

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: P400620

Luminaire Tested: **TT-D3-735-U-CQ**

Issue Date: 5/19/2020

Test Information

Test Method: LM-79-08
Report Number: P400620
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-17)
Test Lab: INNOVATION CENTER
Issue Date: 5/19/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D3-735-U-CQ
Description: TOPTIER LED PARKING GARAGE LUMINAIRE
3500K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5940 lumens
Efficiency: N/A
Efficacy: 125.8 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short - Full Cutoff
BUG Rating: B2 - U0 - G1

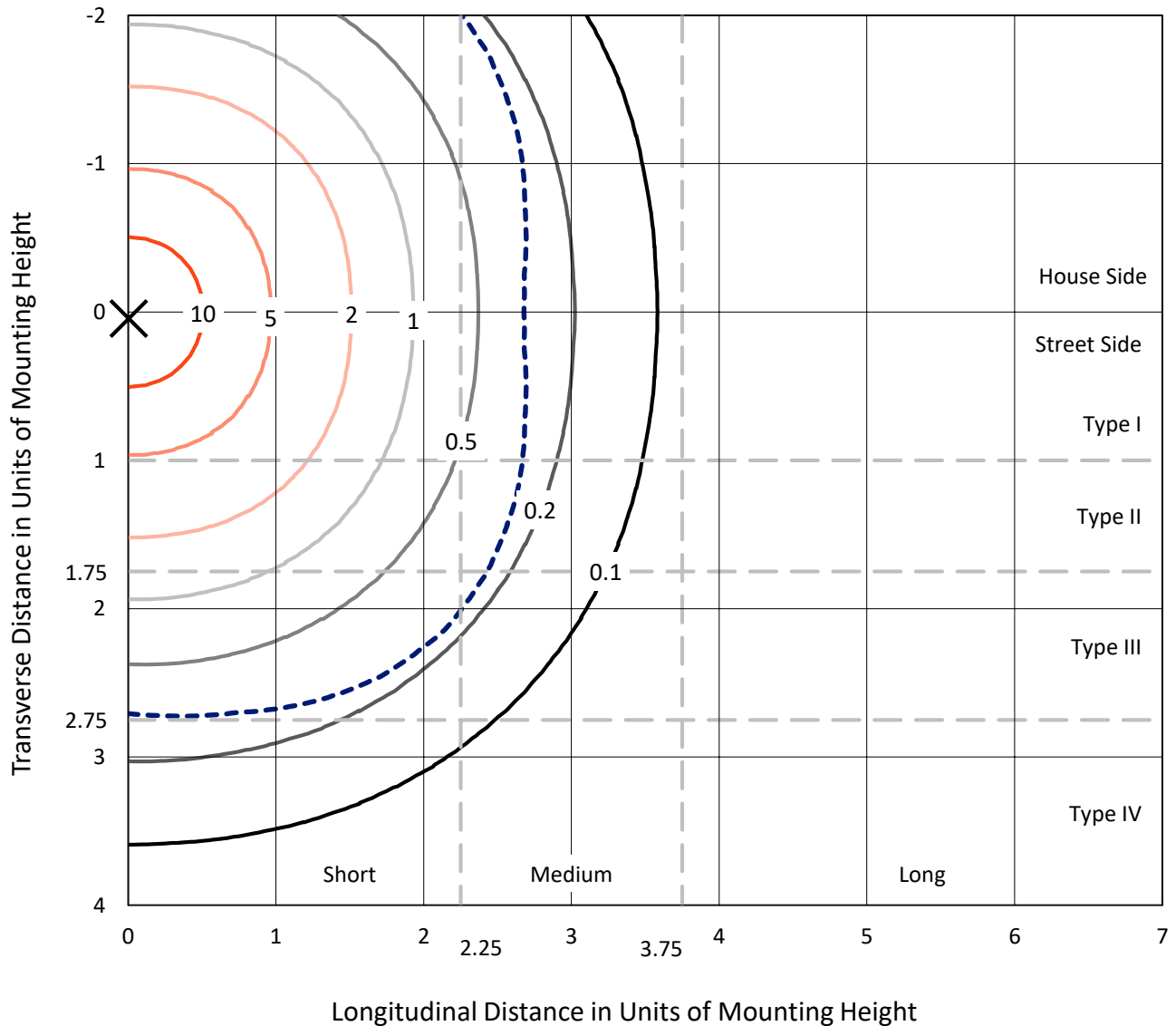
Input Watts (W): 47.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



