

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: P413329

Luminaire Tested: **TT-D5-735-U-RW-PM**

Issue Date: 10/15/2020

Test Information

Test Method: LM-79-08
Report Number: P413329
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-981-1)
Test Lab: INNOVATION CENTER
Issue Date: 10/15/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D5-735-U-RW-PM
Description: TOPTIER LED SITE LUMINAIRE
3500K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7198 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 74.7
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: 28.75 FT



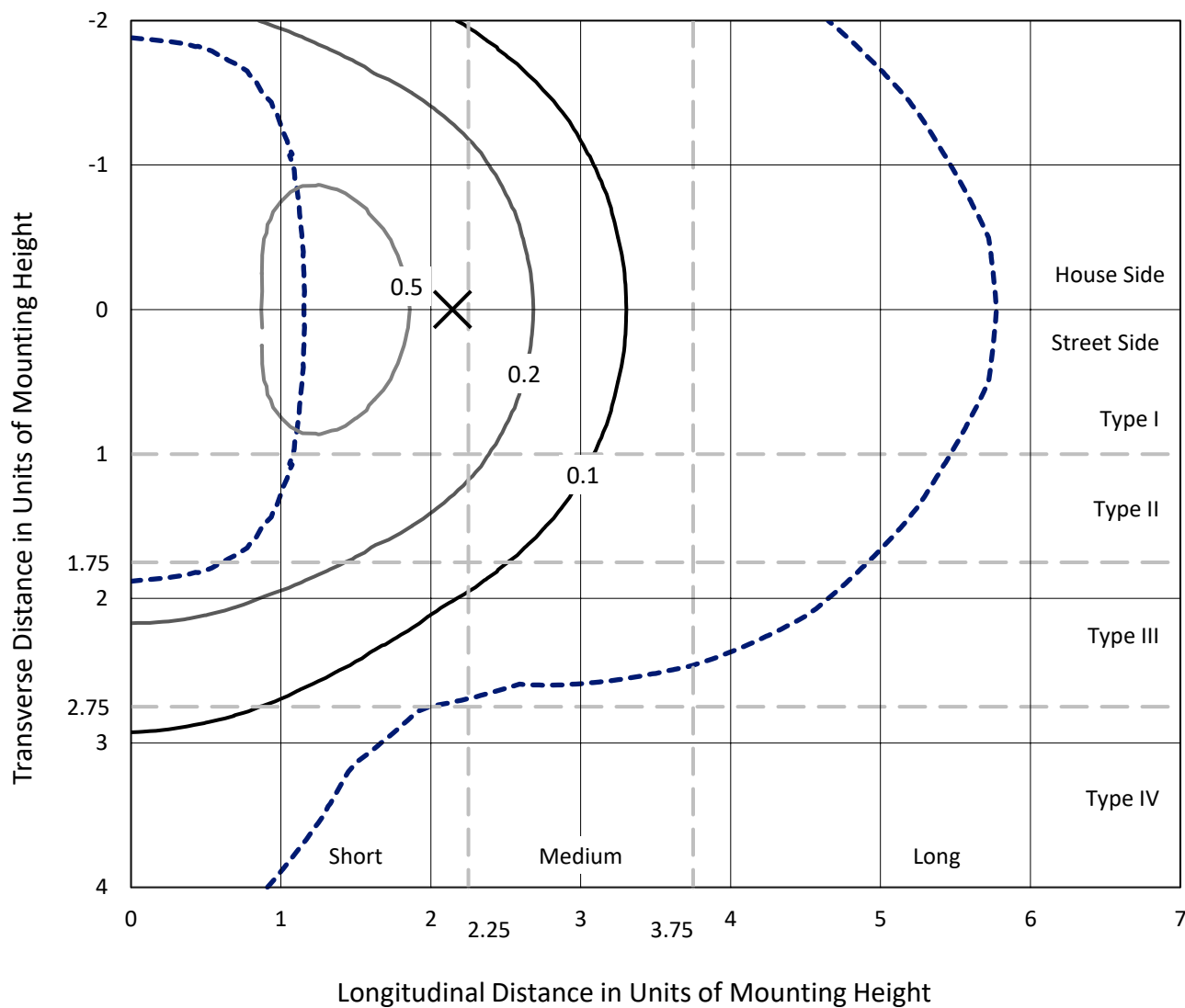
REPORT NUMBER: P413329

CATALOG NUMBER: TT-D5-735-U-RW-PM

Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd

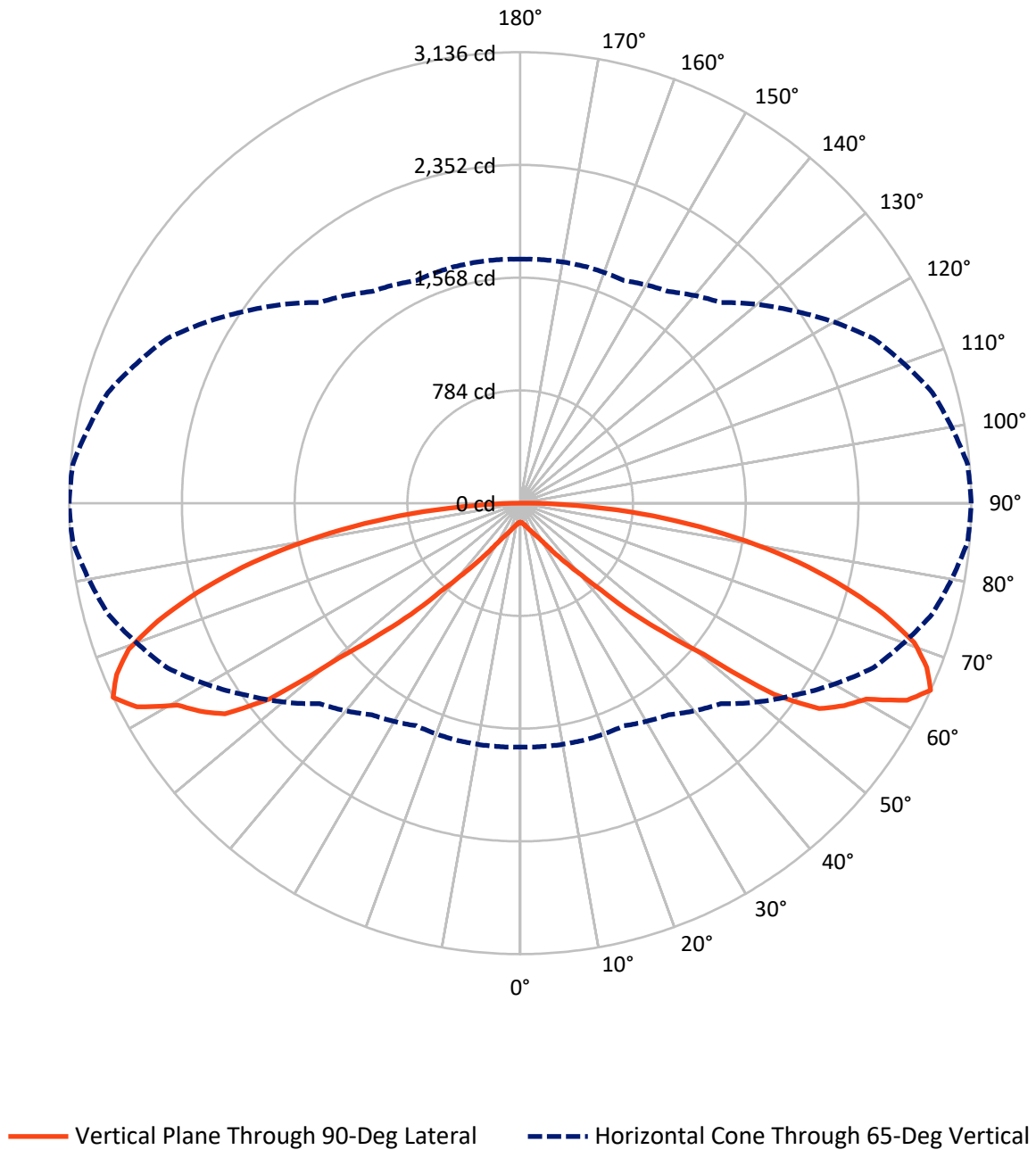
--- 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.8 fc
 Type IV - Short - N/A

