

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: P919642

Luminaire Tested: DFN2DIP-PN4F0-070D090US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919642
REPORT IS A COMBINATION OF REPORTS P899706 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D090US935-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

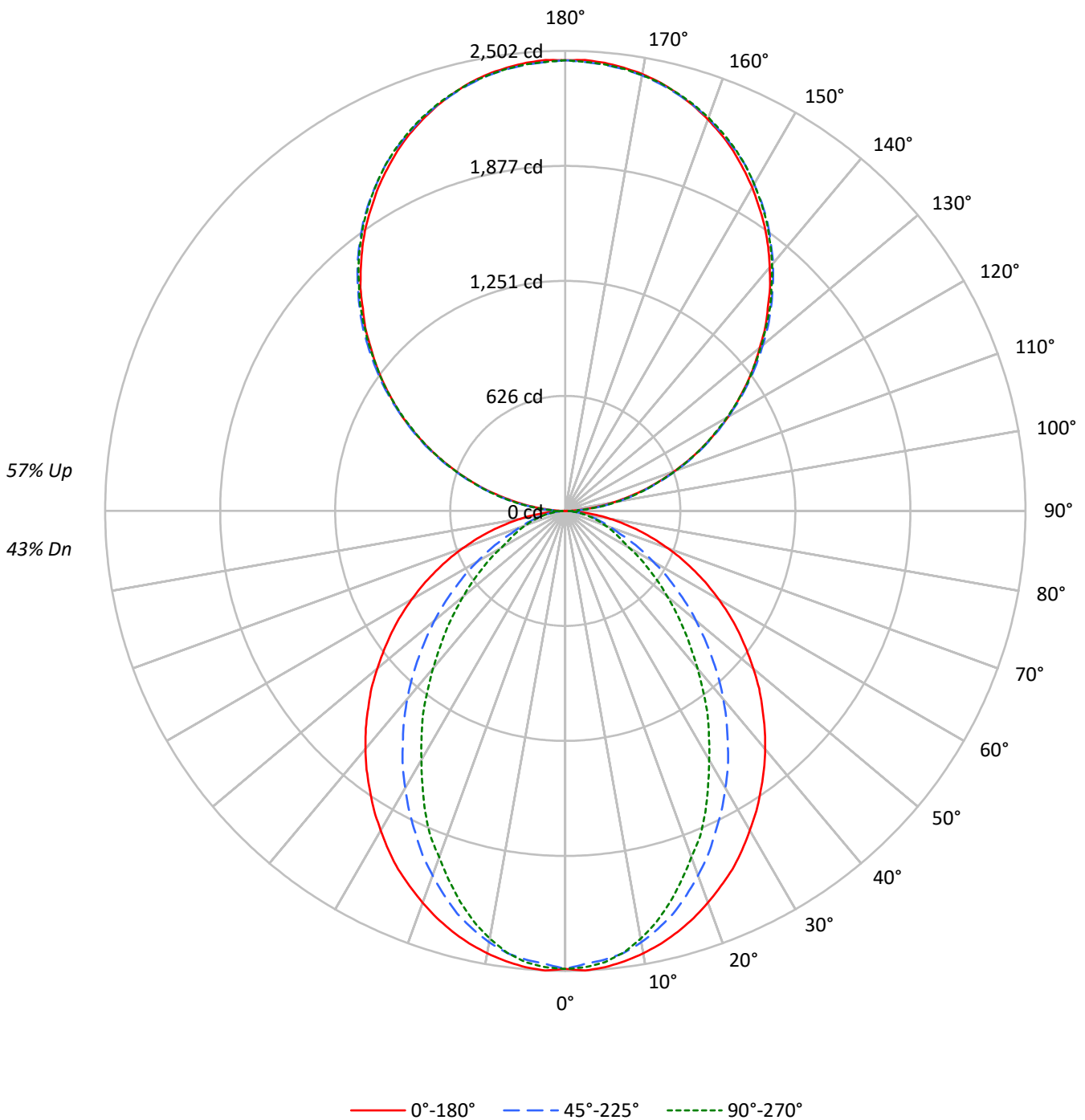
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11980.7 lumens
Efficiency: N/A
Efficacy: 89.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 133.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50	43				43
1	97	92	89	85	88	85	82	79	70	68	66	57	55	54	44	43	43	37				37
2	88	81	75	70	80	74	69	65	62	58	55	50	48	46	40	38	36	32				32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	35	33	32	27				27
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28	24				24
5	68	57	49	43	62	52	46	41	44	39	35	36	32	30	29	26	24	21				21
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	26	24	22	19				19
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19	17				17
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	19	17	15				15
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16	14				14
10	47	35	28	24	43	33	27	22	28	23	20	23	20	17	19	16	14	12				12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1818	1818	1818
5°	1821	1790	1801
10°	1803	1755	1743
15°	1778	1697	1653
20°	1746	1617	1542
25°	1712	1528	1435
30°	1667	1436	1299
35°	1622	1338	1179
40°	1577	1236	1042
45°	1525	1122	918
50°	1471	1008	797
55°	1415	886	680
60°	1349	758	560
65°	1274	628	504
70°	1183	507	457
75°	1068	447	417
80°	902	376	363
85°	629	252	275