REPORT NUMBER: P400620
 CATALOG NUMBER: TT-D3-735-U-CQ

Iso-Footcandle Lines of Horizontal Illumination

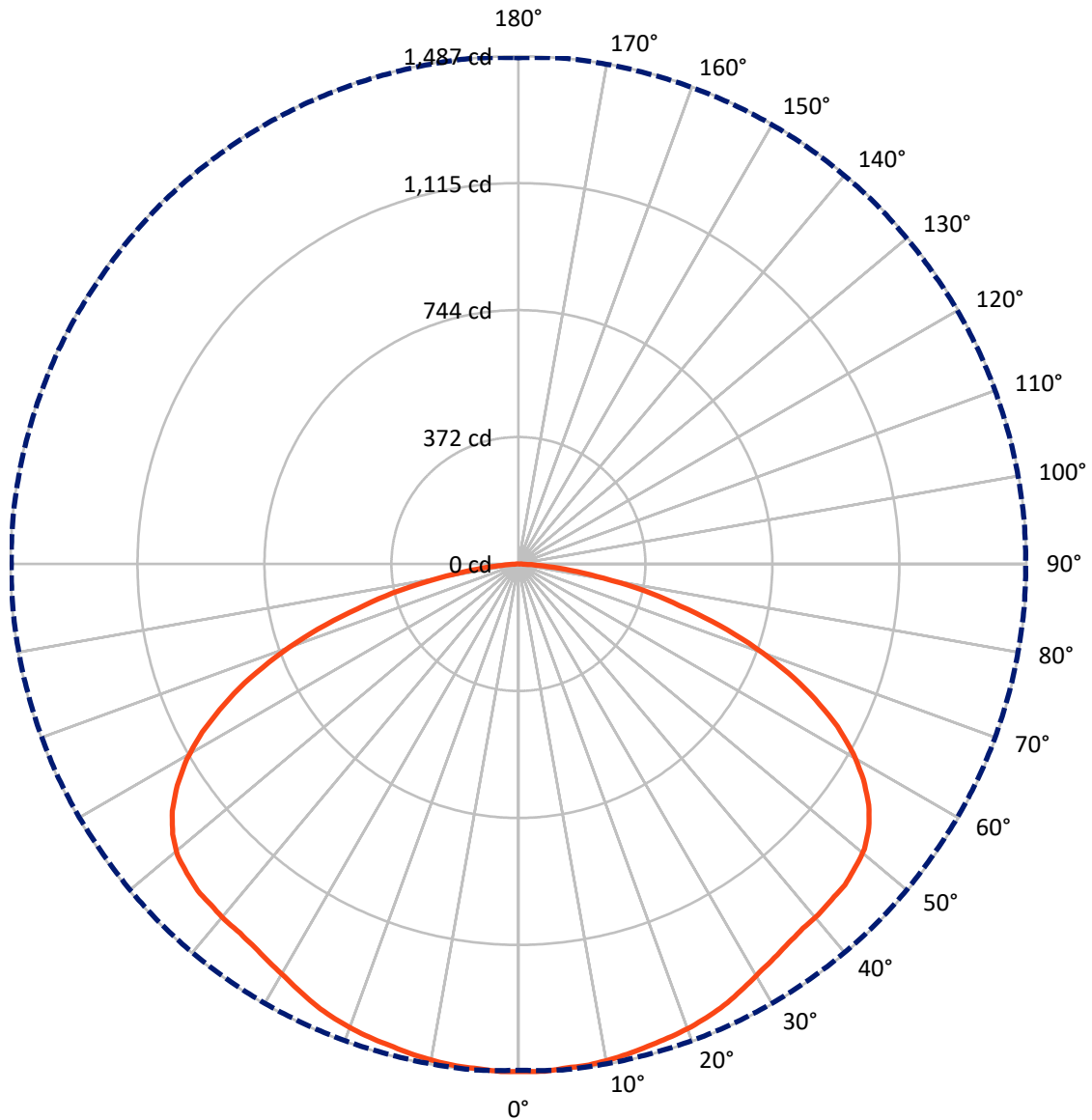
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 14.9 fc
 Type V - Short - Full Cutoff

