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: P833332

Luminaire Tested: **TTN-D1-830-U-WQ-CG-UPL1**

Issue Date: 5/15/2024

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:	P833332
	REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G3-2308-121-4) AND
Test Lab:	INNOVATION CENTER
Issue Date:	5/15/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TTN-D1-830-U-WQ-CG-UPL1
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
	3000K, 80 CRI LEDS AND WIDE DISTRIBUTION WITH CLEAR GLASS
Light Source:	-
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	3155.9 lumens
Efficiency:	N/A
Efficacy:	108.8 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification:	Type V - Short
BUG Rating:	B2 - U3 - G1

Input Watts (W):	29
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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REPORT NUMBER: P833332
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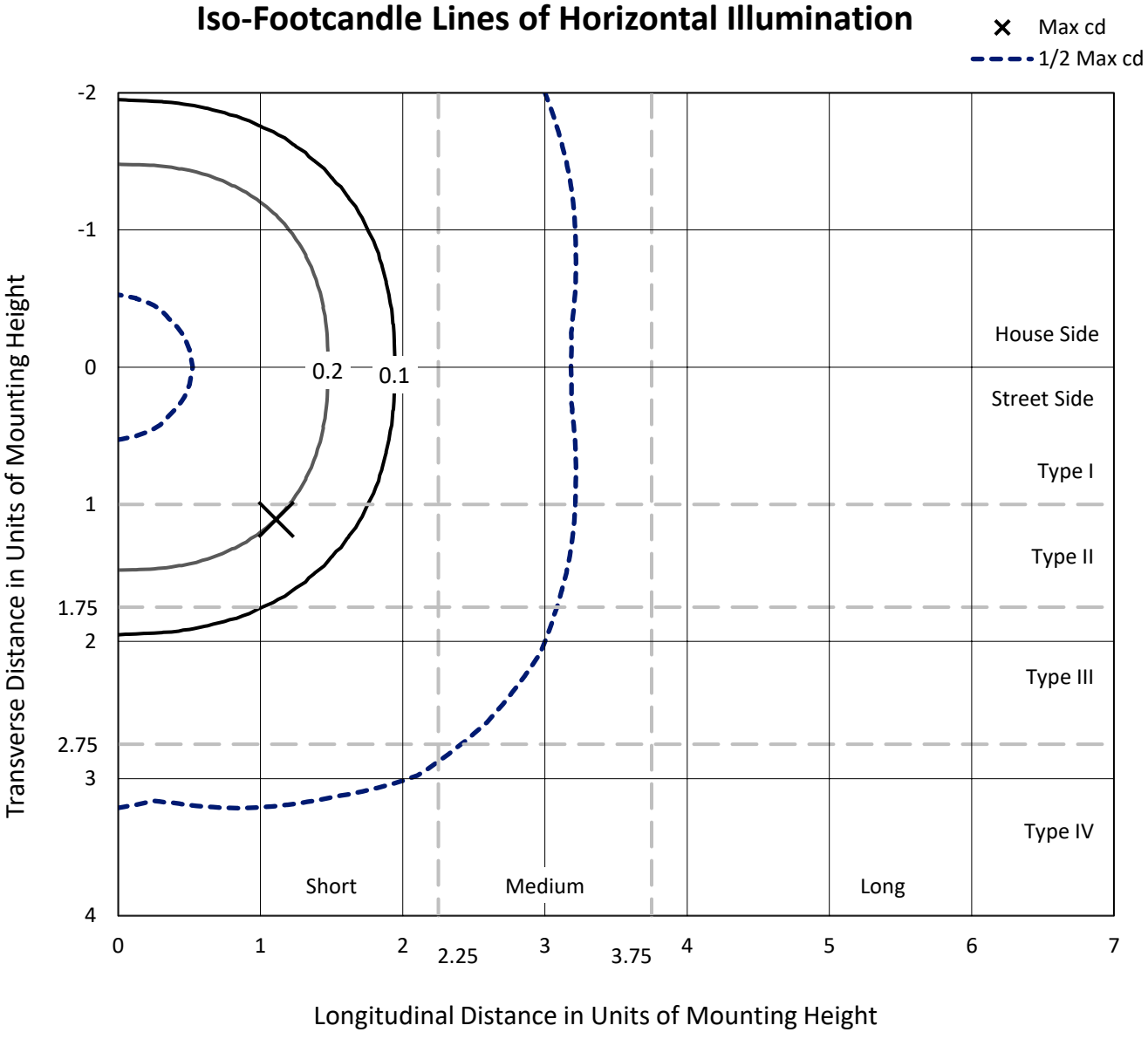
Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 0.5 fc
Type V - Short - N/A

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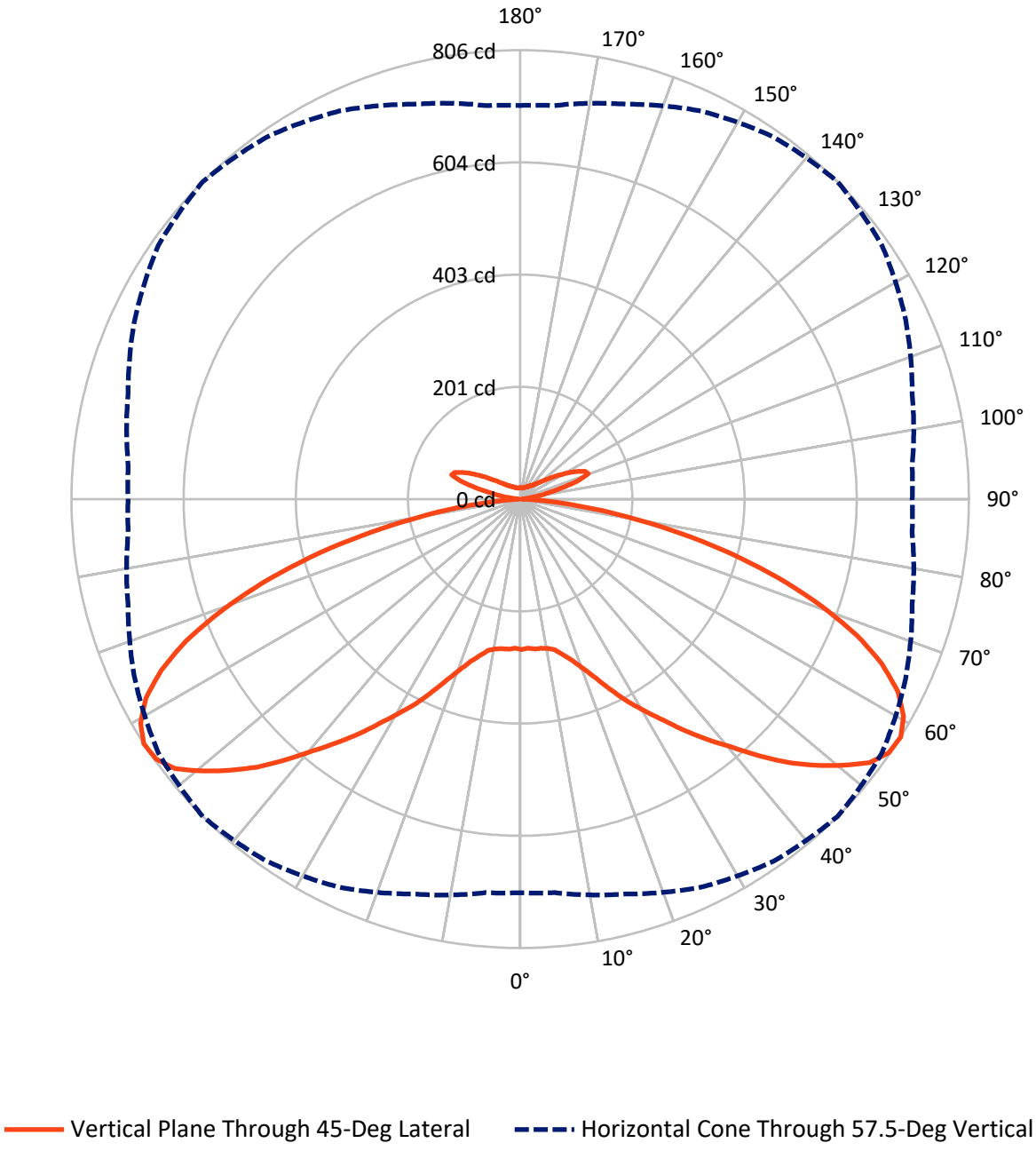
Luminous Intensity Polar Plot



