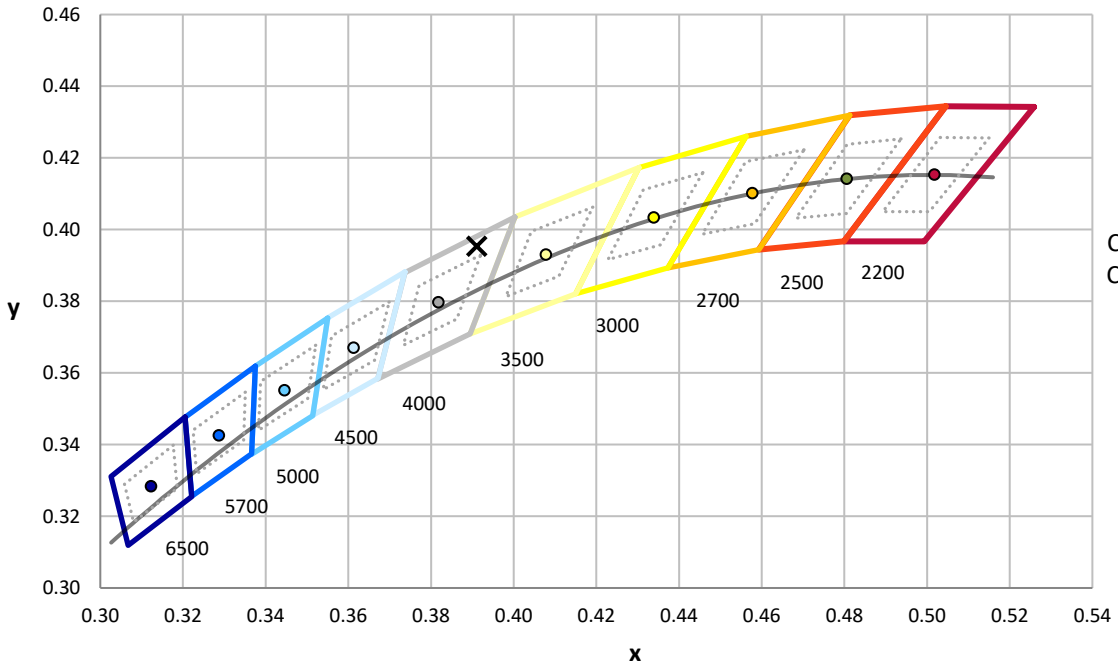
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-2