REPORT NUMBER: P400620
CATALOG NUMBER: TT-D3-735-U-CQ

Luminous Intensity Polar Plot



— Vertical Plane Through 5-Deg Lateral - - - Horizontal Cone Through 2.5-Deg Vertical

REPORT NUMBER: P400620

CATALOG NUMBER: TT-D3-735-U-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2970.0	0.0	2970.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2970.0	0.0	2970.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	5940.0	0.0	5940.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	141.3	2.4
10°-20°	413.9	7.0
20°-30°	658.2	11.1
30°-40°	865.9	14.6
40°-50°	1059.8	17.8
50°-60°	1147.9	19.3
60°-70°	987.6	16.6
70°-80°	555.2	9.3
80°-90°	110.1	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°	5940.0	100.0
0°-180°	5940.0	100.0



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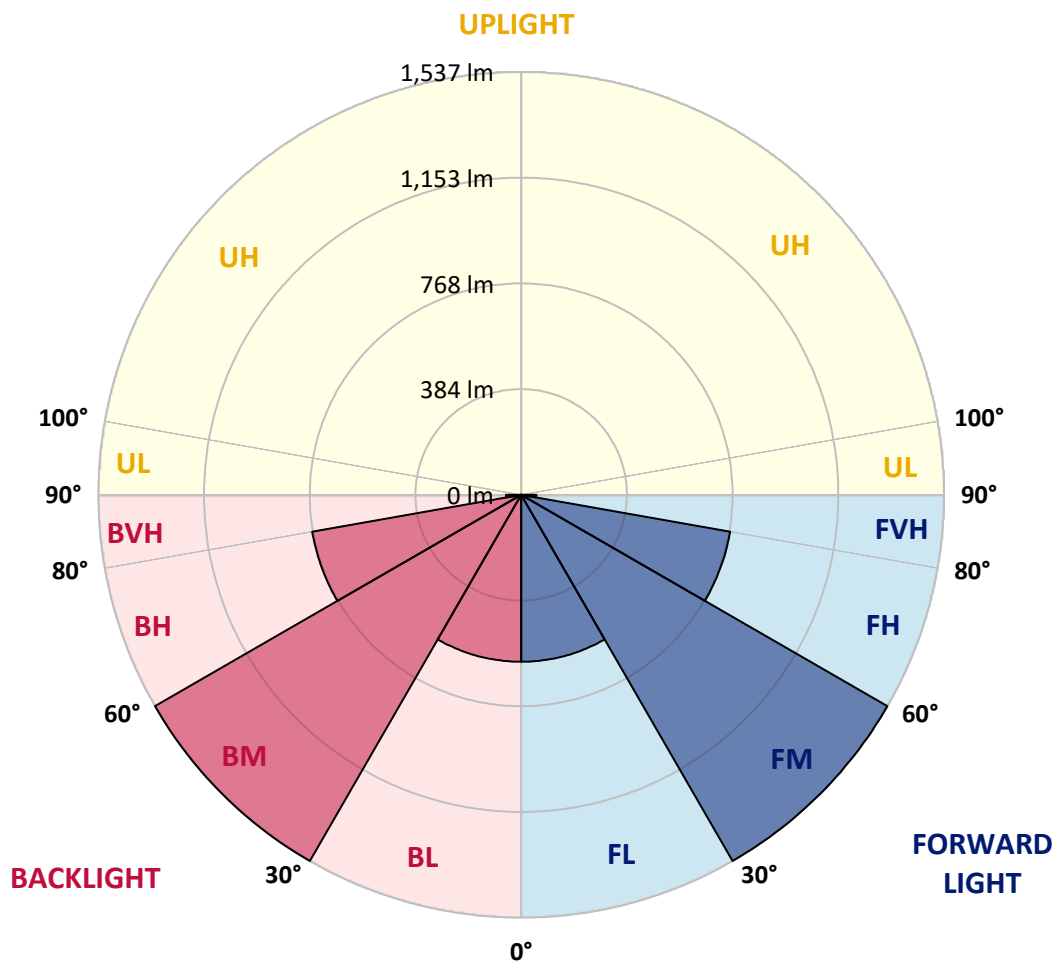
CATALOG NUMBER: TT-D3-735-U-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	606.7	10.2			
FM	(30°-60°)	1536.8	25.9			
FH	(60°-80°)	771.4	13.0			G1/1800
FVH	(80°-90°)	55.0	0.9			G1/100
BL	(0°-30°)	606.7	10.2	B2/1000		
BM	(30°-60°)	1536.8	25.9	B2/2500		
BH	(60°-80°)	771.4	13.0	B2/1000		G1/1800
BVH	(80°-90°)	55.0	0.9			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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CATALOG NUMBER: TT-D3-735-U-CQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1486.0	1486.0	1486.0	1486.0	1486.0	1486.0	1486.0	1486.0	1486.0	1486.0	1486.0
