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: P823381

Luminaire Tested: **TTN-D2-735-U-CQ**

Issue Date: 4/16/2024

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:	P823381
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-9)
Test Lab:	INNOVATION CENTER
Issue Date:	4/16/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TTN-D2-735-U-CQ
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE
	3500K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION
Light Source:	-
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5040 lumens
Efficiency:	N/A
Efficacy:	118.6 lumens/watt
Luminous Opening:	Circular (Dia: 0.71' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B2 - U0 - G1

Input Watts (W):	42.5
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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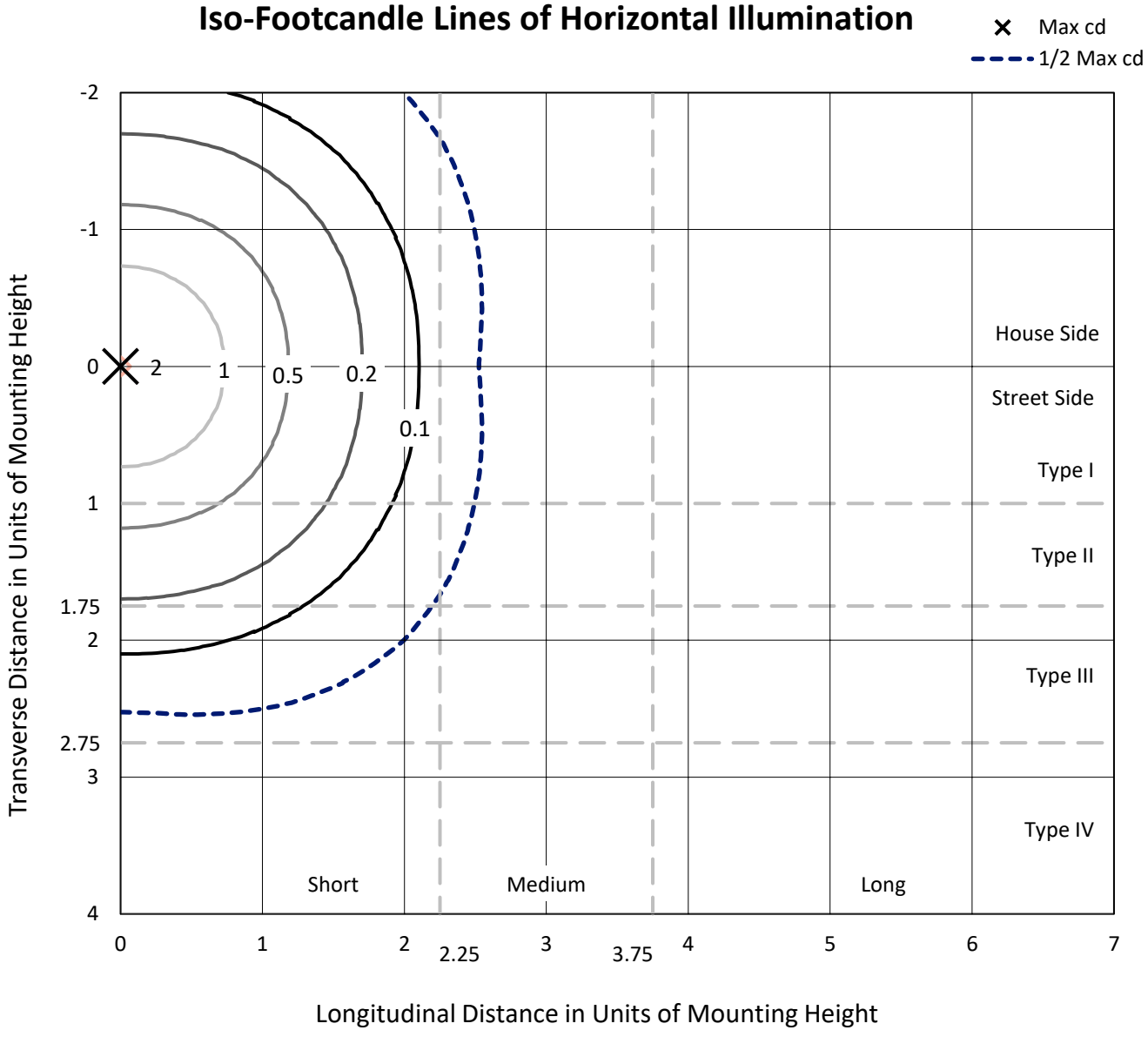
Scaled Data Report

REPORT NUMBER: P823381
CATALOG NUMBER: TTN-D2-735-U-CQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 2 fc
Type V - Short - N/A