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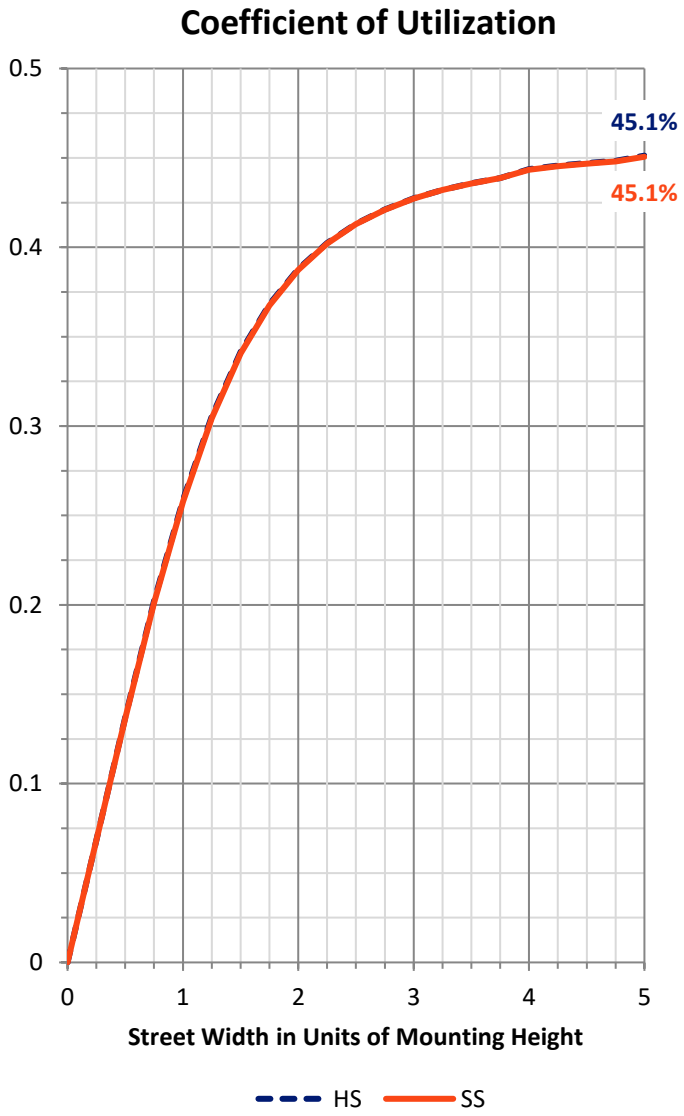
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1430.2	147.7	1577.9
	% Fixture	45.3	4.7	50.0
Street Side	Lumens	1430.2	147.7	1577.9
	% Fixture	45.3	4.7	50.0
Total	Lumens	2860.4	295.5	3155.9
	% Fixture	90.6	9.4	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.8	0.8
10°-20°	83.3	2.6
20°-30°	175.3	5.6
30°-40°	316.0	10.0
40°-50°	502.3	15.9
50°-60°	670.1	21.2
60°-70°	647.5	20.5
70°-80°	375.2	11.9
80°-90°	65.1	2.1
90°-100°	6.6	0.2
100°-110°	67.0	2.1
110°-120°	98.0	3.1
120°-130°	56.9	1.8
130°-140°	30.1	1.0
140°-150°	17.9	0.6
150°-160°	11.0	0.3
160°-170°	6.0	0.2
170°-180°	2.0	0.1
0°-90°	2860.4	90.6
0°-180°	3155.9	100.0



