

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P904602

Luminaire Tested: DFN2DIP-TR4F0-050D100US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904602
REPORT IS A COMBINATION OF REPORTS P900479 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D100US830-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

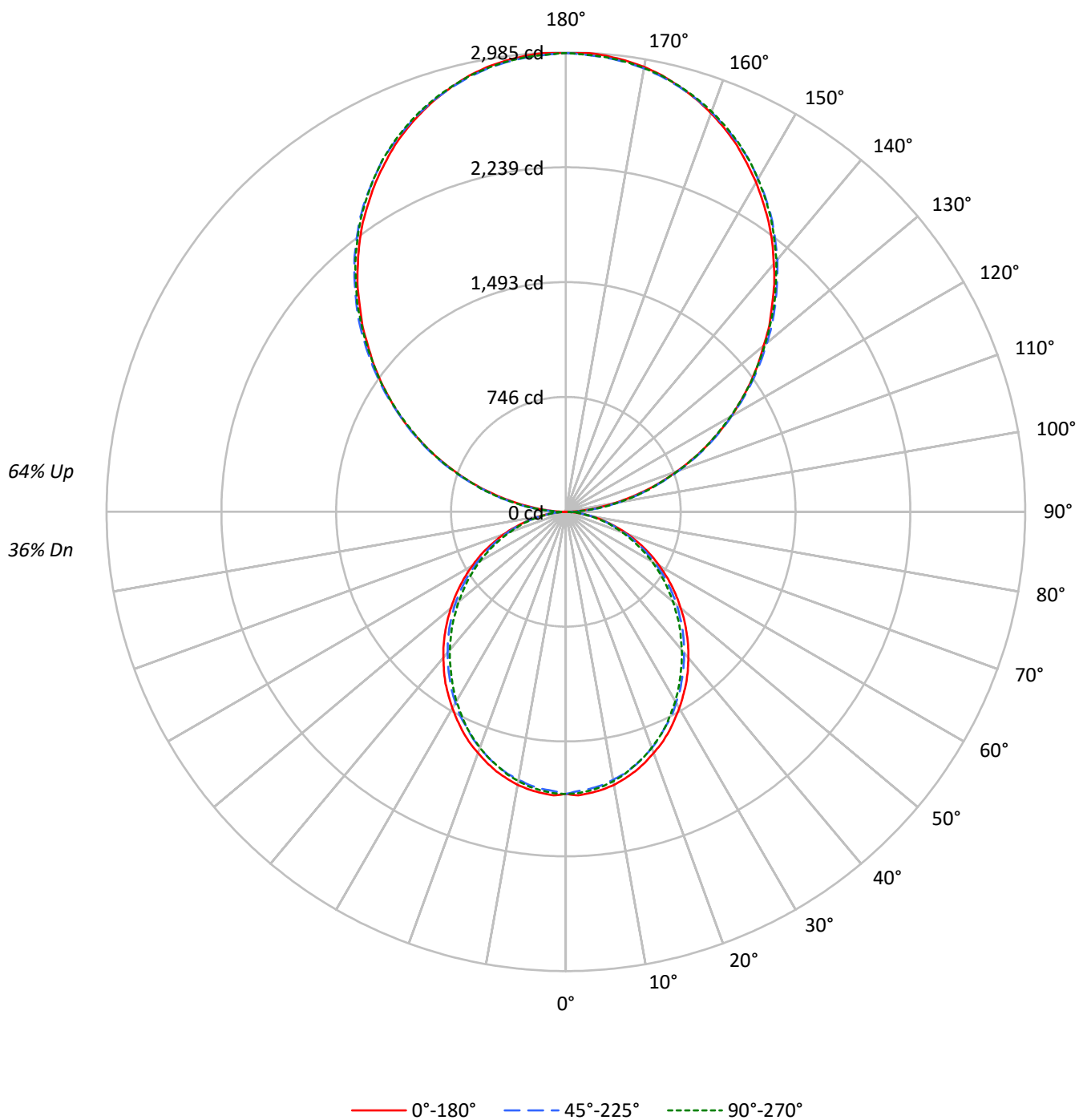
Lumens per Lamp: N/A
Luminaire Lumens: 13007.1 lumens
Efficiency: N/A
Efficacy: 110.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 118.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1457	1457	1457
5°	1459	1436	1446
10°	1447	1417	1426
15°	1426	1394	1396
20°	1397	1361	1365
25°	1369	1323	1328
30°	1333	1286	1282
35°	1299	1244	1233
40°	1257	1201	1187
45°	1215	1158	1140
50°	1170	1113	1084
55°	1122	1060	1034
60°	1068	998	976
65°	1009	934	908
70°	935	856	834
75°	830	762	766
80°	706	642	637
85°	511	435	422