CIE 1931 Chromaticity Diagram



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

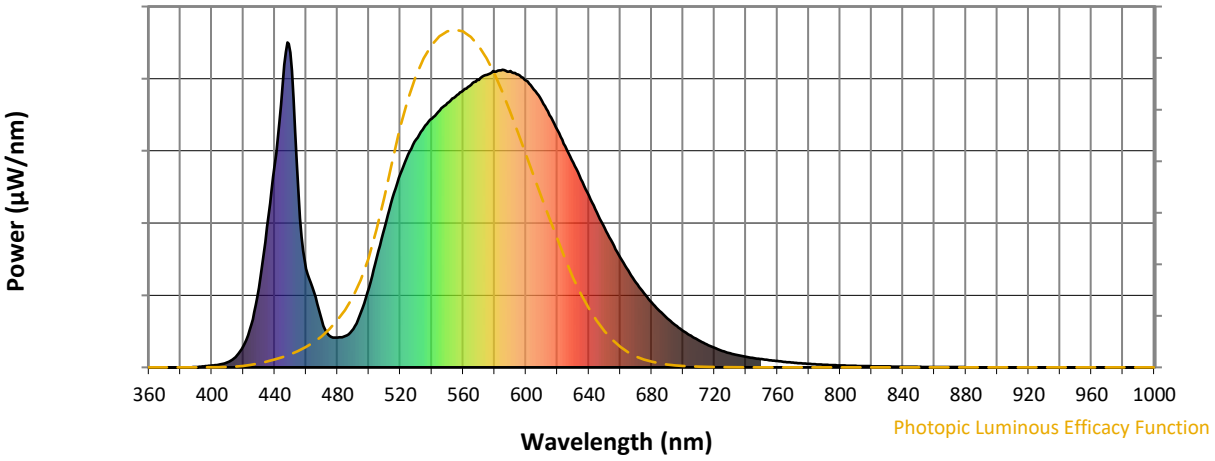


CCT = 3863K
CIE x = 0.3911
CIE y = 0.3954
Duv = 0.0055

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2411-284-2

Photopic Flux vs. Wavelength

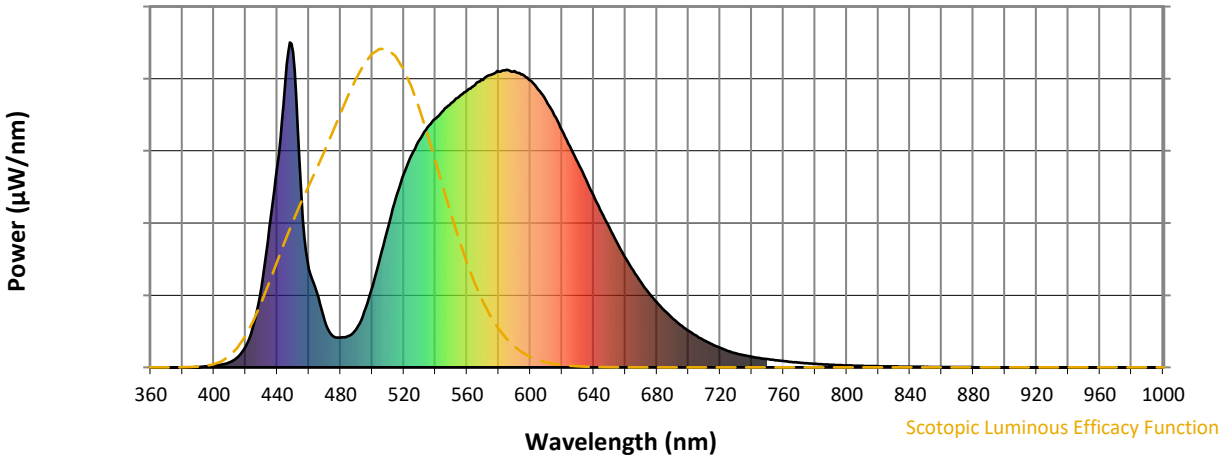


Photopic Lumens: NR

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

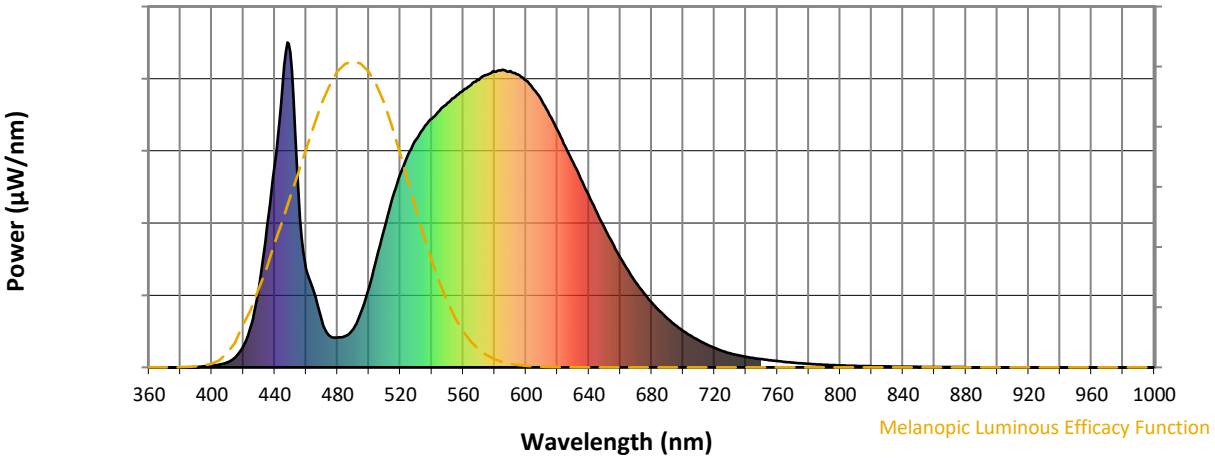