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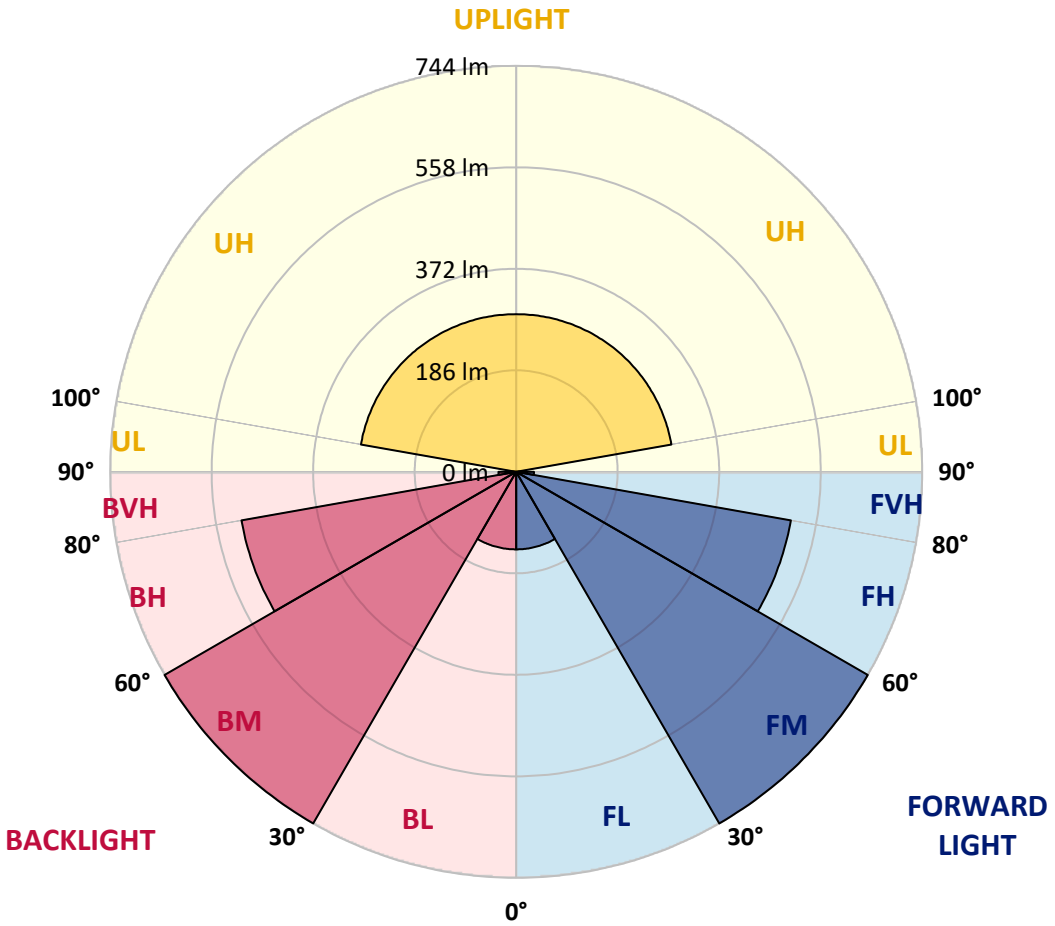
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	142.2	4.5			
FM	(30°-60°)	744.2	23.6			
FH	(60°-80°)	511.3	16.2			G0/660
FVH	(80°-90°)	32.5	1.0			G1/100
BL	(0°-30°)	142.2	4.5	B1/500		
BM	(30°-60°)	744.2	23.6	B1/1000		
BH	(60°-80°)	511.3	16.2	B2/1000		G0/660
BVH	(80°-90°)	32.5	1.0			G1/100
UL	(90°-100°)	6.6	0.2		U1/10	
UH	(100°-180°)	288.9	9.2		U3/500	

BUG Rating: B2-U3-G1
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	270.2	270.2	270.2	270.2	270.2	*270.2*	270.2	270.2	270.2	270.2	270.2
2.5°	267.7	267.7	267.7	267.7	267.7	*267.7*	267.7	267.7	267.7	267.7	267.7
5°	270.2	270.2	270.2	270.2	270.2	*270.2*	270.2	270.2	270.2	270.2	270.2
7.5°	267.7	267.7	270.2	270.2	270.2	*270.2*	270.2	270.2	270.2	267.7	267.7
10°	270.2	270.2	270.2	272.7	272.7	*272.7*	272.7	272.7	270.2	270.2	270.2
12.5°	275.1	275.1	277.6	277.6	277.6	*277.6*	277.6	277.6	277.6	275.1	275.1
15°	287.5	287.5	287.5	290.0	290.0	*290.0*	290.0	290.0	287.5	287.5	287.5
17.5°	299.9	299.9	302.4	302.4	304.9	*304.9*	304.9	302.4	302.4	302.4	302.4
20°	317.3	317.3	319.8	319.8	322.2	*324.7*	324.7	322.2	319.8	319.8	319.8
22.5°	339.6	342.1	342.1	342.1	344.5	*349.5*	347.0	344.5	342.1	342.1	342.1
25°	366.8	369.3	371.8	371.8	374.3	*379.2*	379.2	371.8	371.8	371.8	371.8
27.5°	399.1	401.5	404.0	404.0	406.5	*411.5*	409.0	404.0	404.0	401.5	401.5
30°	428.8	431.3	433.8	436.2	438.7	*441.2*	441.2	436.2	433.8	431.3	428.8
32.5°	458.6	458.6	463.5	468.5	473.4	*473.4*	475.9	468.5	463.5	458.6	456.1
35°	488.3	490.8	493.3	500.7	508.1	*510.6*	508.1	500.7	493.3	488.3	488.3
37.5°	520.5	523.0	525.5	535.4	542.8	*547.8*	542.8	535.4	525.5	520.5	518.0
40°	555.2	557.7	560.2	572.6	580.0	*585.0*	577.5	570.1	560.2	555.2	552.7
42.5°	587.4	592.4	597.4	612.2	624.6	*629.6*	622.1	609.8	599.8	587.4	585.0
45°	627.1	632.1	639.5	654.4	666.8	*674.2*	664.3	651.9	637.0	627.1	624.6
47.5°	659.3	664.3	671.7	691.6	708.9	*713.9*	703.9	689.1	669.2	656.9	654.4
50°	684.1	689.1	703.9	726.3	746.1	*751.0*	741.1	721.3	699.0	681.6	679.2
52.5°	703.9	708.9	726.3	756.0	778.3	*785.7*	773.3	751.0	721.3	701.5	699.0
55°	713.9	716.3	738.6	770.9	793.2	*803.1*	790.7	765.9	733.7	711.4	708.9
57.5°	*706.4*	*708.9*	*733.7*	*768.4*	*793.2*	*805.6*	*793.2*	*763.4*	*728.7*	*706.4*	*703.9*
60°	691.6	691.6	713.9	753.5	783.3	*790.7*	778.3	748.6	711.4	689.1	686.6
62.5°	664.3	661.8	689.1	723.8	753.5	*761.0*	751.0	721.3	684.1	661.8	659.3
65°	612.2	607.3	646.9	679.2	706.4	*713.9*	706.4	679.2	644.5	609.8	604.8
67.5°	550.3	542.8	580.0	617.2	642.0	*651.9*	642.0	619.7	580.0	545.3	542.8
70°	485.8	478.4	508.1	540.4	567.6	*572.6*	562.7	540.4	503.2	480.9	480.9
72.5°	409.0	401.5	428.8	453.6	480.9	*485.8*	475.9	456.1	428.8	406.5	404.0
75°	324.7	317.3	342.1	361.9	389.2	*391.6*	386.7	364.4	342.1	319.8	319.8
77.5°	240.4	233.0	252.8	270.2	292.5	*292.5*	290.0	272.7	252.8	238.0	238.0
80°	158.6	153.7	171.0	178.5	198.3	*198.3*	195.8	183.4	168.6	158.6	156.2
82.5°	89.2	84.3	99.1	101.6	116.5	*116.5*	114.0	104.1	94.2	86.8	86.8
85°	34.7	29.7	39.7	42.1	49.6	*49.6*	47.1	44.6	37.2	32.2	32.2
87.5°	2.5	2.5	5.0	5.0	7.4	*7.4*	7.4	5.0	5.0	2.5	2.5
90°	2.5	2.5	3.0	3.0	3.0	*3.0*	3.0	3.0	3.0	2.5	2.5
92.5°	2.5	2.5	2.5	3.5	4.0	*3.5*	4.0	3.0	3.0	2.5	2.5
95°	3.0	3.0	3.5	4.5	5.6	*6.1*	6.1	3.5	3.5	3.0	3.0
97.5°	4.0	4.5	4.5	5.6	9.1	*16.7*	10.1	5.1	5.1	4.5	4.0
100°	6.6	7.1	7.1	12.6	26.8	*35.9*	25.8	13.1	9.6	7.1	7.1
102.5°	21.2	22.2	27.3	40.9	60.7	*55.1*	46.5	44.0	30.3	24.3	23.3
105°	54.1	53.6	57.6	68.2	84.9	*83.4*	76.8	69.8	60.2	55.6	55.6
107.5°	71.3	71.3	74.8	83.9	96.6	*112.7*	114.2	90.5	79.4	74.3	73.8
110°	80.4	80.4	83.4	91.0	107.7	*130.4*	129.4	111.7	98.1	91.5	90.5