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2324 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	1.3
10°-20°	485.6	3.7
20°-30°	713.7	5.5
30°-40°	828.9	6.4
40°-50°	827.8	6.4
50°-60°	721.8	5.5
60°-70°	533.6	4.1
70°-80°	301.9	2.3
80°-90°	88.1	0.7
90°-100°	184.5	1.4
100°-110°	586.1	4.5
110°-120°	1003.0	7.7
120°-130°	1319.1	10.1
130°-140°	1480.6	11.4
140°-150°	1451.9	11.2
150°-160°	1217.9	9.4
160°-170°	807.7	6.2
170°-180°	282.3	2.2
0°-30°	1371.9	10.5
0°-40°	2200.7	16.9
0°-60°	3750.4	28.8
0°-90°	4674.1	35.9
90°-120°	1773.5	13.6
90°-150°	6025.1	46.3
90°-180°	8333.0	64.1
0°-180°	13007.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1834	1834	1834	1834	1834	
5°	1834	1827	1807	1821	1818	174
15°	1746	1735	1712	1719	1710	492
25°	1580	1566	1536	1539	1536	727
35°	1363	1346	1317	1307	1298	851
45°	1109	1097	1070	1051	1044	856
55°	839	829	808	786	778	750
65°	566	555	538	522	513	560
75°	296	293	284	273	277	316
85°	72	70	69	63	62	81
90°	3	32	88	83	85	13
95°	131	156	161	161	156	146
105°	541	548	554	558	558	571
115°	1006	1021	1016	1014	1006	996
125°	1464	1486	1479	1471	1468	1308
135°	1894	1921	1927	1924	1917	1464
145°	2299	2317	2331	2334	2324	1436
155°	2629	2636	2644	2656	2648	1210
165°	2860	2857	2857	2875	2862	807
175°	2976	2968	2963	2981	2966	283
180°	2981	2981	2981	2981	2981	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.7	1833.7	1833.7	1833.7	1833.7
2.5°	1844.4	1835.6	1816.2	1833.7	1830.4
5°	1833.7	1826.8	1807.3	1821.4	1818.1
7.5°	1821.4	1810.9	1791.5	1805.7	1802.1
10°	1802.1	1789.8	1768.7	1782.6	1777.4
12.5°	1775.6	1765.1	1744.0	1752.8	1749.2
15°	1745.6	1735.1	1712.1	1719.3	1710.4
17.5°	1708.5	1698.1	1675.1	1683.9	1675.1
20°	1668.0	1657.6	1632.9	1638.0	1631.2
22.5°	1627.6	1611.7	1588.7	1588.7	1585.1
25°	1579.9	1565.8	1535.9	1539.3	1535.9
27.5°	1526.9	1514.6	1491.8	1486.5	1477.7
30°	1474.1	1460.0	1433.6	1428.3	1421.3
32.5°	1417.7	1407.2	1378.9	1368.3	1361.2
35°	1363.0	1345.5	1317.2	1306.6	1297.8
37.5°	1301.3	1285.4	1257.2	1244.8	1236.0
40°	1237.9	1223.7	1195.4	1179.7	1172.6
42.5°	1176.2	1162.0	1133.9	1116.1	1105.6
45°	1109.2	1096.8	1070.3	1051.0	1043.9
47.5°	1043.9	1031.5	1003.3	983.8	973.4
50°	975.1	966.3	941.6	916.9	908.0
52.5°	908.0	895.7	872.9	853.5	841.1
55°	839.4	828.8	807.6	786.5	777.7
57.5°	770.5	761.8	738.8	717.7	710.5
60°	701.7	694.8	670.1	650.6	645.5
62.5°	634.8	622.5	604.8	587.2	580.1
65°	566.1	555.4	537.8	522.0	513.1
67.5°	495.6	486.6	470.9	458.5	451.4
70°	430.3	423.2	407.3	394.9	388.0
72.5°	363.4	356.2	347.4	335.1	329.8
75°	296.1	292.8	283.8	273.3	276.9
77.5°	236.3	229.1	225.6	220.4	215.2
80°	176.4	174.6	171.0	165.8	162.2
82.5°	119.9	119.9	118.2	111.1	111.1
85°	72.2	70.5	68.8	63.4	61.7
87.5°	31.8	28.3	24.7	19.4	17.6
90°	2.7	32.3	88.0	82.7	85.4
92.5°	55.7	75.5	78.2	80.9	80.9
95°	131.2	156.4	160.9	160.9	156.4
97.5°	218.4	241.8	251.7	251.7	251.7
100°	319.1	339.7	346.9	346.9	344.2
102.5°	425.1	440.4	450.3	452.9	450.3
105°	541.0	548.2	553.6	558.1	558.1
107.5°	656.0	666.8	666.8	668.6	656.0
110°	767.5	781.8	781.8	781.8	774.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	887.9	903.1	900.5	893.2	887.9
115°	1006.5	1020.9	1016.4	1013.7	1006.5
117.5°	1124.3	1144.1	1131.4	1124.3	1117.0
120°	1242.8	1262.6	1242.8	1242.8	1234.8
122.5°	1350.7	1375.8	1363.3	1356.1	1350.7
125°	1464.0	1486.4	1479.2	1471.1	1468.5
127.5°	1574.5	1602.3	1592.4	1581.7	1574.5
130°	1677.8	1710.1	1705.7	1700.3	1690.4
132.5°	1793.8	1818.9	1820.7	1808.2	1800.9
135°	1893.5	1921.4	1926.7	1924.1	1916.8
137.5°	2005.0	2027.4	2031.9	2030.1	2019.3
140°	2102.9	2125.3	2138.0	2138.0	2128.1
142.5°	2203.6	2226.0	2233.2	2235.9	2226.0
145°	2298.8	2316.8	2331.2	2333.8	2323.9
147.5°	2384.2	2406.7	2417.4	2422.0	2412.1
150°	2472.3	2487.6	2497.5	2505.5	2497.5
152.5°	2550.4	2565.7	2578.3	2588.2	2578.3
155°	2628.7	2635.8	2643.9	2656.5	2648.4
157.5°	2696.0	2701.4	2705.9	2723.9	2711.3
160°	2756.3	2761.6	2764.3	2779.6	2768.8
162.5°	2812.0	2812.0	2814.6	2831.7	2819.1
165°	2859.6	2856.8	2856.8	2874.8	2862.3
167.5°	2902.7	2894.6	2894.6	2912.6	2900.0
170°	2935.1	2927.9	2925.2	2943.2	2927.9
172.5°	2957.5	2950.3	2947.6	2965.6	2950.3
175°	2975.5	2968.3	2963.0	2980.9	2965.6
177.5°	2985.4	2978.2	2972.8	2988.0	2972.8
180°	2980.9	2980.9	2980.9	2980.9	2980.9