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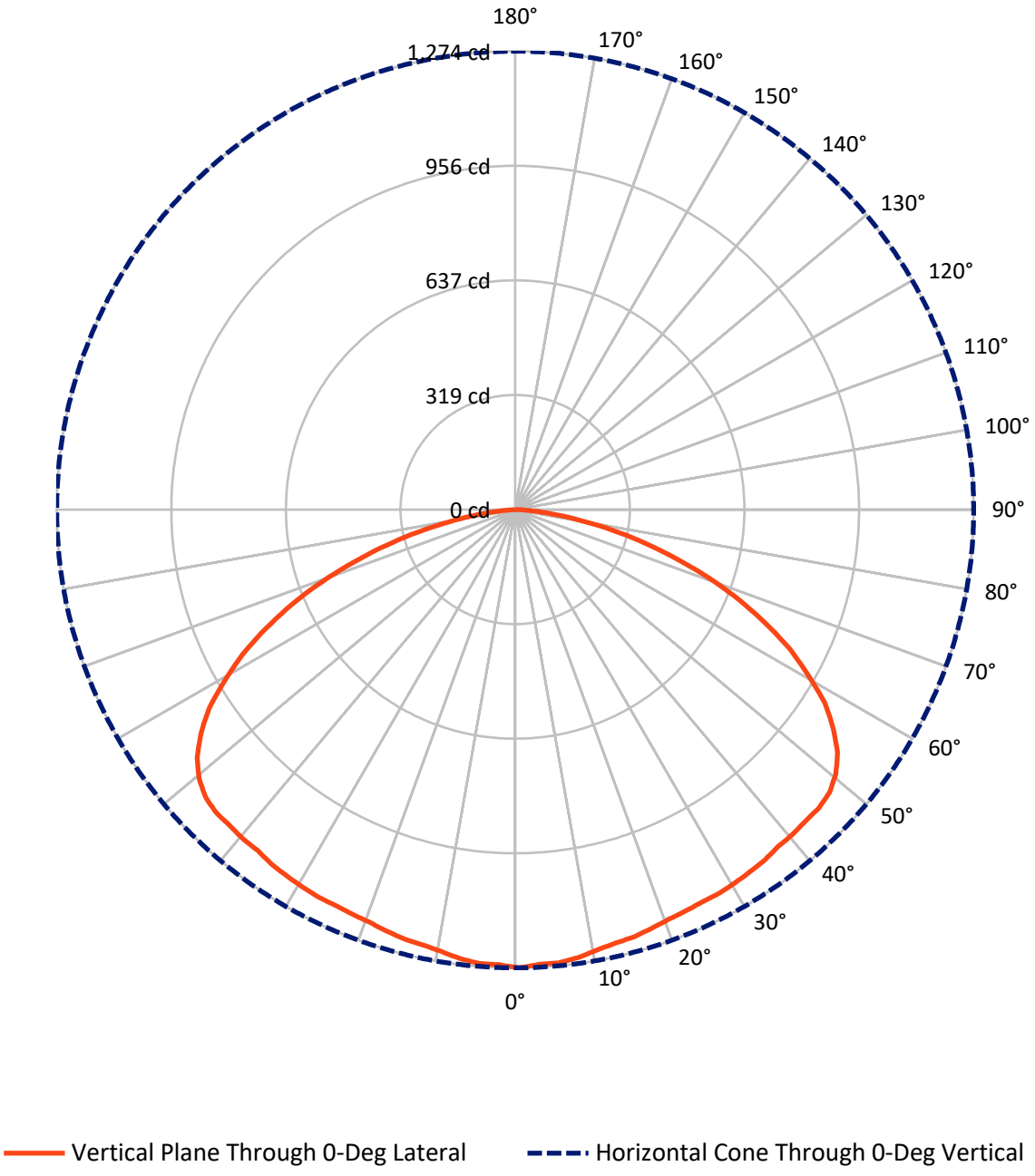
Luminous Intensity Polar Plot



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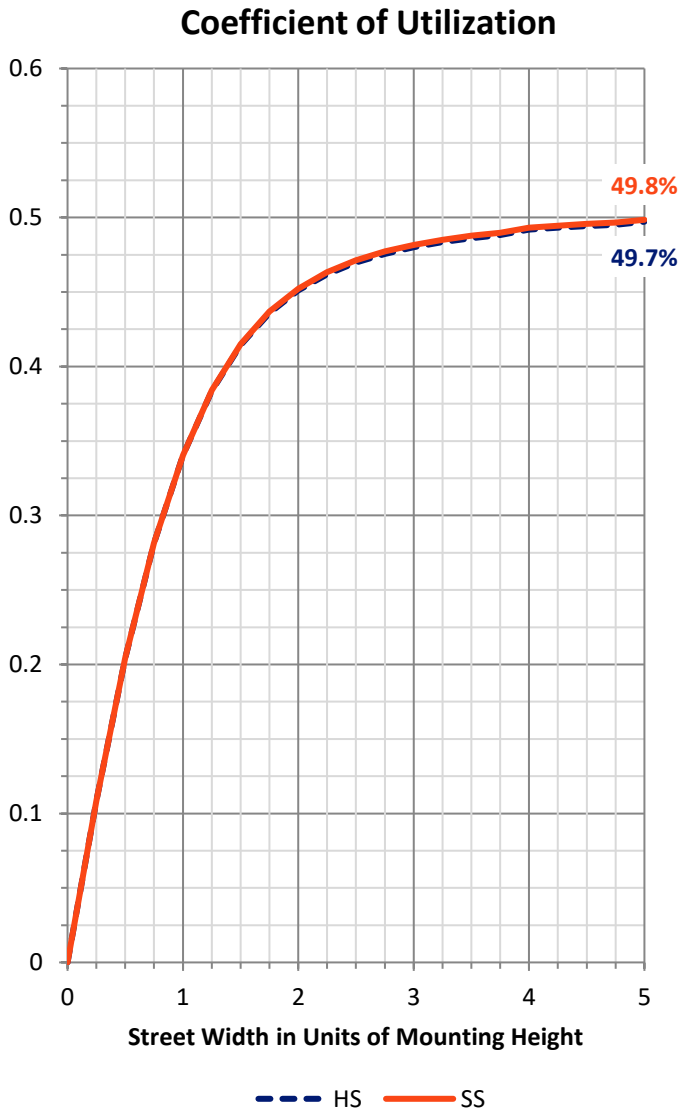
REPORT NUMBER: P823381
CATALOG NUMBER: TTN-D2-735-U-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2520.0	0.0	2520.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2520.0	0.0	2520.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	5040.0	0.0	5040.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.2	2.4
10°-20°	348.9	6.9
20°-30°	561.9	11.1
30°-40°	755.7	15.0
40°-50°	932.4	18.5
50°-60°	1000.3	19.8
60°-70°	811.2	16.1
70°-80°	429.9	8.5
80°-90°	79.5	1.6
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°	5040.0	100.0
0°-180°	5040.0	100.0



