

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: P919817

Luminaire Tested: DFN2DIP-PN4F0-120D080US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919817
REPORT IS A COMBINATION OF REPORTS P901217 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D080US935-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

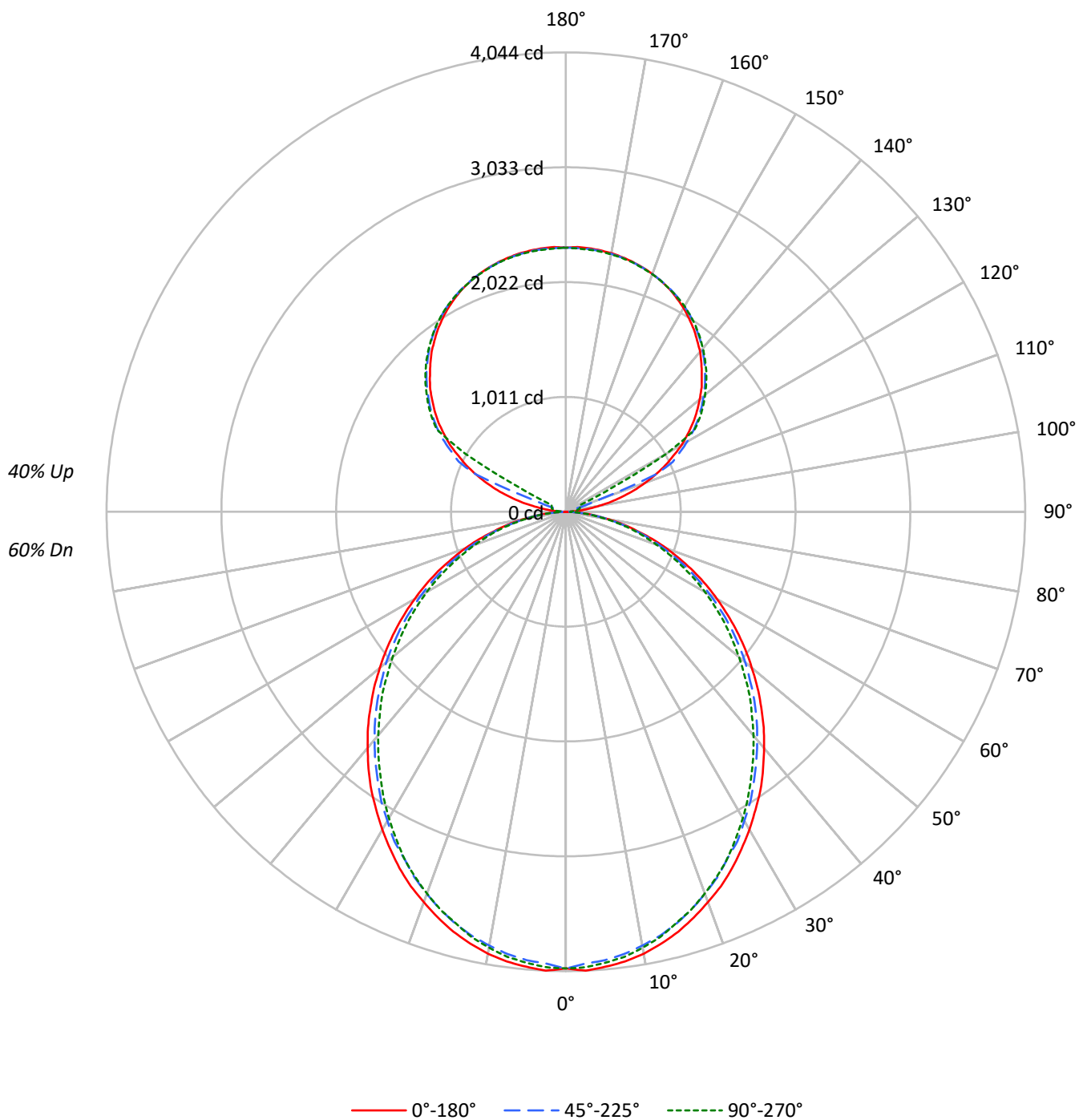
Lumens per Lamp: N/A
Luminaire Lumens: 17047.8 lumens
Efficiency: N/A
Efficacy: 92.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 184.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	110	110	110	110		102	102	102	102		89	89	89		77	77	77		65	65	65	60
1	100	96	92	88		93	90	86	83		78	75	73		67	66	64		58	56	55	51
2	91	84	77	72		85	78	73	68		68	64	61		59	56	53		51	49	47	42
3	83	73	66	60		77	69	62	57		60	55	51		52	48	45		45	42	40	36
4	76	65	57	51		71	61	54	48		54	48	44		47	42	39		40	37	34	31
5	70	58	50	44		65	55	47	42		48	42	38		42	37	34		36	33	30	27
6	64	52	44	38		60	49	42	36		43	37	33		38	33	30		33	29	26	24
7	60	47	39	33		56	44	37	32		39	33	29		35	30	26		30	26	23	21
8	55	43	35	30		52	40	33	28		36	30	26		32	27	23		28	24	21	19
9	52	39	32	26		48	37	30	25		33	27	23		29	24	21		26	22	19	17
10	48	36	29	24		45	34	27	23		30	25	21		27	22	19		24	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2935	2935	2935
5°	2939	2894	2914
10°	2915	2856	2875
15°	2873	2809	2814
20°	2815	2744	2751
25°	2757	2666	2679
30°	2685	2594	2586
35°	2616	2509	2489
40°	2532	2422	2396
45°	2448	2336	2301
50°	2356	2246	2191
55°	2260	2141	2090
60°	2151	2016	1974
65°	2033	1887	1838
70°	1882	1731	1692
75°	1673	1543	1557
80°	1421	1304	1298
85°	1028	889	868