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Scaled Data Report

REPORT NUMBER: P833332
CATALOG NUMBER: TTN-D1-830-U-WQ-CG-UPL1

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
112.5°	82.4	82.9	86.9	98.6	116.8	*126.9*	122.3	115.3	109.2	104.1	103.1
115°	85.4	85.4	90.0	101.1	111.2	*115.3*	110.2	104.6	100.6	98.6	99.6
117.5°	84.4	85.9	86.9	93.0	99.6	*102.6*	100.1	92.5	89.5	88.5	86.9
120°	78.4	78.4	79.4	82.4	85.9	*87.5*	86.4	81.4	78.9	78.4	77.3
122.5°	69.8	70.3	69.8	71.3	73.8	*75.3*	74.3	70.3	69.3	69.3	68.2
125°	61.2	61.2	60.7	61.7	63.2	*62.7*	63.2	61.2	60.7	60.7	60.2
127.5°	55.1	54.6	53.6	54.1	54.6	*54.6*	55.1	53.1	53.6	54.1	53.6
130°	49.0	49.0	48.0	48.0	48.0	*47.0*	48.0	47.0	47.5	48.0	48.5
132.5°	43.5	43.5	42.0	41.5	41.5	*41.5*	42.0	41.5	42.5	43.5	43.5
135°	38.9	38.9	37.4	37.9	37.9	*37.4*	37.9	37.4	38.4	38.9	38.9
137.5°	35.4	35.4	34.4	34.4	34.4	*33.9*	34.4	34.4	34.9	35.9	36.4
140°	32.4	32.4	31.8	31.8	31.3	*31.8*	31.8	31.8	32.4	32.9	32.9
142.5°	30.8	30.3	29.8	29.3	29.8	*29.8*	29.8	29.3	29.8	30.8	30.8
145°	28.3	28.3	27.8	27.8	27.8	*28.3*	27.8	27.8	28.3	28.3	28.8
147.5°	26.8	26.8	26.3	26.8	26.8	*26.8*	26.8	26.3	26.8	26.8	27.3
150°	26.3	25.8	25.3	25.8	25.8	*25.3*	25.3	25.3	25.3	25.8	25.8
152.5°	24.8	24.8	24.3	24.8	24.3	*24.3*	24.3	24.3	24.3	24.8	25.3
155°	23.8	23.8	23.3	23.8	23.8	*23.8*	23.8	23.8	23.8	23.8	23.8
157.5°	22.7	23.3	22.7	22.7	22.7	*22.7*	22.7	22.7	22.7	23.3	23.3
160°	22.2	22.2	22.2	22.2	21.7	*21.7*	21.7	22.2	22.2	22.2	22.7
162.5°	21.7	21.7	21.7	21.7	21.2	*21.2*	21.2	21.2	21.7	21.7	22.2
165°	21.7	21.2	21.2	21.2	20.7	*20.7*	20.7	20.7	21.2	21.7	21.2
167.5°	20.7	20.7	20.7	20.7	20.7	*20.2*	20.2	20.7	20.7	20.7	21.2
170°	20.7	20.7	20.2	20.2	20.2	*20.2*	20.2	20.2	20.2	20.2	20.7
172.5°	20.7	20.7	20.7	20.7	20.2	*20.2*	20.2	20.2	20.2	20.7	20.7
175°	20.7	20.7	20.7	20.7	20.2	*20.2*	20.2	20.7	20.7	20.7	20.2
177.5°	20.7	20.7	20.7	20.7	20.2	*20.7*	20.7	20.7	20.7	20.7	20.7
180°	20.7	20.7	20.7	20.7	20.7	*20.7*	20.7	20.7	20.7	20.7	20.7

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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: SP1-2411-284-4

Test Date: 11/22/2024

Luminaire Tested: TTN-D0-830-U-WQ

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

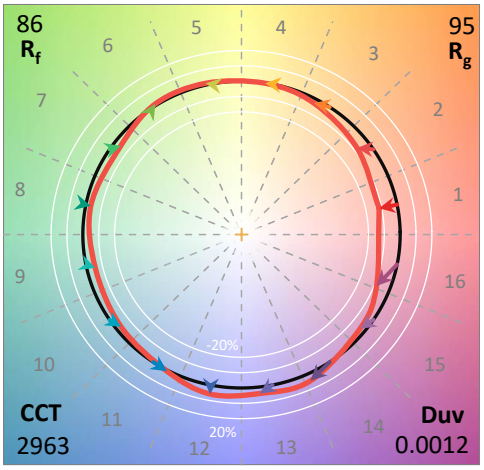
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2411-284-4
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	11/22/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	MCGRAW EDISON
Catalog Number:	**TTN-D0-830-U-WQ**
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3000K, 80 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K):	2963
CIE u':	0.2515
CIE v':	0.5238
Duv:	0.0012
CIE x:	0.4414
CIE y:	0.4086
CIE z:	0.1501
Peak Wavelength (nm):	603
Dominant Wavelength (nm):	582
Purity:	55.12798
Rf:	86.1
Rg:	94.9

CRI (Ra):	82.9
R1:	81.4
R2:	91.9
R3:	95.2
R4:	81.6
R5:	82.3
R6:	91.4
R7:	82.0
R8:	57.2
R9:	3.9
R10:	82.5
R11:	82.3
R12:	76.5
R13:	83.9
R14:	97.8
R15:	72.6