2.5°	1482.2	1487.0	1485.1	1485.1	1485.1	1485.1	1483.2	1485.1	1485.1	1486.0	1485.1
5°	1483.2	1482.2	1482.2	1483.2	1483.2	1484.1	1482.2	1483.2	1484.1	1484.1	1485.1
7.5°	1480.3	1481.3	1479.4	1481.3	1479.4	1480.3	1480.3	1481.3	1480.3	1481.3	1483.2
10°	1474.7	1475.6	1474.7	1474.7	1474.7	1476.6	1472.8	1475.6	1474.7	1475.6	1474.7
12.5°	1464.3	1469.0	1467.1	1469.0	1469.0	1469.0	1466.2	1468.1	1469.0	1469.0	1469.0
15°	1459.5	1460.5	1457.7	1461.4	1462.4	1463.3	1459.5	1461.4	1461.4	1462.4	1463.3
17.5°	1449.1	1453.9	1452.9	1455.8	1454.8	1457.7	1456.7	1455.8	1454.8	1456.7	1454.8
20°	1441.6	1446.3	1445.4	1448.2	1449.1	1452.0	1449.1	1449.1	1446.3	1447.3	1450.1
22.5°	1434.0	1435.9	1435.9	1438.7	1438.7	1441.6	1438.7	1437.8	1437.8	1436.9	1439.7
25°	1421.7	1422.7	1421.7	1424.6	1426.5	1428.4	1427.4	1425.5	1424.6	1424.6	1423.6
27.5°	1401.9	1405.7	1407.6	1411.3	1412.3	1415.1	1411.3	1411.3	1409.4	1407.6	1408.5
30°	1386.8	1388.6	1388.6	1397.2	1397.2	1401.9	1397.2	1396.2	1395.3	1394.3	1392.4
32.5°	1372.6	1375.4	1378.2	1384.9	1389.6	1391.5	1388.6	1386.8	1382.0	1379.2	1378.2
35°	1361.2	1362.2	1367.9	1377.3	1383.0	1387.7	1383.9	1379.2	1372.6	1367.9	1371.6
37.5°	1352.7	1353.7	1362.2	1374.5	1384.9	1388.6	1383.0	1375.4	1365.0	1359.3	1357.5
40°	1345.2	1350.8	1360.3	1377.3	1388.6	1394.3	1389.6	1379.2	1364.1	1352.7	1351.8
42.5°	1341.4	1344.2	1358.4	1378.2	1394.3	1401.9	1395.3	1381.1	1362.2	1348.9	1348.0
45°	1331.9	1340.4	1353.7	1379.2	1397.2	1406.6	1397.2	1379.2	1356.5	1341.4	1338.5