REPORT NUMBER: P413329
CATALOG NUMBER: TT-D5-735-U-RW-PM

Luminous Intensity Polar Plot



REPORT NUMBER: P413329

CATALOG NUMBER: TT-D5-735-U-RW-PM

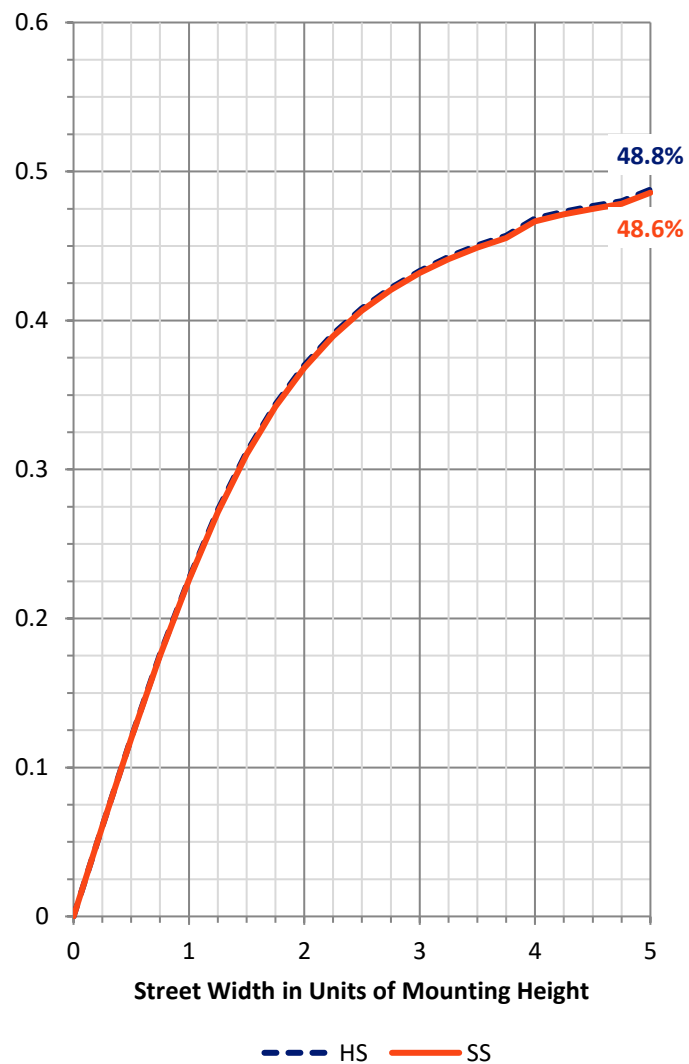
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3599.0	0.0	3599.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3599.0	0.0	3599.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	7198.0	0.0	7198.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.7	0.2
10°-20°	51.3	0.7
20°-30°	118.6	1.6
30°-40°	268.2	3.7
40°-50°	653.3	9.1
50°-60°	1469.0	20.4
60°-70°	2147.0	29.8
70°-80°	1870.8	26.0
80°-90°	606.0	8.4
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°	7198.0	100.0
0°-180°	7198.0	100.0