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1919 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.5	1.9
10°-20°	640.9	5.3
20°-30°	899.8	7.5
30°-40°	980.8	8.2
40°-50°	901.5	7.5
50°-60°	708.0	5.9
60°-70°	460.8	3.8
70°-80°	237.2	2.0
80°-90°	67.5	0.6
90°-100°	151.6	1.3
100°-110°	481.8	4.0
110°-120°	824.6	6.9
120°-130°	1084.4	9.1
130°-140°	1217.2	10.2
140°-150°	1193.6	10.0
150°-160°	1001.3	8.4
160°-170°	664.0	5.5
170°-180°	232.1	1.9
0°-30°	1774.1	14.8
0°-40°	2754.9	23.0
0°-60°	4364.3	36.4
0°-90°	5129.9	42.8
90°-120°	1458.0	12.2
90°-150°	4953.4	41.3
90°-180°	6851.0	57.2
0°-180°	11980.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2491	2491	2491	2491	2491	
5°	2491	2480	2450	2471	2464	236
15°	2369	2344	2268	2225	2202	668
25°	2151	2078	1930	1837	1803	989
35°	1853	1738	1540	1398	1348	1160
45°	1515	1364	1127	967	913	1170
55°	1152	976	732	597	555	1029
65°	778	595	392	316	309	771
75°	415	257	180	164	162	439
85°	97	50	43	43	43	111
90°	2	27	72	68	70	12
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2491.0	2491.0	2491.0	2491.0	2491.0
2.5°	2502.1	2491.0	2466.1	2488.8	2484.2
5°	2491.0	2479.7	2450.3	2470.6	2463.9
7.5°	2470.6	2457.2	2425.7	2434.5	2423.3
10°	2443.6	2427.8	2382.8	2375.9	2362.5
12.5°	2409.8	2389.5	2328.6	2315.1	2290.3
15°	2369.2	2344.3	2267.8	2225.0	2202.5
17.5°	2321.9	2285.8	2191.1	2141.5	2105.4
20°	2267.8	2222.6	2110.0	2053.7	2004.0
22.5°	2209.2	2157.3	2026.4	1949.9	1916.2
25°	2150.6	2078.4	1929.6	1837.3	1803.4
27.5°	2080.8	2004.0	1839.4	1733.5	1681.6
30°	2006.4	1920.5	1740.2	1625.4	1564.4
32.5°	1934.1	1830.4	1645.7	1510.4	1453.9
35°	1853.0	1738.0	1539.8	1397.7	1348.0
37.5°	1774.2	1650.0	1440.5	1284.8	1228.6
40°	1690.7	1555.6	1336.7	1176.7	1118.1
42.5°	1605.1	1460.9	1233.1	1066.2	1010.0
45°	1514.9	1363.7	1127.2	967.0	912.9
47.5°	1429.3	1269.3	1025.8	865.6	816.1
50°	1334.5	1174.6	926.5	770.9	723.8
52.5°	1242.0	1072.9	831.8	683.0	640.2
55°	1151.8	976.0	732.5	597.4	554.7
57.5°	1059.5	879.2	644.8	518.5	482.4
60°	964.8	784.5	552.2	437.5	401.3
62.5°	872.4	692.2	473.3	365.2	347.2
65°	777.7	595.0	392.3	315.7	308.8
67.5°	687.6	504.9	315.7	277.2	270.5
70°	592.9	417.1	261.4	238.9	229.8
72.5°	502.7	335.8	218.6	200.7	196.1
75°	414.7	256.8	180.3	164.5	162.4
77.5°	326.9	182.4	142.1	132.9	128.5
80°	245.6	130.8	108.1	99.3	99.3
82.5°	171.3	88.0	74.4	69.8	69.8
85°	96.9	49.5	42.8	42.8	42.8
87.5°	36.1	17.9	17.9	15.8	15.8
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7



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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	8.52	9.29	9.54	10.32	11.69	4.48	5.26	5.51	6.29	7.66
	3H	10.20	10.89	11.23	11.92	13.32	5.67	6.36	6.70	7.40	8.79
	4H	10.80	11.46	11.85	12.50	13.90	6.12	6.77	7.16	7.81	9.21
	6H	11.22	11.83	12.28	12.87	14.28	6.44	7.04	7.49	8.08	9.49
	8H	11.35	11.93	12.41	12.98	14.39	6.53	7.10	7.59	8.16	9.57
	12H	11.41	11.96	12.48	13.01	14.44	6.57	7.11	7.63	8.17	9.60
4H	2H	8.53	9.19	9.58	10.23	11.63	5.07	5.73	6.13	6.77	8.17
	3H	10.36	10.90	11.42	11.97	13.38	6.42	6.97	7.48	8.03	9.45
	4H	11.05	11.55	12.12	12.61	14.04	6.97	7.47	8.03	8.52	9.96
	6H	11.57	11.99	12.64	13.07	14.50	7.38	7.81	8.46	8.89	10.32
	8H	11.74	12.14	12.82	13.21	14.66	7.51	7.91	8.59	8.99	10.43
	12H	11.84	12.20	12.93	13.28	14.73	7.58	7.94	8.67	9.02	10.47
8H	4H	11.01	11.41	12.09	12.49	13.93	7.25	7.65	8.32	8.72	10.16
	6H	11.58	11.91	12.68	13.03	14.47	7.76	8.09	8.86	9.21	10.65
	8H	11.80	12.09	12.90	13.19	14.65	7.95	8.24	9.06	9.34	10.80
	12H	11.94	12.19	13.05	13.29	14.79	8.07	8.33	9.18	9.42	10.92
12H	4H	10.96	11.33	12.06	12.41	13.86	7.25	7.61	8.34	8.70	10.15
	6H	11.56	11.85	12.66	12.94	14.41	7.81	8.10	8.92	9.20	10.66
	8H	11.78	12.03	12.88	13.12	14.63	8.02	8.28	9.13	9.37	10.87