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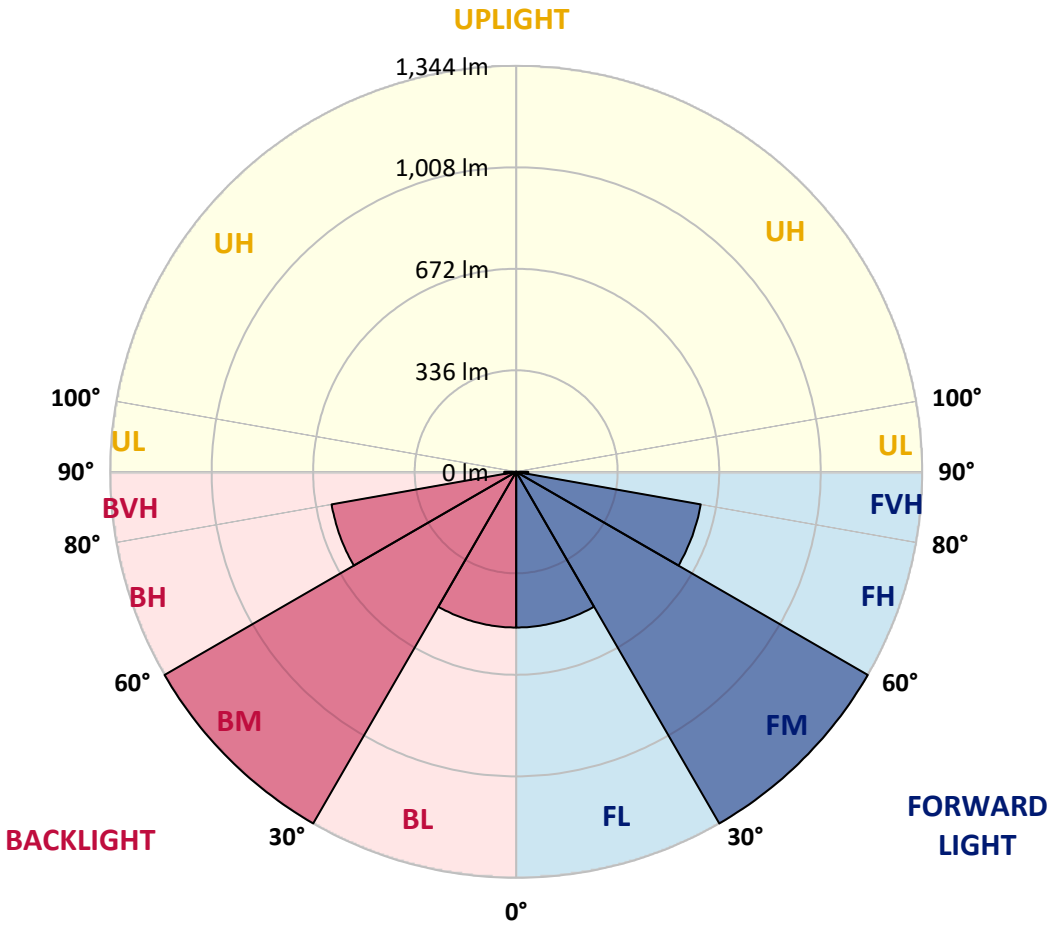
Scaled Data Report

REPORT NUMBER: P823381
CATALOG NUMBER: TTN-D2-735-U-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	515.5	10.2			
FM	(30°-60°)	1344.2	26.7			
FH	(60°-80°)	620.6	12.3			G0/660
FVH	(80°-90°)	39.8	0.8			G1/100
BL	(0°-30°)	515.5	10.2	B2/1000		
BM	(30°-60°)	1344.2	26.7	B2/2500		
BH	(60°-80°)	620.6	12.3	B2/1000		G0/660
BVH	(80°-90°)	39.8	0.8			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G1
Type V Short



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Scaled Data Report

REPORT NUMBER: P823381
CATALOG NUMBER: TTN-D2-735-U-CQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1274.4	1274.4	1274.4	1274.4	1274.4	1274.4	1274.4	1274.4	1274.4	1274.4	1274.4
2.5°	1266.2	1266.2	1266.2	1266.2	1266.2	1266.2	1266.2	1266.2	1266.2	1266.2	1270.3
5°	1266.2	1266.2	1266.2	1266.2	1262.1	1266.2	1266.2	1266.2	1266.2	1266.2	1266.2
7.5°	1257.9	1257.9	1257.9	1257.9	1257.9	1257.9	1257.9	1257.9	1257.9	1257.9	1257.9
10°	1245.6	1245.6	1245.6	1245.6	1245.6	1245.6	1245.6	1245.6	1245.6	1245.6	1245.6
12.5°	1237.3	1237.3	1237.3	1237.3	1237.3	1237.3	1237.3	1237.3	1237.3	1237.3	1237.3
15°	1233.2	1233.2	1233.2	1233.2	1233.2	1233.2	1233.2	1233.2	1233.2	1229.1	1229.1
17.5°	1224.9	1224.9	1224.9	1224.9	1229.1	1229.1	1229.1	1224.9	1224.9	1224.9	1224.9
20°	1216.7	1216.7	1216.7	1220.8	1220.8	1220.8	1220.8	1220.8	1216.7	1216.7	1216.7
22.5°	1212.6	1212.6	1212.6	1212.6	1216.7	1216.7	1216.7	1216.7	1212.6	1212.6	1212.6
25°	1208.4	1208.4	1212.6	1212.6	1216.7	1216.7	1216.7	1212.6	1212.6	1208.4	1208.4
27.5°	1208.4	1208.4	1212.6	1212.6	1216.7	1216.7	1216.7	1216.7	1212.6	1208.4	1208.4
30°	1204.3	1208.4	1208.4	1212.6	1216.7	1216.7	1216.7	1212.6	1208.4	1204.3	1204.3
32.5°	1200.2	1200.2	1204.3	1208.4	1212.6	1212.6	1212.6	1208.4	1204.3	1200.2	1196.1
35°	1196.1	1196.1	1196.1	1204.3	1208.4	1208.4	1208.4	1204.3	1196.1	1191.9	1191.9
37.5°	1187.8	1191.9	1196.1	1200.2	1208.4	1208.4	1208.4	1200.2	1191.9	1187.8	1183.7
40°	1187.8	1187.8	1196.1	1200.2	1212.6	1212.6	1208.4	1200.2	1191.9	1183.7	1179.6
42.5°	1183.7	1187.8	1196.1	1208.4	1220.8	1220.8	1216.7	1204.3	1191.9	1183.7	1179.6
45°	1183.7	1183.7	1196.1	1212.6	1229.1	1233.2	1224.9	1212.6	1196.1	1179.6	1179.6
47.5°	1175.5	1175.5	1191.9	1212.6	1233.2	1237.3	1233.2	1212.6	1191.9	1179.6	1175.5
50°	1154.8	1154.8	1175.5	1200.2	1224.9	1233.2	1224.9	1208.4	1179.6	1163.1	1159.0
52.5°	1121.8	1121.8	1142.5	1175.5	1200.2	1212.6	1204.3	1183.7	1154.8	1130.1	1126.0
55°	1072.3	1076.5	1097.1	1134.2	1163.1	1175.5	1167.2	1142.5	1109.5	1084.7	1076.5
57.5°	1014.6	1014.6	1043.5	1080.6	1109.5	1121.8	1113.6	1088.8	1051.7	1027.0	1018.7
60°	936.2	940.4	965.1	1014.6	1043.5	1055.8	1047.6	1018.7	977.5	948.6	940.4
62.5°	857.9	862.0	886.7	928.0	961.0	969.2	961.0	932.1	895.0	866.1	857.9
65°	767.1	771.3	800.1	837.3	862.0	874.4	862.0	837.3	804.3	775.4	771.3
67.5°	672.3	676.4	705.3	738.3	763.0	771.3	758.9	738.3	705.3	680.5	672.3
70°	573.3	577.4	602.2	631.0	651.7	659.9	651.7	626.9	602.2	577.4	573.3
72.5°	470.2	474.3	499.1	523.8	540.3	548.5	536.2	519.7	494.9	474.3	470.2
75°	371.2	371.2	391.8	412.4	428.9	433.1	424.8	412.4	391.8	375.3	367.1
77.5°	276.3	276.3	297.0	309.3	317.6	325.8	317.6	305.2	292.8	276.3	276.3
80°	185.6	185.6	202.1	210.3	218.6	222.7	218.6	210.3	202.1	189.7	185.6
82.5°	111.4	111.4	119.6	127.9	127.9	132.0	132.0	127.9	119.6	111.4	111.4
85°	49.5	45.4	53.6	57.7	57.7	61.9	61.9	57.7	53.6	49.5	49.5
87.5°	4.1	8.2	8.2	12.4	12.4	12.4	12.4	12.4	8.2	8.2	8.2
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: SP1-2411-284-1