47.5°	1324.4	1327.2	1348.0	1377.3	1399.0	1406.6	1397.2	1374.5	1346.1	1326.3	1324.4
50°	1306.4	1313.0	1333.8	1365.0	1390.5	1398.1	1386.8	1356.5	1324.4	1302.6	1298.8
52.5°	1279.0	1284.7	1309.2	1348.0	1372.6	1381.1	1364.1	1331.9	1294.1	1267.6	1267.6
55°	1236.5	1245.0	1270.5	1310.2	1341.4	1348.9	1329.1	1295.1	1252.5	1226.1	1225.1
57.5°	1185.4	1191.1	1218.5	1262.0	1292.2	1303.6	1283.7	1245.9	1203.4	1172.2	1169.3
60°	1119.2	1126.8	1156.1	1197.7	1228.9	1238.3	1221.3	1183.5	1140.0	1106.9	1106.9
62.5°	1039.8	1048.3	1077.6	1120.2	1152.3	1166.5	1142.9	1106.9	1061.6	1029.4	1026.6
65°	947.2	954.8	981.2	1025.7	1058.7	1069.1	1051.2	1013.4	969.9	939.6	936.8
67.5°	843.2	853.6	880.1	917.9	946.2	959.5	948.1	914.1	868.7	837.5	834.7
70°	730.7	738.3	759.1	794.1	826.2	835.6	818.6	795.9	753.4	725.0	721.3
72.5°	610.7	617.3	634.3	667.4	690.1	702.4	692.9	663.6	629.6	605.9	609.7
75°	489.7	488.7	507.6	531.3	552.1	560.6	553.9	535.0	503.8	484.0	483.0
77.5°	368.7	378.1	384.7	404.6	421.6	428.2	418.8	403.6	380.0	363.9	366.8
80°	259.0	253.3	265.6	277.9	289.3	295.9	290.2	281.7	265.6	253.3	251.5
82.5°	158.8	154.1	159.8	171.1	178.7	180.6	181.5	171.1	164.5	155.0	156.9
85°	70.0	70.9	75.6	83.2	84.1	85.1	85.1	83.2	75.6	74.7	72.8
87.5°	17.0	17.0	18.0	20.8	20.8	21.7	21.7	18.9	18.0	16.1	17.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
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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 families of products including TT-xx-735 and TTN-xx-735