Scotopic Lumens: NR **S/P: 1.45**

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			

REPORT NUMBER: SP1-2411-284-2

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			

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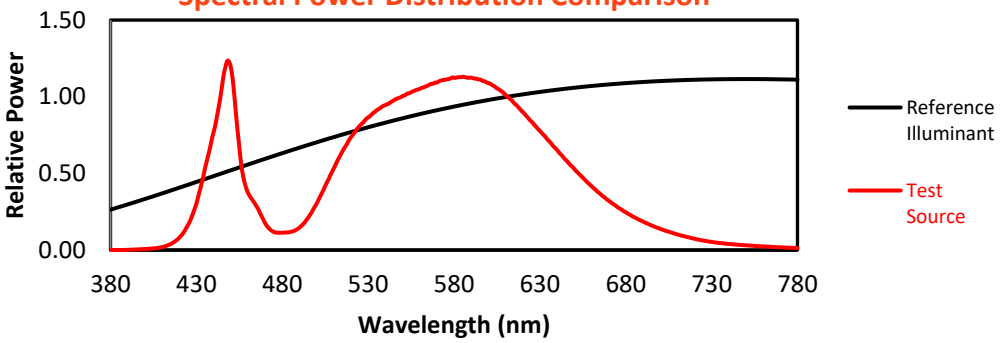
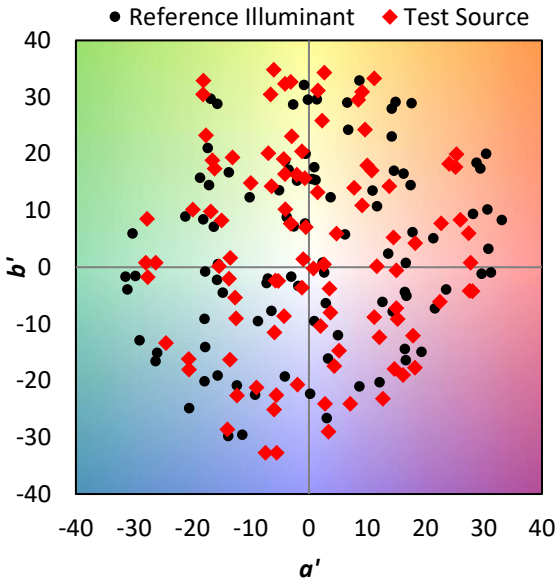
Summary

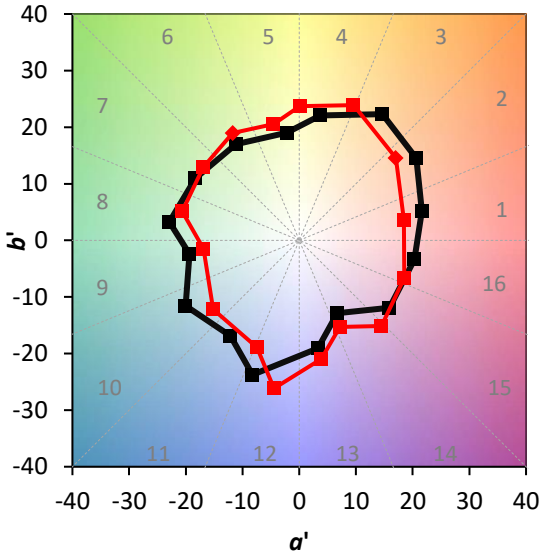
R_f = 74.7
R_g = 95.4
CIE R_a = 71.9
R_9 = -23.5

