

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: P914295

Luminaire Tested: DFN2DIP-PN4F0-100D090US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914295
REPORT IS A COMBINATION OF REPORTS P901232 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D090US927-RLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

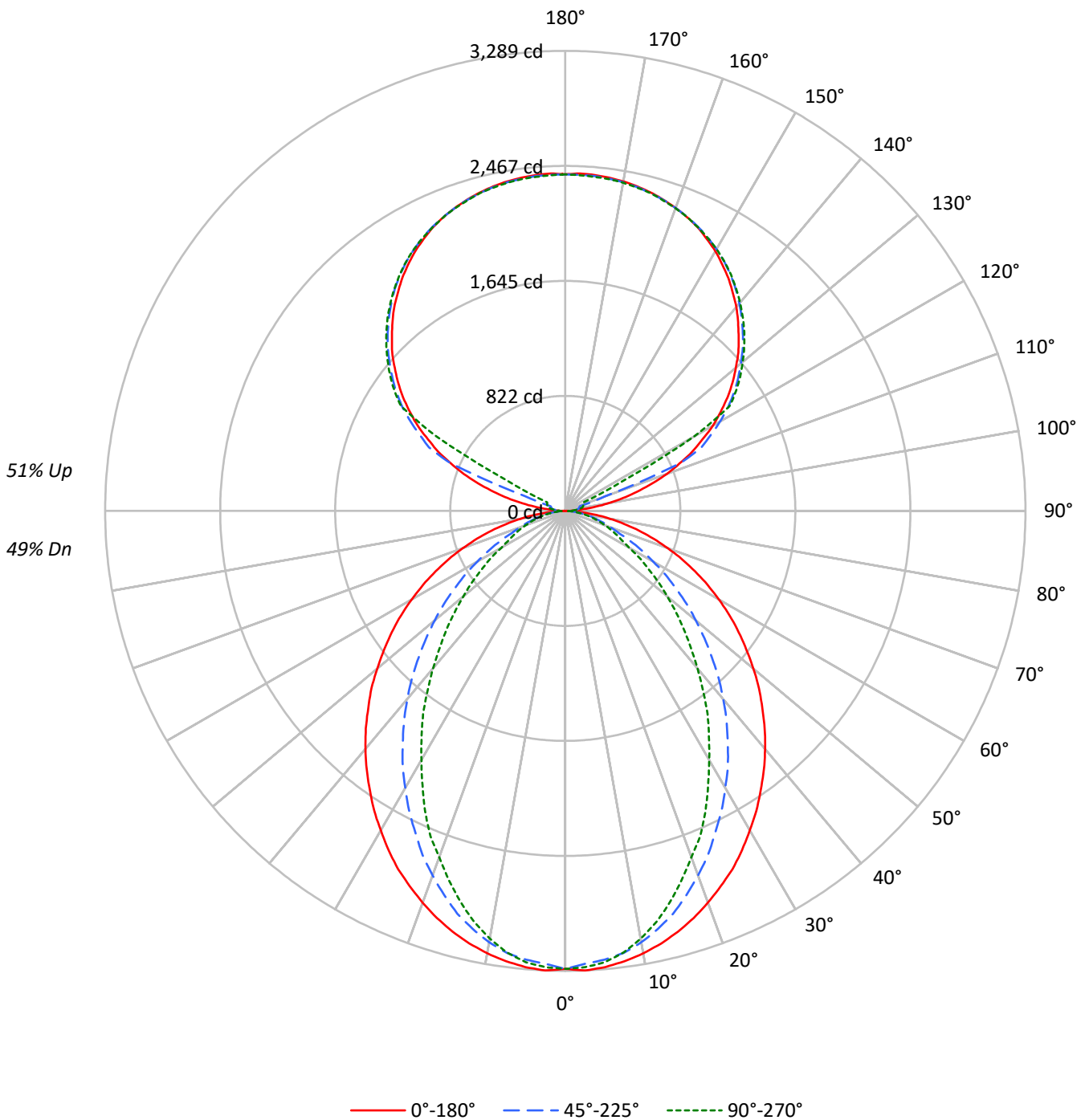
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13791.8 lumens
Efficiency: N/A
Efficacy: 82.3 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): 167.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49				49
1	98	94	90	87	90	87	83	81	73	71	69	61	59	58	49	48	47	42				42
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41	36				36
3	82	73	66	60	75	68	61	56	57	53	49	48	45	42	39	37	35	31				31
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	36	33	31	27				27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27	24				24
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	29	26	24	21				21
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22	19				19
8	55	43	35	30	51	40	33	29	35	29	26	30	26	22	25	22	19	17				17
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	16				16
10	48	36	29	24	44	34	28	23	30	24	21	25	21	18	21	18	16	14				14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2390	2390	2390
5°	2394	2352	2367
10°	2370	2307	2291
15°	2337	2231	2172
20°	2294	2126	2026
25°	2250	2008	1886
30°	2191	1888	1707
35°	2132	1758	1550
40°	2073	1624	1370
45°	2005	1475	1206
50°	1933	1325	1047
55°	1859	1164	894
60°	1773	996	736
65°	1675	825	663
70°	1555	666	601
75°	1404	588	547
80°	1186	494	476
85°	826	331	361