Test Date: 11/15/2024

Luminaire Tested: TTN-D0-735-U-WQ

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

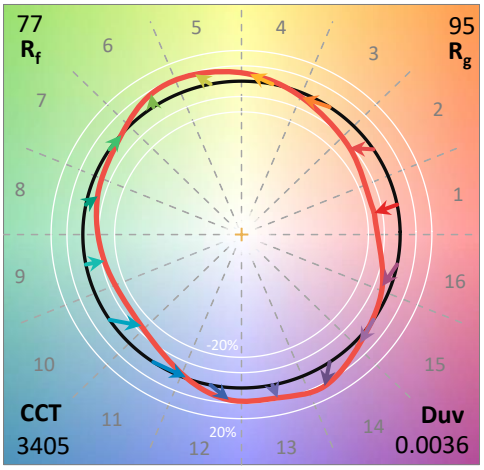
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2411-284-1
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	11/15/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	MCGRAW EDISON
Catalog Number:	**TTN-D0-735-U-WQ**
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3500K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K):	3405
CIE u':	0.2365
CIE v':	0.5180
Duv:	0.0036
CIE x:	0.4148
CIE y:	0.4038
CIE z:	0.1814
Peak Wavelength (nm):	596
Dominant Wavelength (nm):	579
Purity:	45.70672
Rf:	76.6
Rg:	95.4

CRI (Ra):	73.9
R1:	71.3
R2:	80.3
R3:	87.8
R4:	73.2
R5:	69.8
R6:	71.8
R7:	82.8
R8:	54.1
R9:	-18.0
R10:	53.1
R11:	68.6
R12:	42.6
R13:	72.5
R14:	92.7
R15:	64.3



Test Conditions

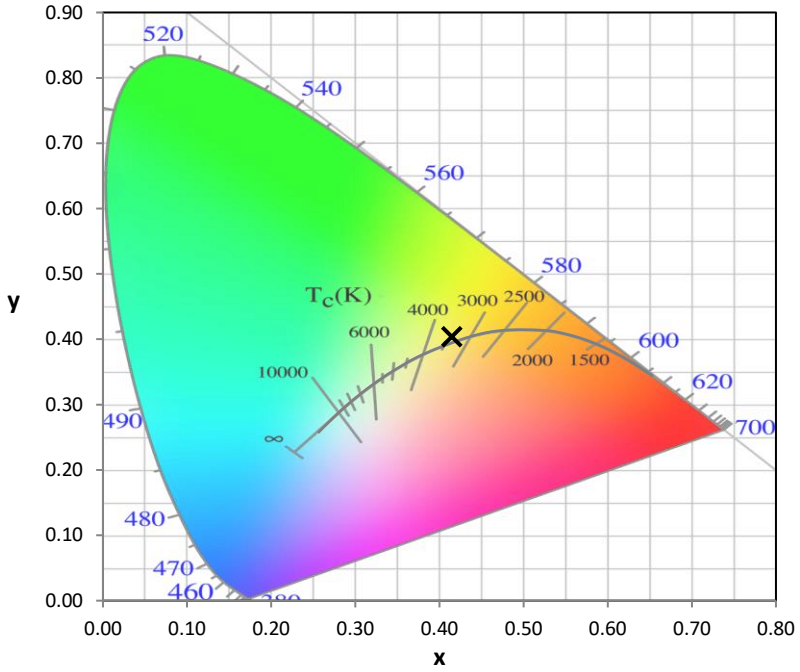
Stabilization Time:	38M
Operation Time:	1H 38M
Sphere Temperature (°C):	24.9