Test Conditions

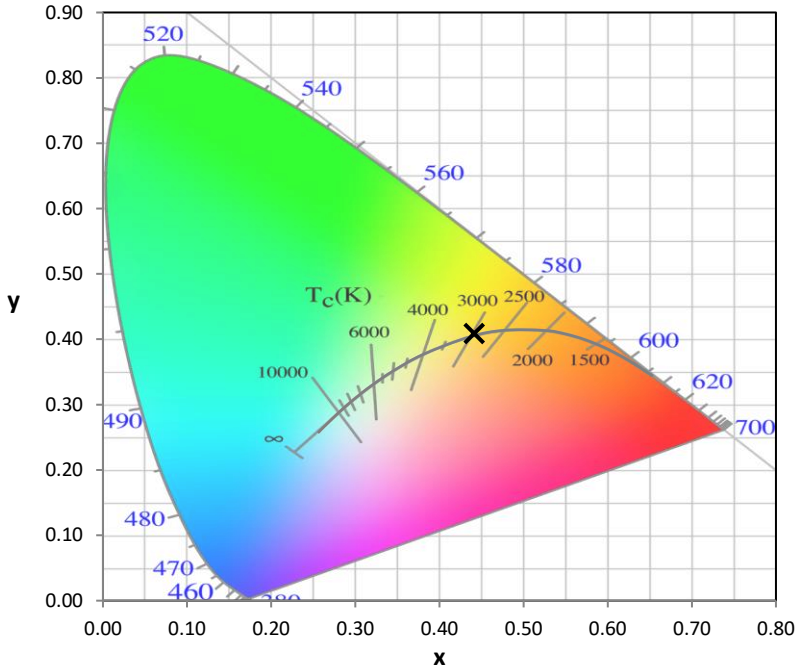
Stabilization Time:	37M
Operation Time:	1H 37M
Sphere Temperature (°C):	25.0

REPORT NUMBER: SP1-2411-284-4

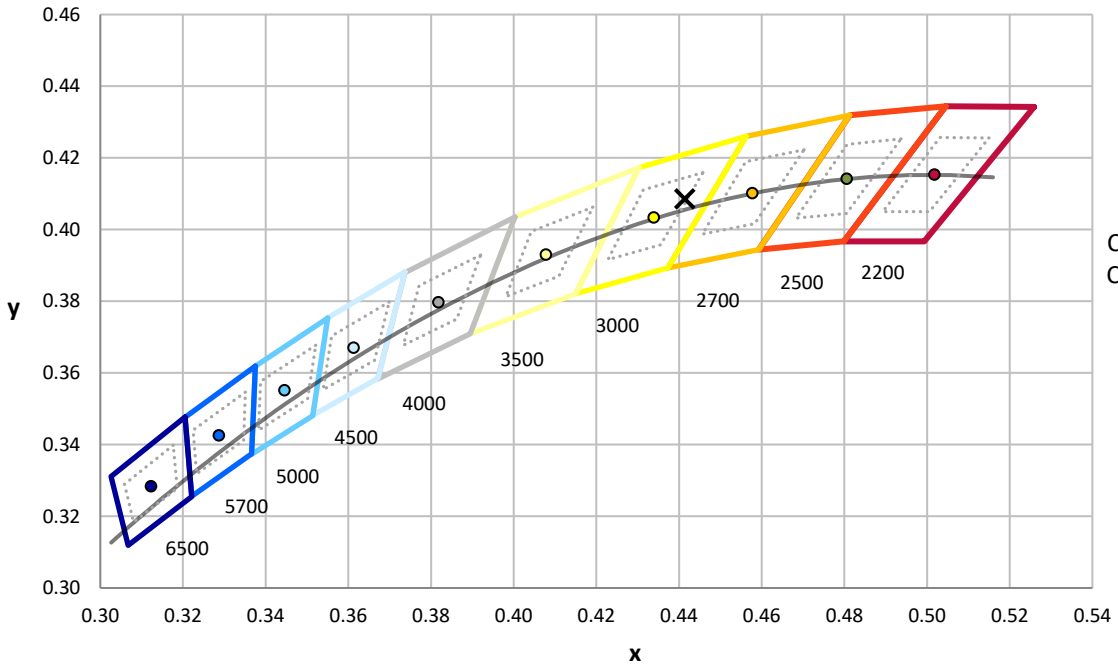
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-4