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2005 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	306.9	2.2
10°-20°	842.4	6.1
20°-30°	1182.6	8.6
30°-40°	1289.2	9.3
40°-50°	1184.9	8.6
50°-60°	930.5	6.7
60°-70°	605.7	4.4
70°-80°	311.8	2.3
80°-90°	83.8	0.6
90°-100°	79.3	0.6
100°-110°	295.8	2.1
110°-120°	784.4	5.7
120°-130°	1301.0	9.4
130°-140°	1382.0	10.0
140°-150°	1284.4	9.3
150°-160°	1032.6	7.5
160°-170°	665.4	4.8
170°-180°	229.0	1.7
0°-30°	2331.9	16.9
0°-40°	3621.0	26.3
0°-60°	5736.5	41.6
0°-90°	6737.8	48.9
90°-120°	1159.5	8.4
90°-150°	5127.0	37.2
90°-180°	7054.0	51.1
0°-180°	13791.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3274	3274	3274	3274	3274	
5°	3274	3259	3221	3247	3238	310
15°	3114	3081	2981	2924	2895	878
25°	2827	2732	2536	2415	2370	1300
35°	2436	2284	2024	1837	1772	1524
45°	1991	1792	1482	1271	1200	1538
55°	1514	1283	963	785	729	1353
65°	1022	782	516	415	406	1014
75°	545	338	237	216	213	577
85°	127	65	56	56	56	146
90°	2	21	35	44	47	13
95°	113	56	68	77	75	134
105°	529	582	106	125	132	566
115°	1001	1031	1074	268	143	986
125°	1415	1438	1471	1483	1489	1262
135°	1752	1780	1795	1813	1809	1353
145°	2032	2030	2060	2072	2063	1271
155°	2237	2222	2243	2253	2239	1031
165°	2357	2347	2352	2364	2352	666
175°	2411	2399	2403	2415	2398	229
180°	2406	2406	2406	2406	2406	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3274.1	3274.1	3274.1	3274.1	3274.1
2.5°	3288.8	3274.1	3241.4	3271.2	3265.3
5°	3274.1	3259.3	3220.6	3247.4	3238.5
7.5°	3247.4	3229.7	3188.2	3199.9	3185.1
10°	3211.8	3191.1	3132.0	3122.9	3105.3
12.5°	3167.5	3140.8	3060.6	3043.0	3010.3
15°	3114.1	3081.3	2980.7	2924.5	2894.9
17.5°	3051.8	3004.3	2879.9	2814.8	2767.3
20°	2980.7	2921.3	2773.3	2699.4	2634.0
22.5°	2903.7	2835.5	2663.6	2563.0	2518.7
25°	2826.7	2731.8	2536.2	2414.9	2370.3
27.5°	2734.9	2634.0	2417.7	2278.5	2210.3
30°	2637.2	2524.3	2287.3	2136.4	2056.3
32.5°	2542.3	2405.8	2163.1	1985.2	1911.0
35°	2435.6	2284.5	2023.9	1837.1	1771.7
37.5°	2331.9	2168.8	1893.4	1688.8	1614.9
40°	2222.2	2044.6	1757.0	1546.7	1469.7
42.5°	2109.7	1920.1	1620.9	1401.4	1327.5
45°	1991.1	1792.5	1481.6	1271.0	1199.9
47.5°	1878.7	1668.3	1348.3	1137.7	1072.6
50°	1754.1	1543.8	1217.8	1013.2	951.3
52.5°	1632.4	1410.2	1093.4	897.8	841.5
55°	1513.9	1282.9	962.9	785.3	729.0
57.5°	1392.7	1155.6	847.6	681.5	634.1
60°	1268.1	1031.1	725.9	575.0	527.5
62.5°	1146.8	909.7	622.1	480.1	456.5
65°	1022.3	782.1	515.6	414.9	405.8
67.5°	903.8	663.6	414.9	364.3	355.5
70°	779.3	548.3	343.6	314.0	302.1
72.5°	660.8	441.3	287.3	263.7	257.8
75°	545.1	337.6	237.0	216.3	213.4
77.5°	429.8	239.9	186.7	174.8	168.8
80°	322.8	172.0	142.1	130.5	130.5
82.5°	225.1	115.7	97.8	91.8	91.8
85°	127.3	65.0	56.2	56.2	56.2
87.5°	47.5	23.6	23.6	20.8	20.8
90°	1.7	20.9	34.7	43.6	46.9
92.5°	43.6	36.6	41.7	45.3	46.9
95°	113.1	55.6	67.8	76.7	74.9
97.5°	203.7	61.0	88.7	94.0	95.7
100°	308.2	69.7	99.3	113.1	116.6
102.5°	423.0	419.7	102.7	121.8	127.1
105°	529.3	581.6	106.2	125.3	132.3
107.5°	652.9	696.3	109.8	128.8	135.9
110°	771.3	807.8	304.8	130.6	137.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	882.8	914.0	884.5	134.0	139.3
115°	1001.1	1030.6	1074.3	268.2	142.8
117.5°	1103.8	1138.6	1168.3	919.2	463.1
120°	1218.8	1244.8	1276.3	1297.1	1062.1
122.5°	1316.2	1344.1	1379.0	1389.3	1391.2
125°	1415.4	1438.1	1471.2	1483.4	1488.6
127.5°	1505.9	1530.3	1556.6	1574.0	1575.6
130°	1591.3	1619.3	1638.3	1657.5	1655.9
132.5°	1678.4	1701.1	1720.1	1735.9	1734.2
135°	1751.6	1779.5	1795.0	1812.6	1809.1
137.5°	1828.1	1849.0	1866.5	1883.9	1878.7
140°	1902.9	1917.0	1936.0	1951.7	1943.1
142.5°	1965.8	1978.0	2000.5	2014.4	2005.7
145°	2031.9	2030.0	2059.7	2071.9	2063.2
147.5°	2089.2	2084.1	2113.6	2122.3	2115.4
150°	2145.1	2132.9	2160.8	2171.1	2162.4
152.5°	2192.0	2178.1	2204.2	2214.7	2202.5
155°	2237.3	2221.8	2242.6	2253.0	2239.1
157.5°	2273.9	2260.0	2275.7	2287.9	2273.9
160°	2305.2	2294.7	2305.2	2315.6	2303.4
162.5°	2333.0	2322.6	2331.3	2343.5	2327.8
165°	2357.4	2347.0	2352.2	2364.4	2352.2
167.5°	2376.6	2366.1	2371.4	2383.6	2367.9
170°	2392.3	2381.8	2385.3	2397.5	2381.8
172.5°	2402.7	2392.3	2395.8	2408.0	2392.3
175°	2411.3	2399.1	2402.7	2414.8	2397.5
177.5°	2414.8	2402.7	2404.5	2416.7	2401.0
180°	2406.2	2406.2	2406.2	2406.2	2406.2