REPORT NUMBER: SP1-2411-284-1

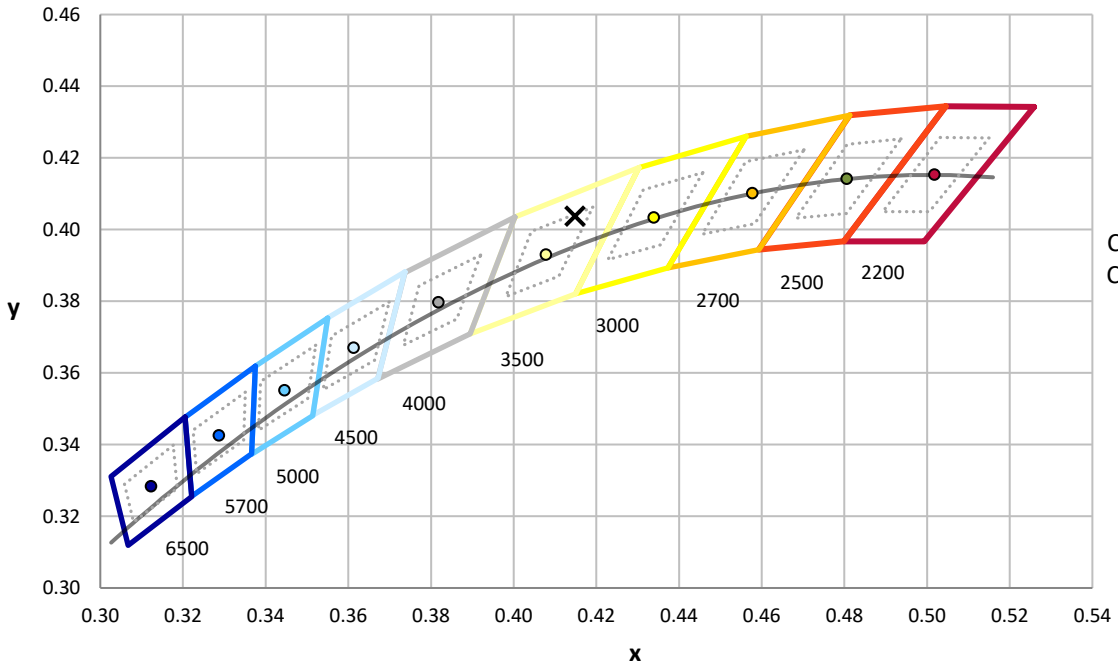
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-1

CIE 1931 Chromaticity Diagram



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

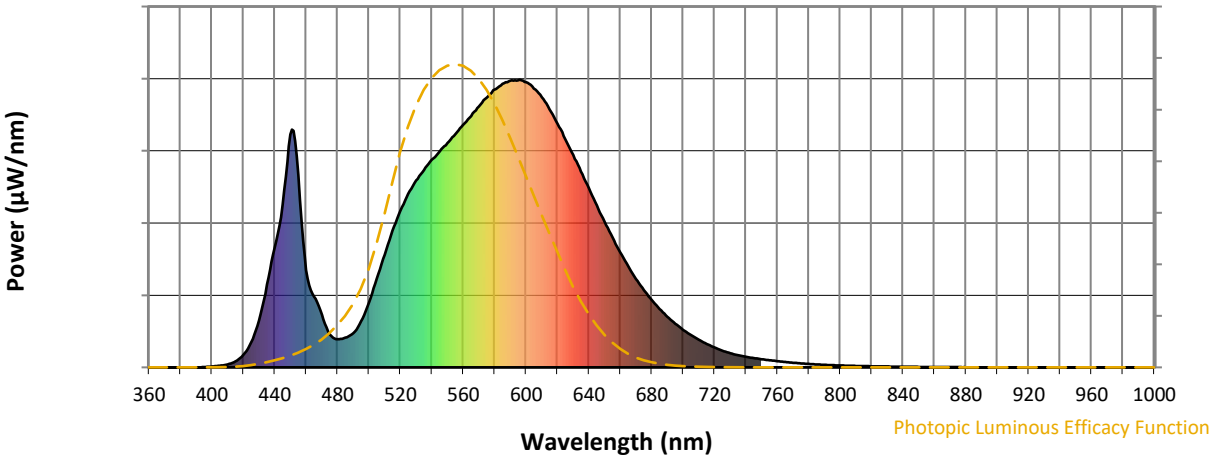


CCT = 3405K
CIE x = 0.4148
CIE y = 0.4038
Duv = 0.0036

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

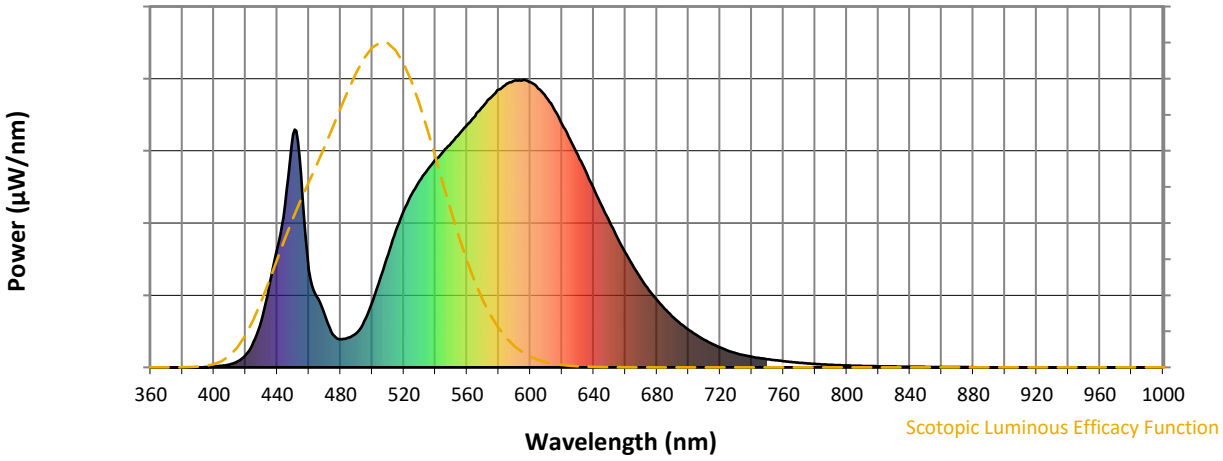


Photopic Lumens: NR

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	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Scotopic Flux vs. Wavelength