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	7.11	7.86	8.18	8.93	10.39	6.68	7.43	7.75	8.50	9.96
	3H	8.76	9.43	9.84	10.51	11.99	8.29	8.96	9.37	10.04	11.52
	4H	9.34	9.98	10.43	11.06	12.54	8.87	9.51	9.96	10.59	12.07
	6H	9.74	10.32	10.84	11.41	12.90	9.26	9.85	10.36	10.93	12.43
	8H	9.84	10.40	10.94	11.50	12.98	9.36	9.92	10.47	11.02	12.51
	12H	9.88	10.41	10.99	11.51	13.02	9.40	9.93	10.51	11.03	12.54
4H	2H	7.56	8.19	8.65	9.27	10.76	7.21	7.85	8.31	8.93	10.41
	3H	9.41	9.94	10.52	11.05	12.55	9.02	9.55	10.12	10.66	12.15
	4H	10.12	10.61	11.23	11.71	13.22	9.72	10.20	10.82	11.30	12.82
	6H	10.63	11.05	11.75	12.17	13.68	10.22	10.64	11.34	11.76	13.27
	8H	10.78	11.17	11.89	12.28	13.81	10.37	10.76	11.48	11.87	13.39
	12H	10.84	11.20	11.98	12.32	13.85	10.42	10.78	11.56	11.90	13.43
8H	4H	10.31	10.70	11.42	11.81	13.34	9.95	10.34	11.06	11.45	12.98
	6H	10.94	11.26	12.07	12.41	13.94	10.57	10.90	11.71	12.05	13.57
	8H	11.16	11.44	12.30	12.57	14.12	10.79	11.07	11.93	12.20	13.75
	12H	11.28	11.53	12.43	12.66	14.24	10.90	11.15	12.04	12.28	13.86
12H	4H	10.29	10.64	11.42	11.77	13.30	9.94	10.29	11.07	11.42	12.95
	6H	10.97	11.25	12.11	12.38	13.93	10.61	10.90	11.76	12.03	13.57
	8H	11.20	11.45	12.35	12.58	14.16	10.84	11.09	11.99	12.22	13.80