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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	10.07	10.89	11.05	11.88	13.17	6.04	6.86	7.01	7.84	9.13
	3H	11.75	12.49	12.74	13.48	14.79	7.23	7.96	8.21	8.95	10.26
	4H	12.36	13.06	13.36	14.05	15.37	7.68	8.37	8.67	9.37	10.69
	6H	12.79	13.42	13.79	14.43	15.76	8.00	8.64	9.01	9.64	10.97
	8H	12.91	13.52	13.93	14.54	15.87	8.09	8.70	9.10	9.71	11.04
	12H	12.98	13.55	14.00	14.56	15.92	8.13	8.71	9.15	9.72	11.07
4H	2H	10.09	10.78	11.09	11.78	13.10	6.63	7.33	7.64	8.32	9.64
	3H	11.92	12.50	12.93	13.52	14.86	7.98	8.56	9.00	9.59	10.92
	4H	12.62	13.14	13.64	14.16	15.52	8.53	9.06	9.55	10.08	11.43
	6H	13.13	13.59	14.16	14.63	15.98	8.95	9.40	9.98	10.45	11.80
	8H	13.31	13.73	14.34	14.77	16.13	9.08	9.50	10.11	10.54	11.91
	12H	13.41	13.79	14.46	14.84	16.21	9.15	9.53	10.20	10.58	11.95
8H	4H	12.58	13.01	13.61	14.04	15.41	8.81	9.24	9.85	10.27	11.64
	6H	13.15	13.50	14.21	14.58	15.94	9.33	9.68	10.39	10.76	12.12
	8H	13.37	13.68	14.43	14.74	16.12	9.52	9.83	10.59	10.89	12.28
	12H	13.51	13.78	14.58	14.84	16.26	9.64	9.91	10.71	10.97	12.40
12H	4H	12.53	12.92	13.58	13.96	15.34	8.82	9.20	9.87	10.25	11.62
	6H	13.13	13.43	14.19	14.49	15.88	9.38	9.69	10.45	10.75	12.14
	8H	13.35	13.62	14.42	14.67	16.10	9.59	9.86	10.66	10.92	12.35