Coefficient of Utilization



REPORT NUMBER: P413329

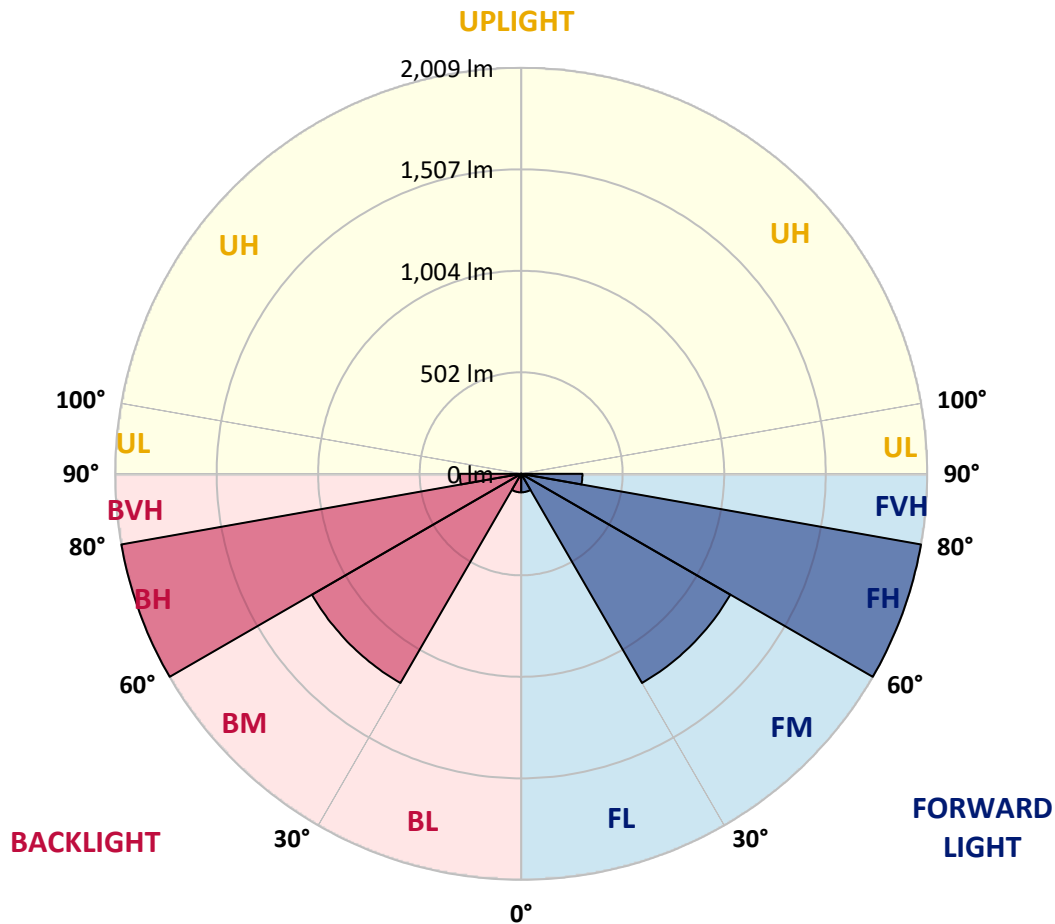
CATALOG NUMBER: TT-D5-735-U-RW-PM

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	91.8	1.3			
FM	(30°-60°)	1195.3	16.6			
FH	(60°-80°)	2008.9	27.9			G2/5000
FVH	(80°-90°)	303.0	4.2			G3/500
BL	(0°-30°)	91.8	1.3	B0/110		
BM	(30°-60°)	1195.3	16.6	B2/2500		
BH	(60°-80°)	2008.9	27.9	B3/2500		G3/2500
BVH	(80°-90°)	303.0	4.2			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type IV Short



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CATALOG NUMBER: TT-D5-735-U-RW-PM