CIE 1931 Chromaticity Diagram



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

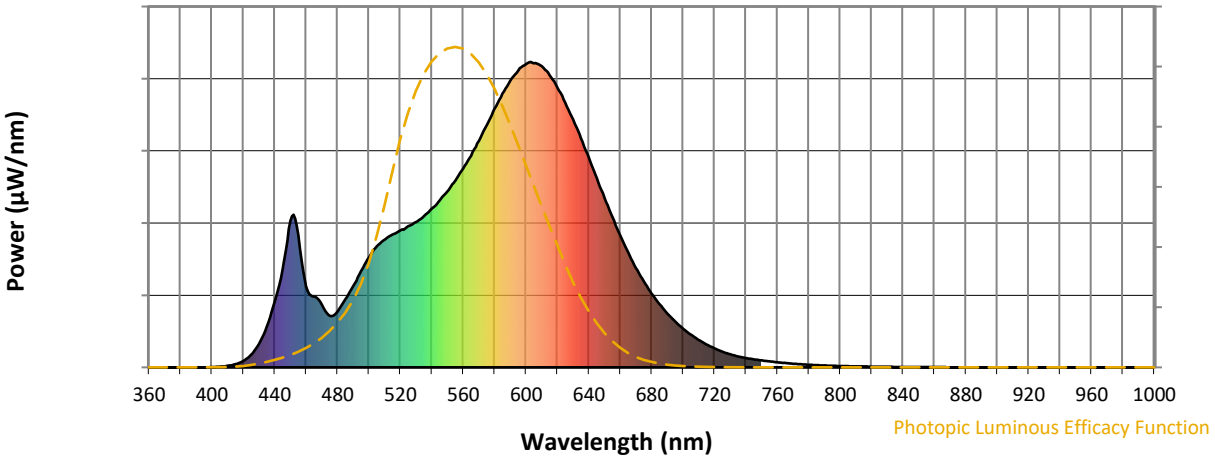


CCT = 2963K
CIE x = 0.4414
CIE y = 0.4086
Duv = 0.0012

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-4

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

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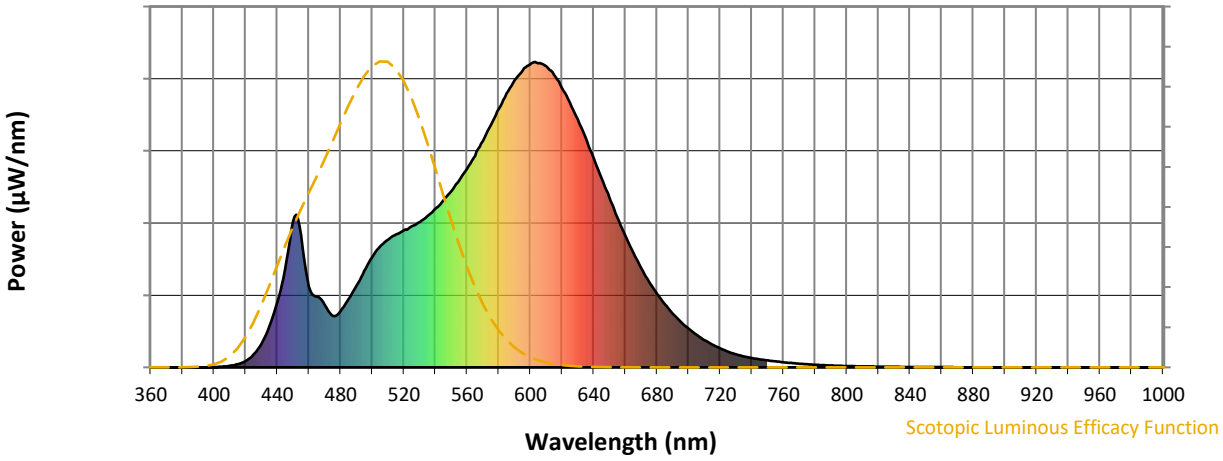
Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.34**

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

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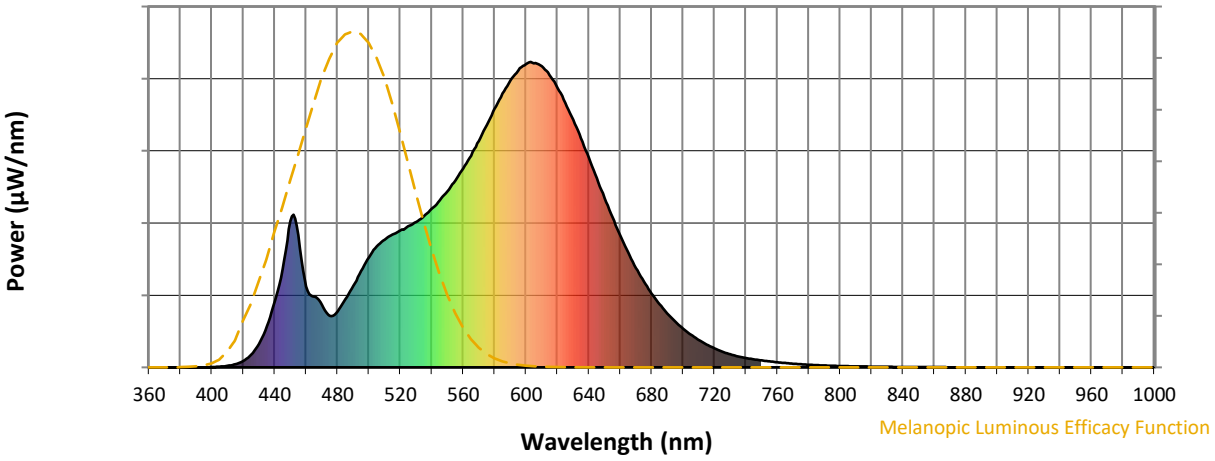
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.58**

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

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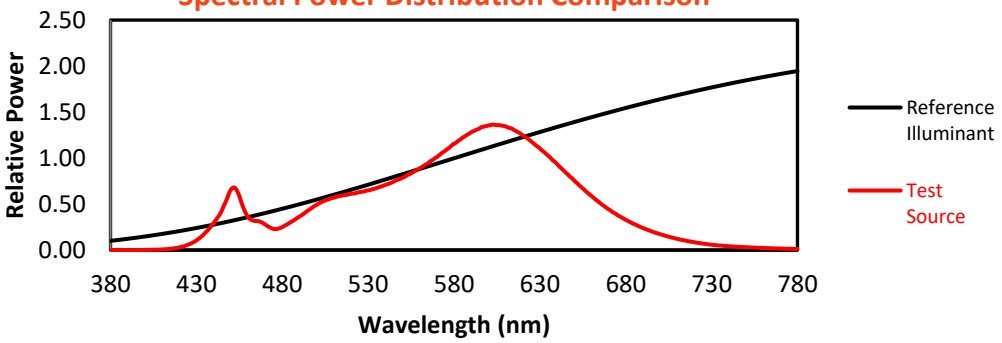
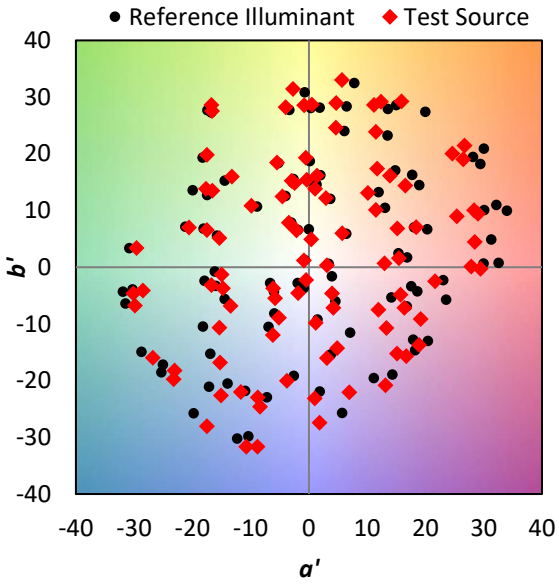
Summary

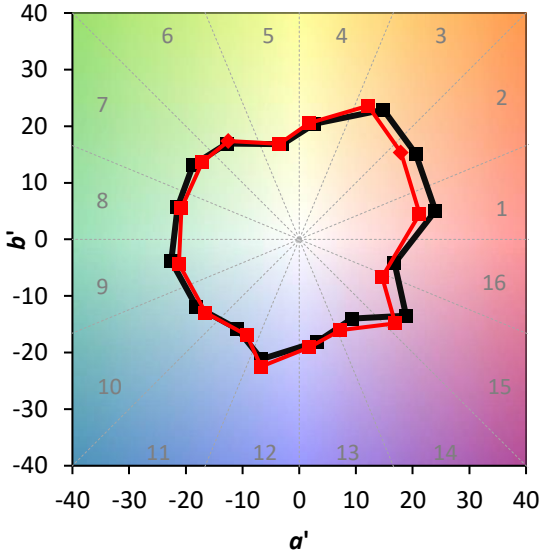
R_f = 86.1
R_g = 94.9
CIE R_a = 82.9
R_9 = 3.9