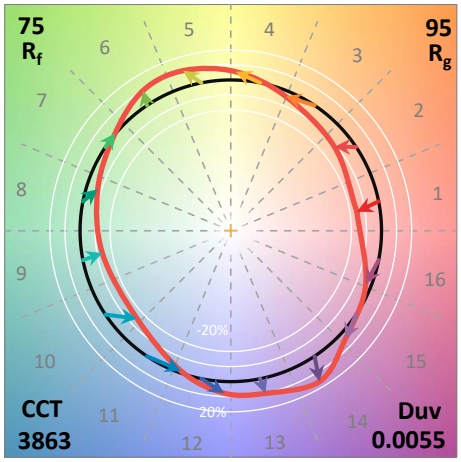
Spectral Power Distribution Comparison

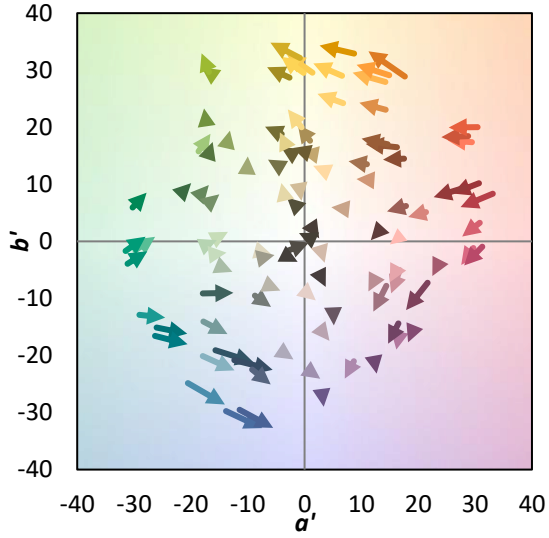


Color Vector Graphics









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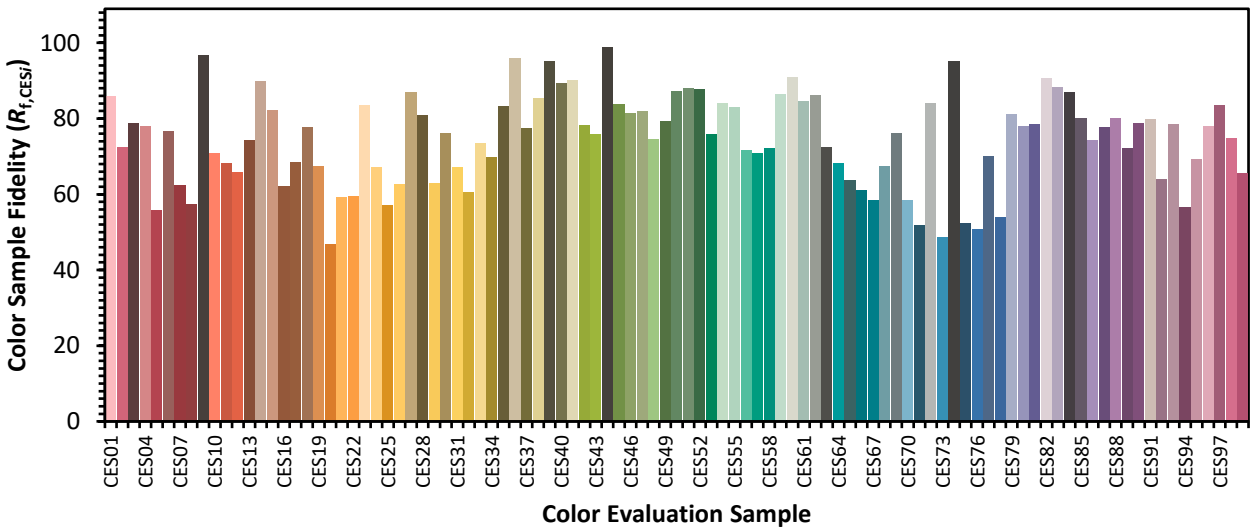
Individual Sample Fidelity Index ($R_{f,i}$)