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5
2.5°	133.2	133.2	134.9	134.9	134.9	134.9	134.9	134.9	134.9	134.9	134.9
5°	138.3	138.3	138.3	138.3	140.0	140.0	138.3	138.3	138.3	138.3	138.3
7.5°	146.9	145.2	146.9	146.9	146.9	145.2	145.2	145.2	143.5	143.5	143.5
10°	155.4	155.4	157.1	155.4	155.4	153.7	153.7	153.7	152.0	152.0	152.0
12.5°	167.4	167.4	167.4	167.4	165.7	165.7	164.0	162.3	160.5	160.5	160.5
15°	182.7	181.0	181.0	179.3	177.6	175.9	174.2	174.2	172.5	172.5	172.5
17.5°	198.1	198.1	196.4	194.7	191.3	189.6	189.6	187.9	186.2	186.2	186.2
20°	216.9	216.9	215.2	211.8	208.4	206.7	204.9	204.9	203.2	203.2	203.2
22.5°	239.1	237.4	234.0	230.6	227.2	225.4	223.7	222.0	222.0	222.0	222.0
25°	263.0	261.3	259.6	254.5	249.4	247.6	244.2	244.2	242.5	244.2	244.2
27.5°	292.1	290.3	286.9	281.8	275.0	271.6	269.8	269.8	271.6	271.6	273.3
30°	327.9	324.5	321.1	314.3	307.4	302.3	302.3	304.0	309.1	312.5	312.5
32.5°	370.6	368.9	363.8	357.0	345.0	341.6	345.0	355.2	362.1	367.2	370.6
35°	420.1	418.4	411.6	399.6	391.1	389.4	399.6	416.7	438.9	445.8	449.2
37.5°	474.8	476.5	468.0	454.3	445.8	449.2	469.7	502.1	524.3	539.7	543.1
40°	543.1	546.5	536.3	520.9	512.4	526.0	558.5	596.1	635.3	654.1	659.3
42.5°	623.4	628.5	614.8	599.5	594.4	616.6	662.7	724.2	794.2	816.4	824.9
45°	722.4	725.9	708.8	695.1	691.7	731.0	809.5	912.0	1023.0	1074.3	1082.8
47.5°	840.3	838.6	823.2	806.1	809.5	865.9	983.8	1122.1	1239.9	1318.5	1335.6
50°	975.2	966.7	954.7	934.2	956.4	1038.4	1187.0	1354.4	1552.5	1622.5	1653.2
52.5°	1110.1	1094.8	1084.5	1070.9	1110.1	1216.0	1424.4	1716.4	2015.3	2175.9	2208.3
55°	1231.4	1219.4	1214.3	1216.0	1277.5	1429.5	1702.8	2076.8	2365.4	2498.7	2522.6
57.5°	1351.0	1344.1	1339.0	1349.2	1446.6	1644.7	1952.1	2302.3	2539.7	2638.7	2655.8
60°	1463.7	1470.5	1467.1	1497.8	1615.7	1815.5	2081.9	2426.9	2655.8	2746.3	2765.1
62.5°	1588.3	1593.5	1593.5	1627.6	1723.3	1899.2	2170.7	2573.8	2864.2	2997.4	3017.9
65°	1695.9	1699.4	1706.2	1707.9	1796.7	1972.6	2327.9	2708.7	2968.3	3122.0	3135.7
67.5°	1776.2	1779.6	1771.1	1762.6	1830.9	1989.7	2315.9	2691.7	2922.2	3038.4	3048.6
70°	1841.1	1825.7	1801.8	1759.1	1781.3	1900.9	2216.9	2555.0	2787.3	2891.5	2906.9
72.5°	1849.7	1836.0	1760.8	1665.2	1637.9	1742.1	2042.7	2346.7	2546.5	2645.5	2647.2
75°	1798.4	1762.6	1637.9	1494.4	1443.2	1542.2	1800.1	2076.8	2237.4	2321.0	2329.6
77.5°	1625.9	1591.8	1434.6	1270.7	1212.6	1298.0	1516.6	1740.4	1894.1	1976.0	1981.2
80°	1320.2	1308.3	1164.8	1014.5	944.5	994.0	1185.3	1361.2	1485.9	1583.2	1591.8
82.5°	973.5	963.3	854.0	722.4	666.1	707.1	843.7	973.5	1089.6	1168.2	1173.3
85°	608.0	587.5	519.2	427.0	389.4	416.7	507.2	594.4	698.5	760.0	763.4
87.5°	203.2	194.7	167.4	138.3	116.1	121.3	148.6	181.0	264.7	292.1	309.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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 families of products including TT-D* and TTN-D*