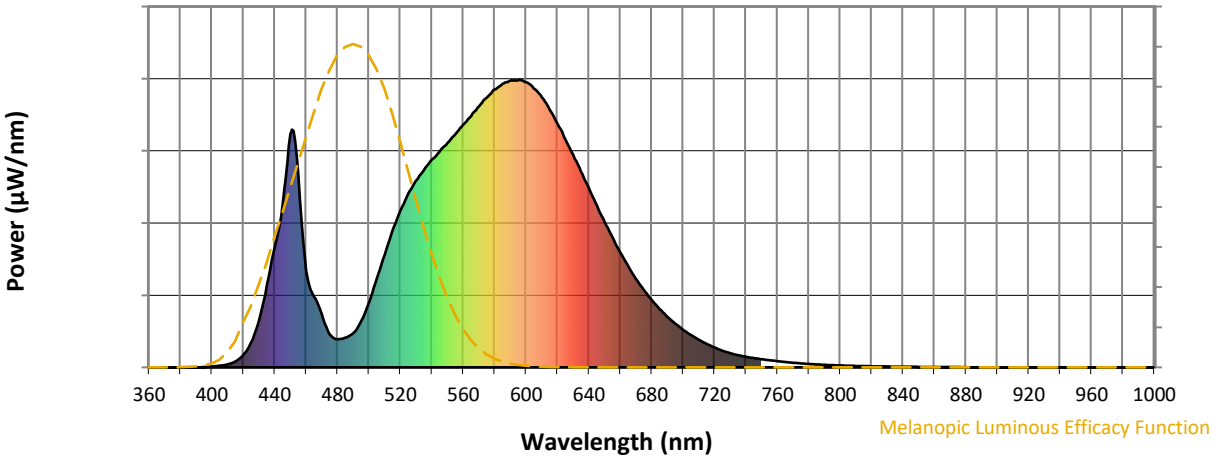


Scotopic Lumens: NR **S/P: 1.33**

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	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.47**

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	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

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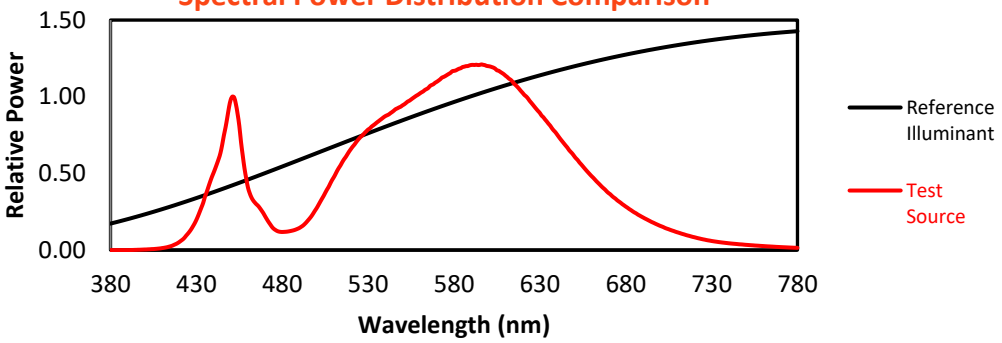
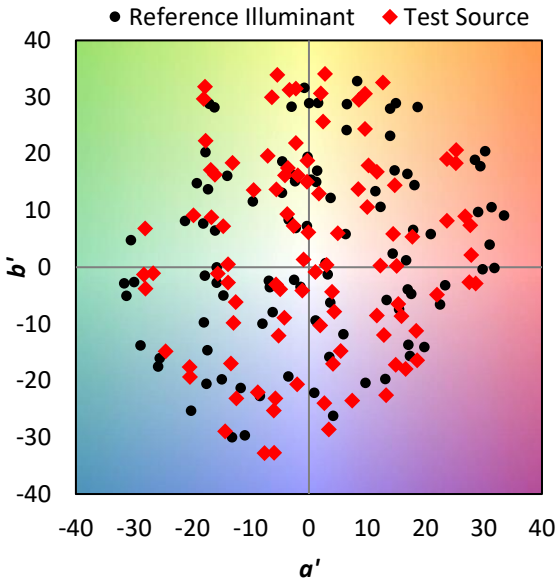
Summary

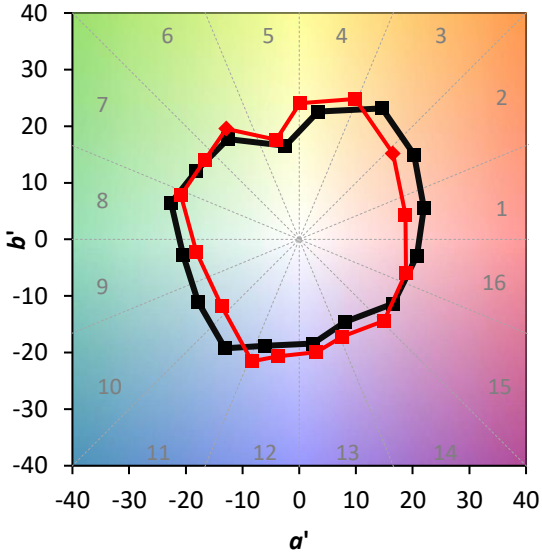
R_f = 76.6
R_g = 95.4
CIE R_a = 73.9
R_9 = -18.0