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	



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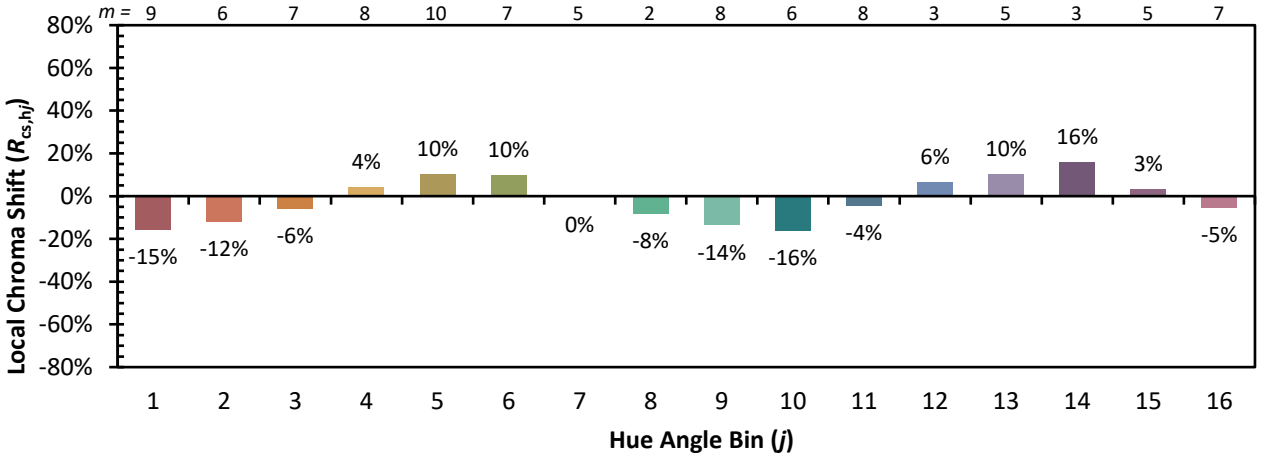
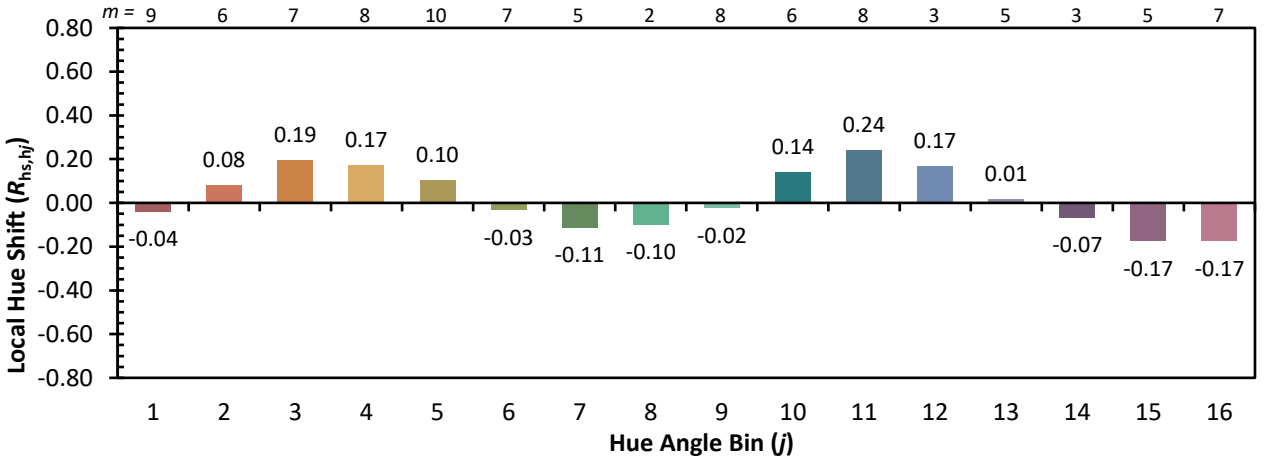
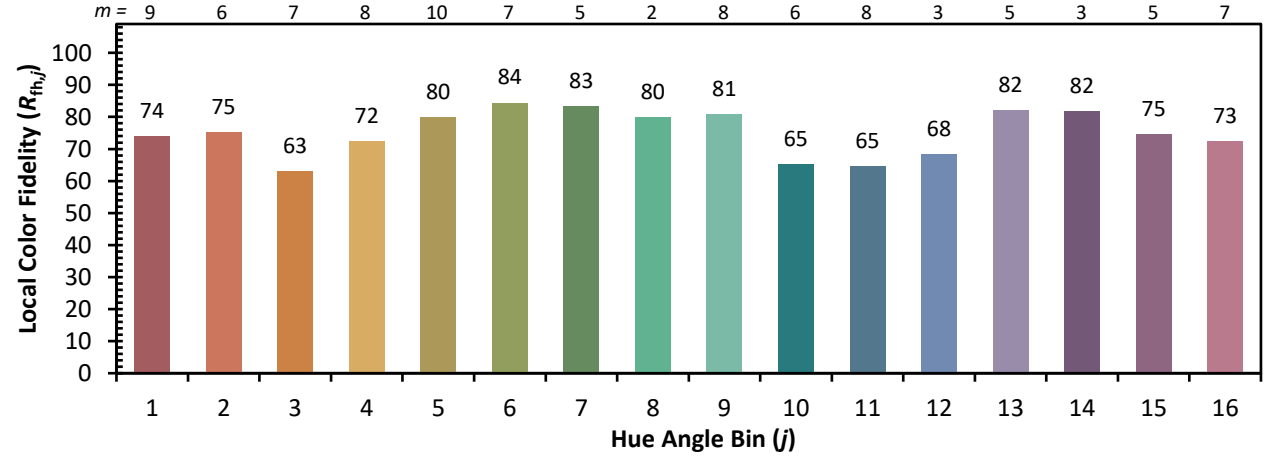
Color Rendition by Hue-Angle Bin