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	CRI (Ra):	73.9		
CIE u':	0.2365	R1:	71.3	R9:	-18.0
CIE v':	0.5180	R2:	80.3	R10:	53.1
Duv:	0.0036	R3:	87.8	R11:	68.6
CIE x:	0.4148	R4:	73.2	R12:	42.6
CIE y:	0.4038	R5:	69.8	R13:	72.5
CIE z:	0.1814	R6:	71.8	R14:	92.7
Peak Wavelength (nm):	596	R7:	82.8	R15:	64.3
Dominant Wavelength (nm):	579	R8:	54.1		
Purity:	45.70672				
Rf:	76.6				
Rg:	95.4				



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

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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 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			

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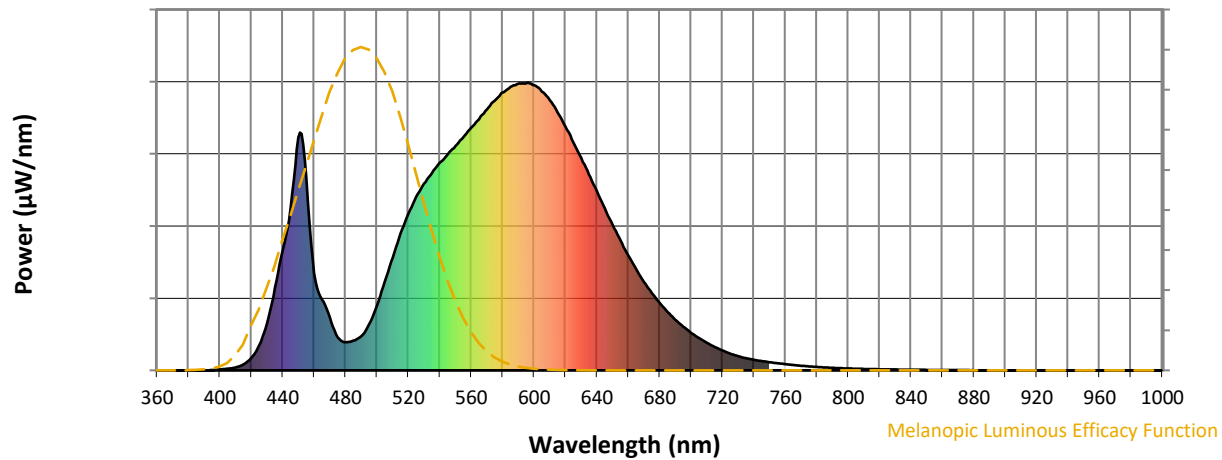
Scotopic Flux vs. Wavelength


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			

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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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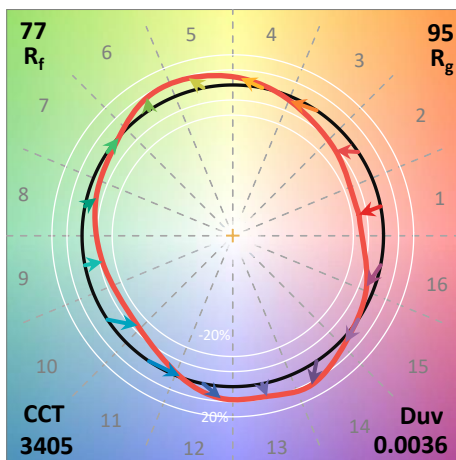
TM-30-18