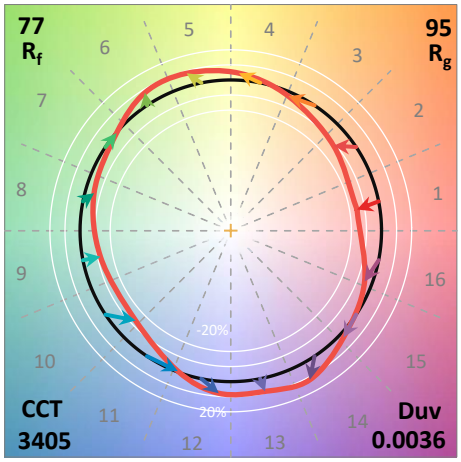
Spectral Power Distribution Comparison

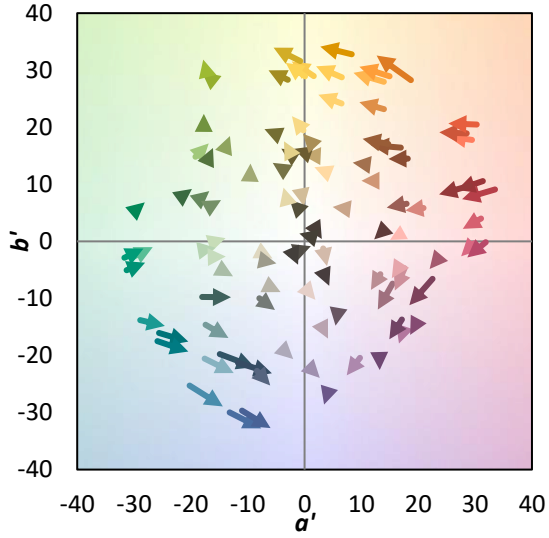


Color Vector Graphics









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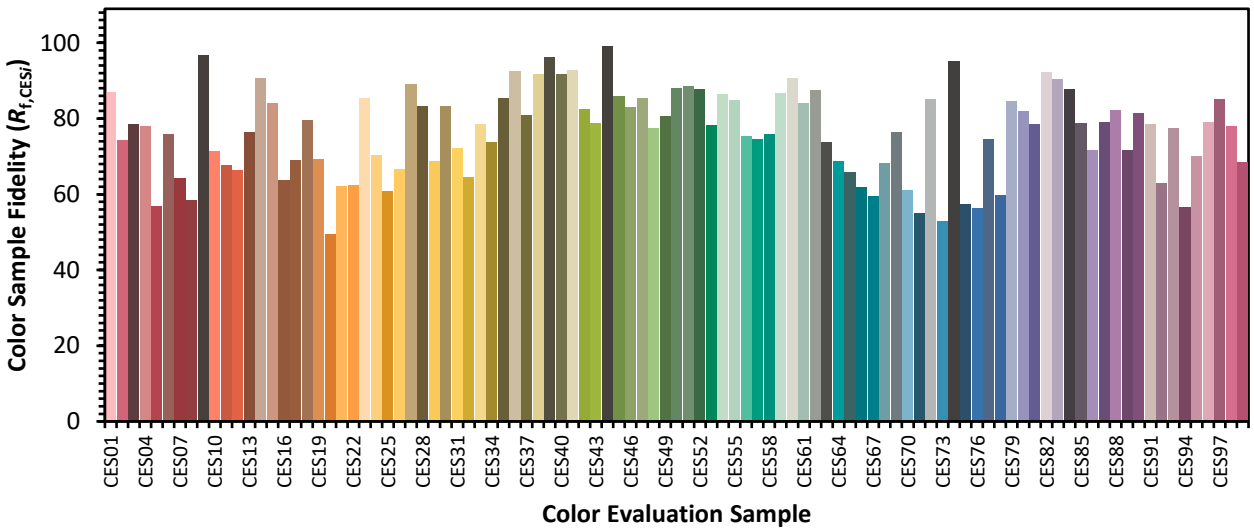
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 92
CES08 = 40	CES33 = 78	CES58 = 76	CES83 = 90
CES09 = 29	CES34 = 74	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 93	CES61 = 84	CES86 = 72
CES12 = 64	CES37 = 81	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 92	CES63 = 74	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 72
CES15 = 71	CES40 = 92	CES65 = 66	CES90 = 82
CES16 = 47	CES41 = 93	CES66 = 62	CES91 = 79
CES17 = 50	CES42 = 83	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 79	CES68 = 68	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 86	CES70 = 61	CES95 = 70
CES21 = 86	CES46 = 83	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 85	CES72 = 85	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 53	CES98 = 78
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 68
CES25 = 72	CES50 = 88	CES75 = 57	