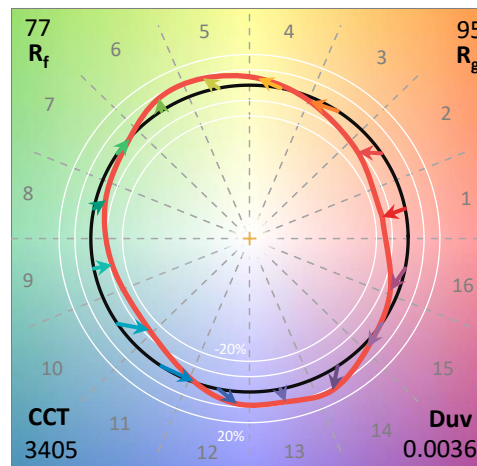
Test Information

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



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			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.47

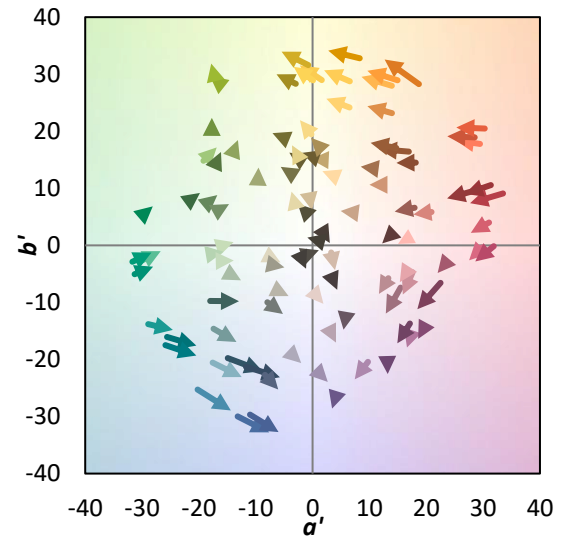
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	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			

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 ($R_{f,i}$)

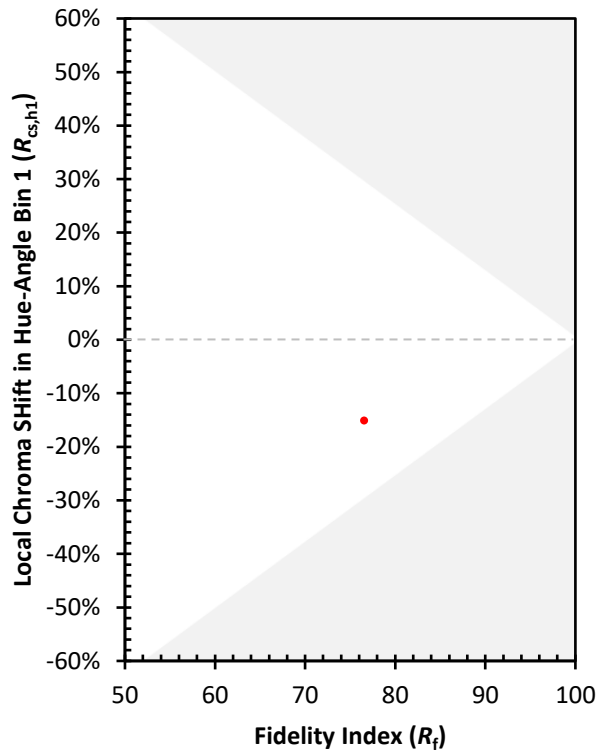
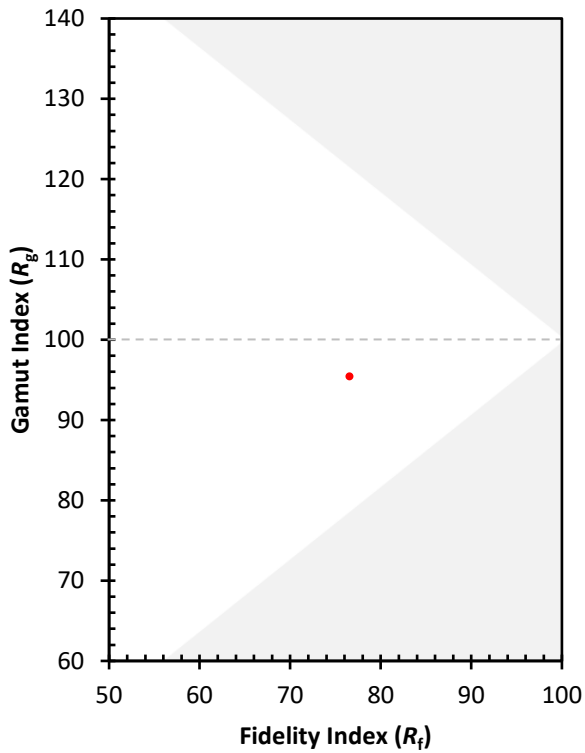
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 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)