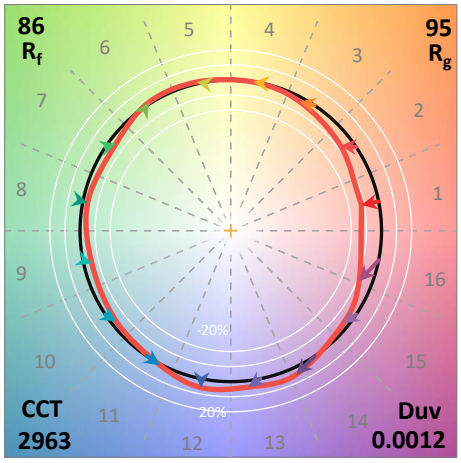
Spectral Power Distribution Comparison

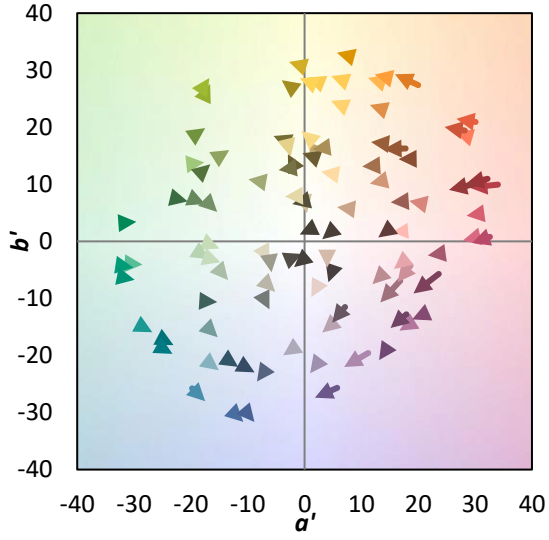


Color Vector Graphics









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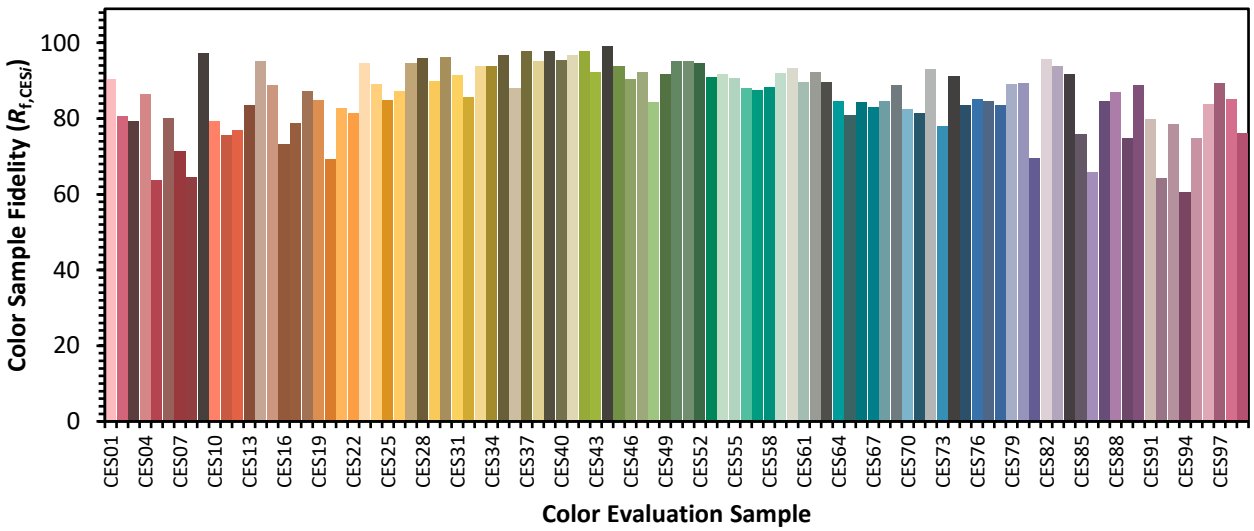
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 87	CES51 = 95	CES76 = 85
CES02 = 63	CES27 = 95	CES52 = 95	CES77 = 85
CES03 = 31	CES28 = 96	CES53 = 91	CES78 = 83
CES04 = 70	CES29 = 90	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 96	CES55 = 91	CES80 = 89
CES06 = 51	CES31 = 92	CES56 = 88	CES81 = 70
CES07 = 42	CES32 = 86	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 94	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 93	CES85 = 76
CES11 = 59	CES36 = 88	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 98	CES62 = 92	CES87 = 85
CES13 = 44	CES38 = 95	CES63 = 90	CES88 = 87
CES14 = 74	CES39 = 98	CES64 = 85	CES89 = 75
CES15 = 72	CES40 = 96	CES65 = 81	CES90 = 89
CES16 = 48	CES41 = 97	CES66 = 84	CES91 = 80
CES17 = 50	CES42 = 98	CES67 = 83	CES92 = 64
CES18 = 57	CES43 = 92	CES68 = 85	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 61
CES20 = 67	CES45 = 94	CES70 = 83	CES95 = 75
CES21 = 87	CES46 = 91	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 92	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 84	CES73 = 78	CES98 = 85
CES24 = 91	CES49 = 92	CES74 = 91	CES99 = 76
CES25 = 72	CES50 = 95	CES75 = 84	