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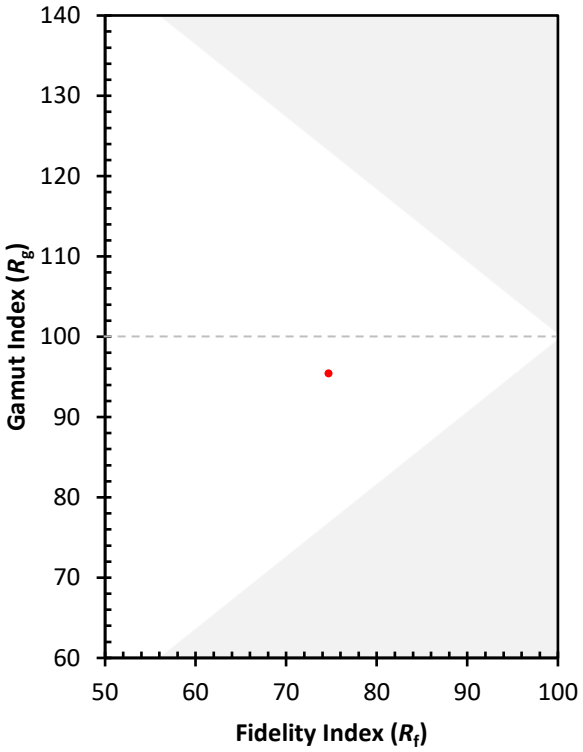
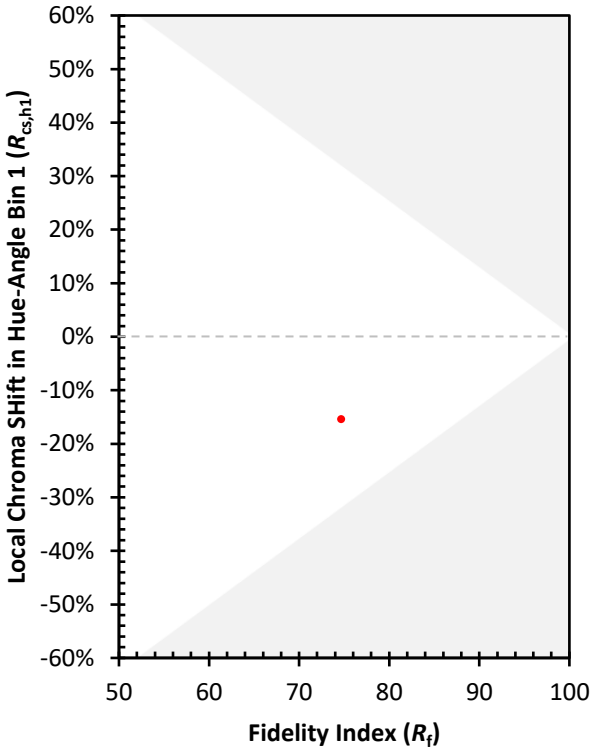
Measure Comparisons





(END OF REPORT)