Summary

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

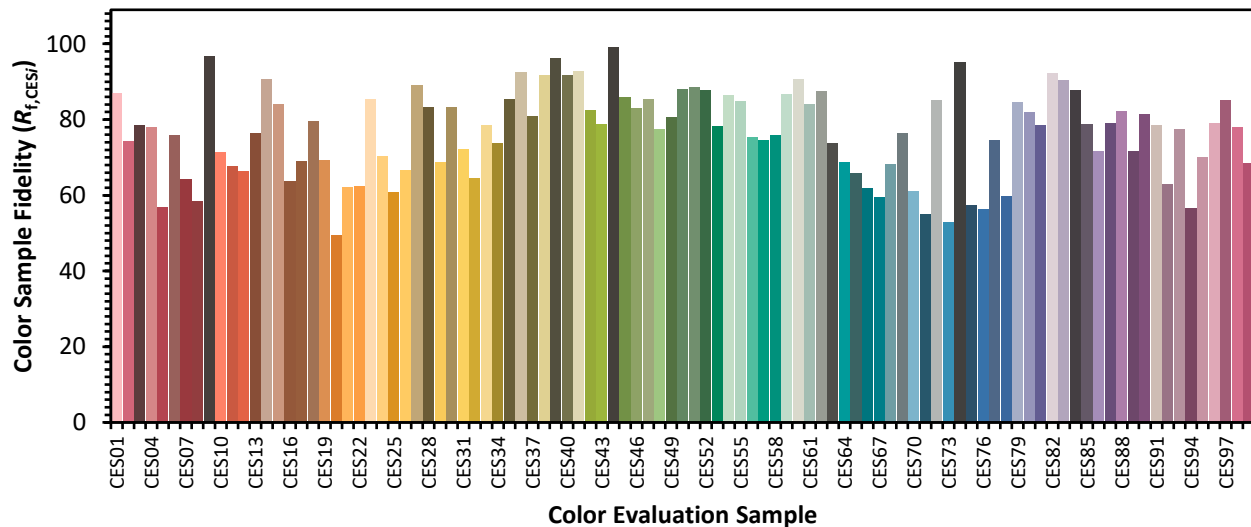


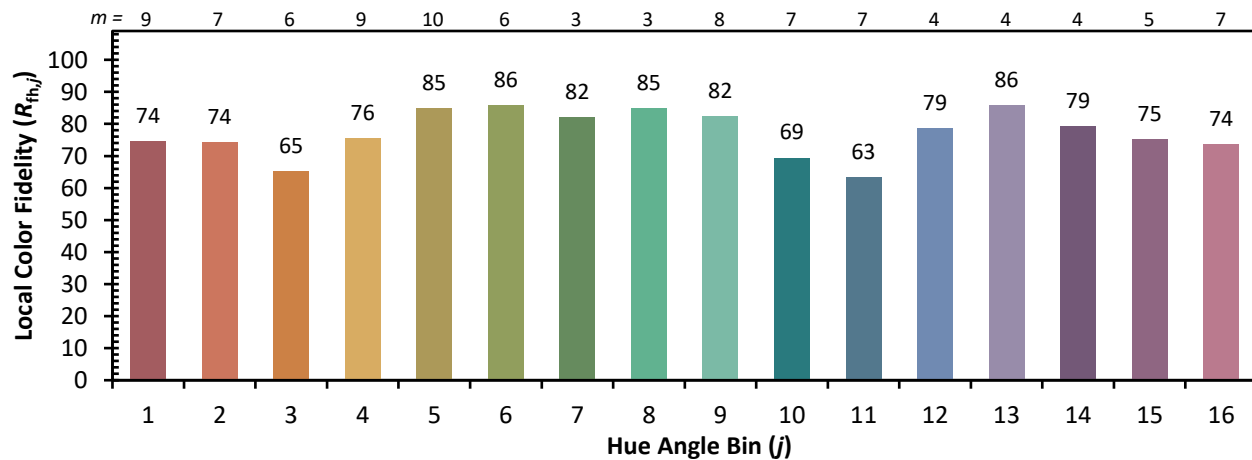
Color Vector Graphics



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	



Color Rendition by Hue-Angle Bin


Measure Comparisons



(END OF REPORT)