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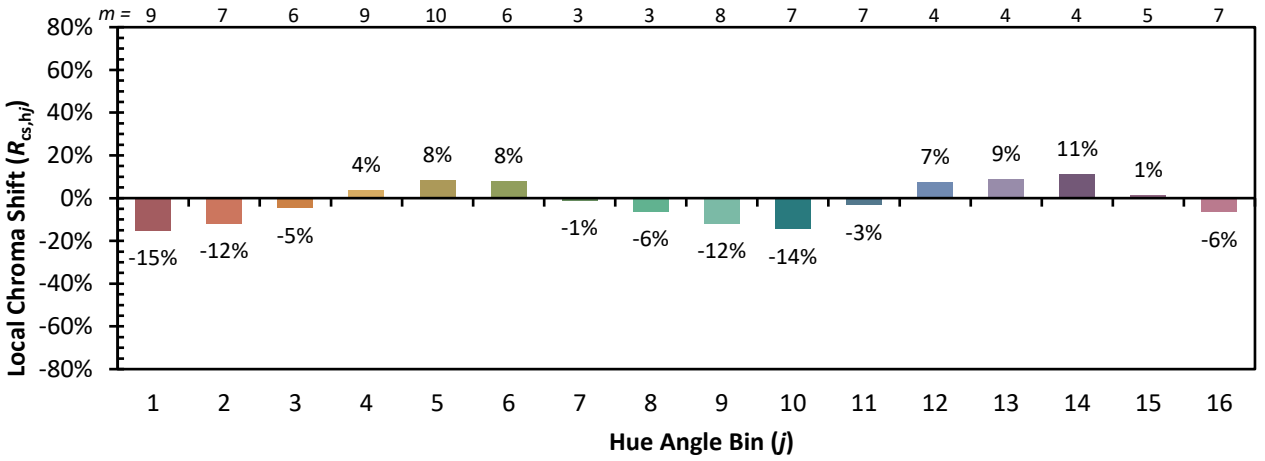
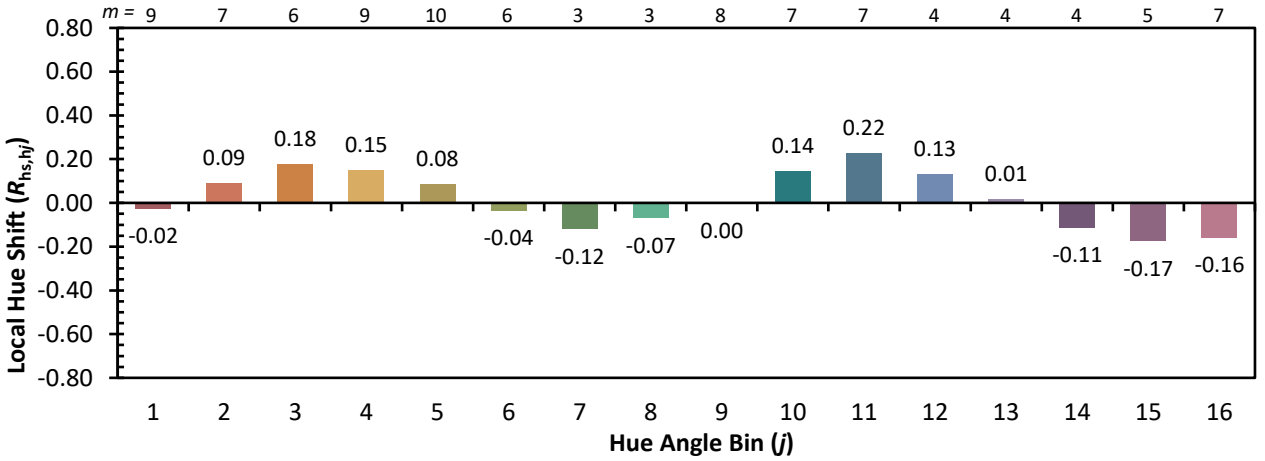
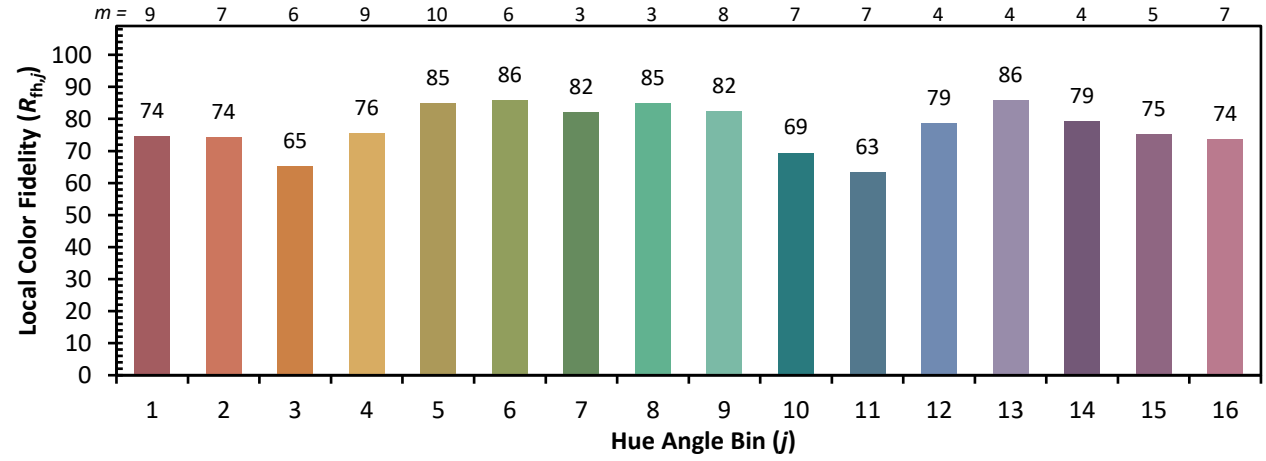
Color Rendition by Hue-Angle Bin







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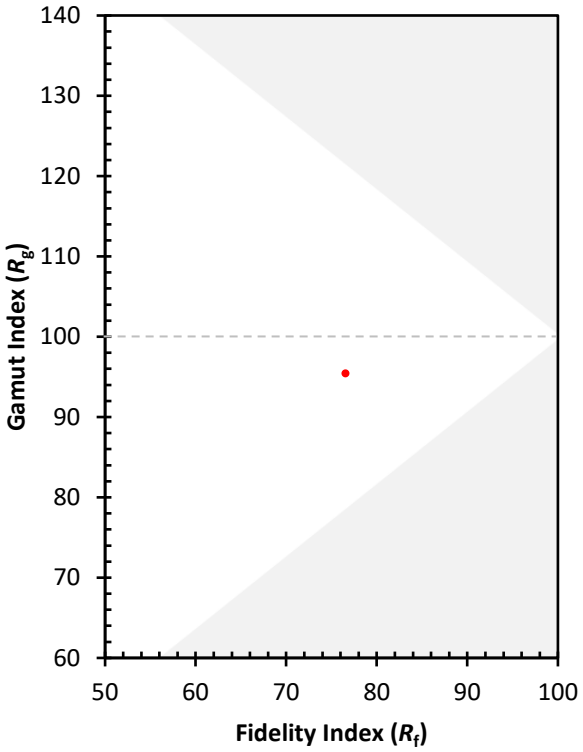
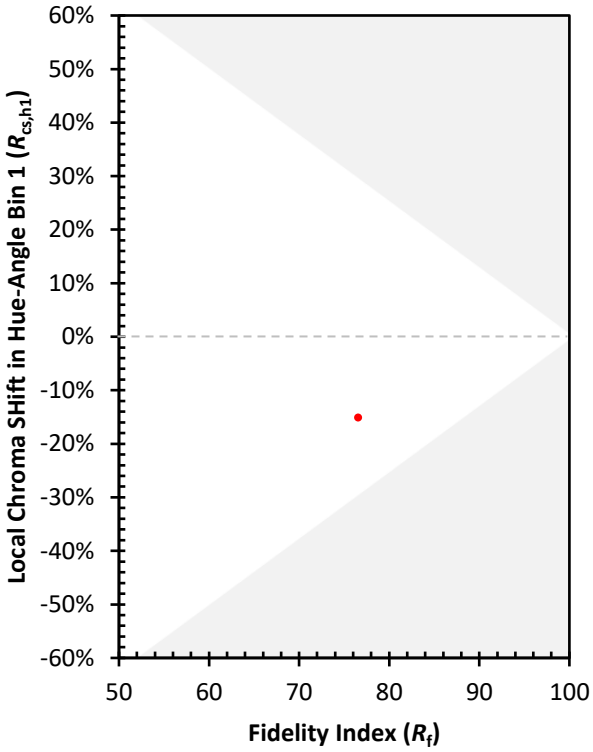
Measure Comparisons





(END OF REPORT)