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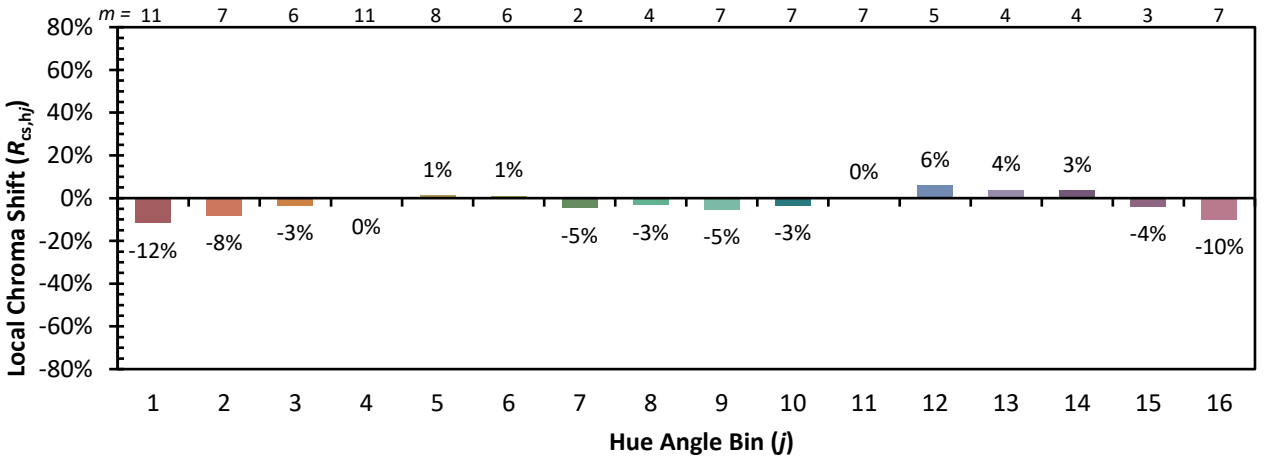
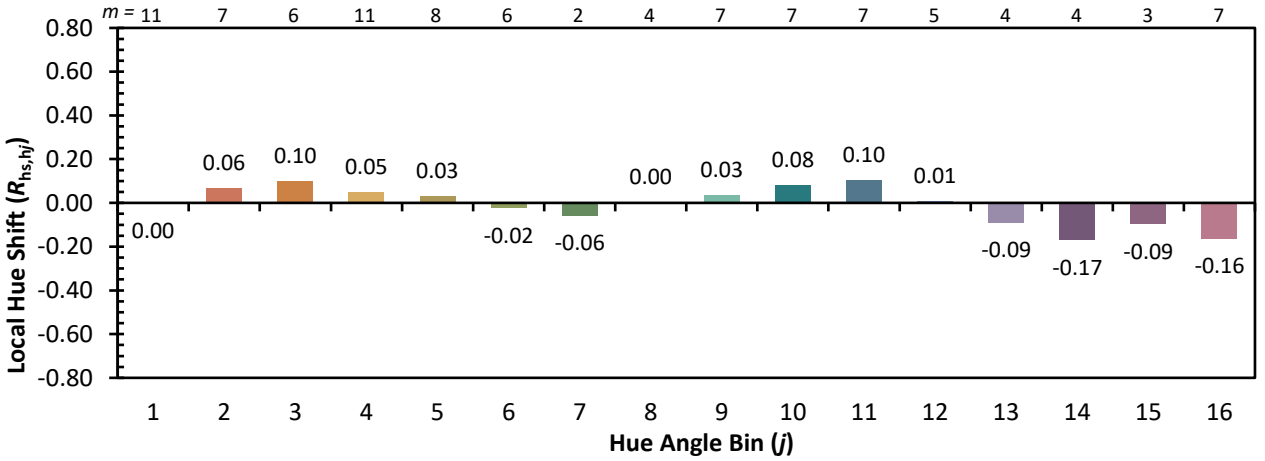
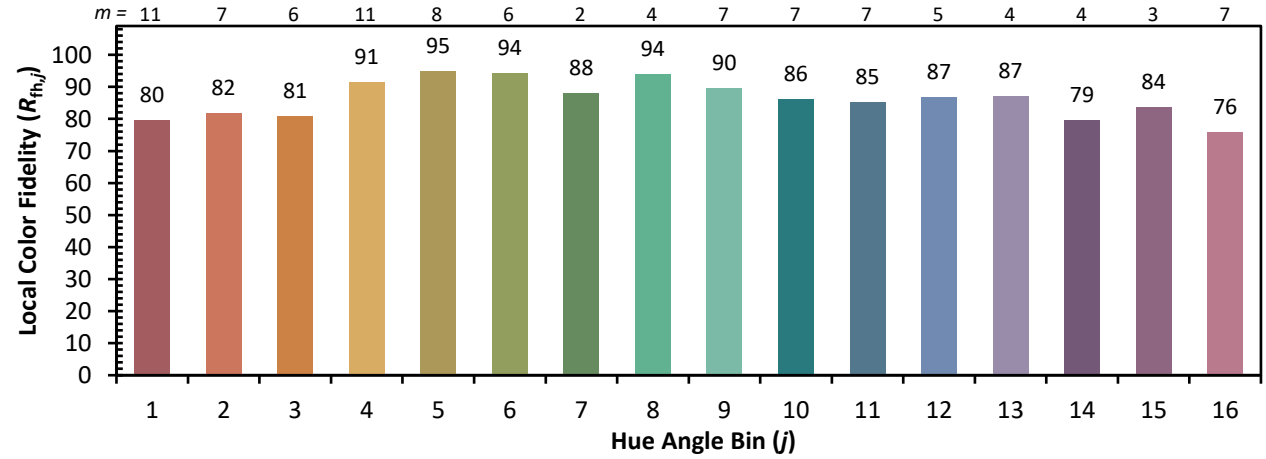
Color Rendition by Hue-Angle Bin







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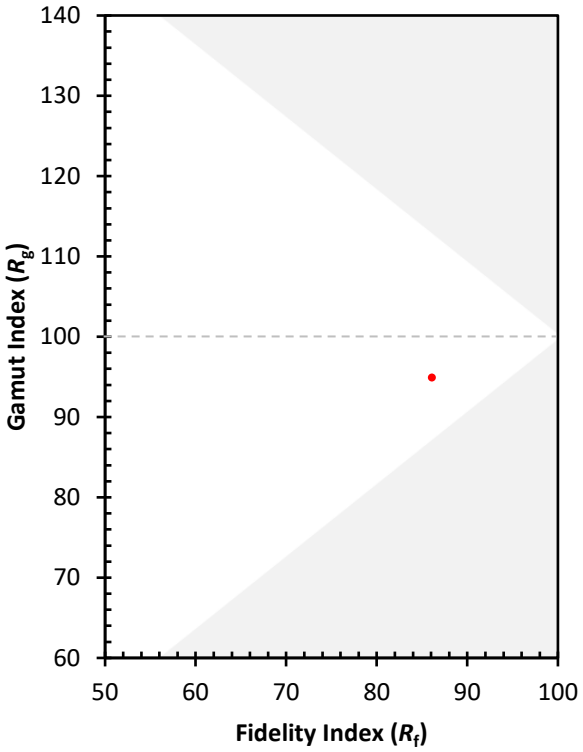
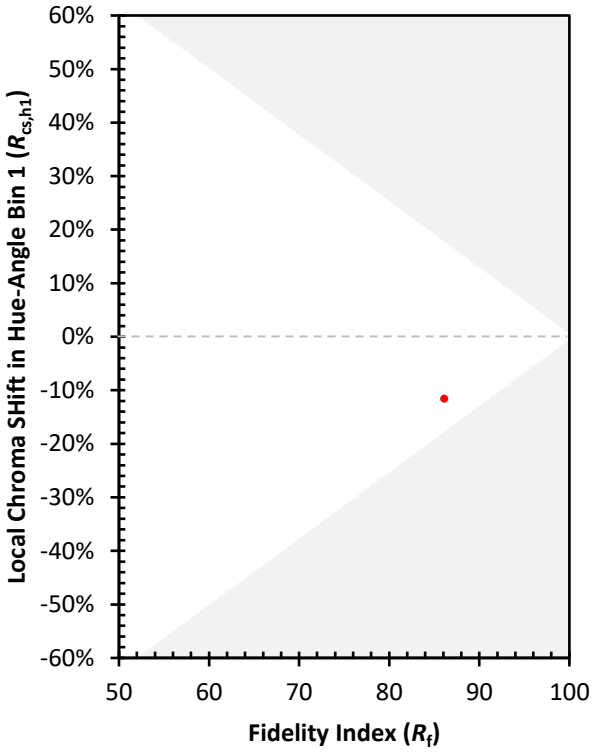
Measure Comparisons





(END OF REPORT)