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2448 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.4	2.2
10°-20°	1064.6	6.2
20°-30°	1564.6	9.2
30°-40°	1817.2	10.7
40°-50°	1814.9	10.6
50°-60°	1582.5	9.3
60°-70°	1169.9	6.9
70°-80°	661.9	3.9
80°-90°	178.8	1.0
90°-100°	76.7	0.4
100°-110°	285.7	1.7
110°-120°	757.9	4.4
120°-130°	1256.9	7.4
130°-140°	1335.2	7.8
140°-150°	1240.9	7.3
150°-160°	997.6	5.9
160°-170°	642.8	3.8
170°-180°	221.3	1.3
0°-30°	3007.6	17.6
0°-40°	4824.8	28.3
0°-60°	8222.2	48.2
0°-90°	10232.7	60.0
90°-120°	1120.2	6.6
90°-150°	4953.3	29.1
90°-180°	6815.0	40.0
0°-180°	17047.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4020	4020	4020	4020	4020	
5°	4020	4005	3962	3993	3986	382
15°	3827	3804	3754	3769	3750	1078
25°	3464	3433	3367	3375	3367	1594
35°	2988	2950	2888	2864	2845	1866
45°	2432	2405	2346	2304	2289	1877
55°	1840	1817	1771	1724	1705	1645
65°	1241	1218	1179	1144	1125	1227
75°	649	642	622	599	607	693
85°	158	155	151	139	135	177
90°	2	20	34	42	45	16
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2161	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4020.3	4020.3	4020.3	4020.3	4020.3
2.5°	4043.6	4024.3	3981.7	4020.3	4012.9
5°	4020.3	4005.0	3962.4	3993.1	3985.7
7.5°	3993.1	3970.1	3927.5	3958.7	3950.9
10°	3950.9	3923.8	3877.5	3908.2	3896.8
12.5°	3892.7	3869.7	3823.3	3842.6	3834.8
15°	3827.0	3804.1	3753.6	3769.2	3749.9
17.5°	3745.9	3722.9	3672.4	3691.7	3672.4
20°	3656.8	3633.8	3579.8	3591.2	3576.1
22.5°	3568.2	3533.4	3482.9	3482.9	3475.2
25°	3463.6	3432.9	3367.3	3374.7	3367.3
27.5°	3347.6	3320.5	3270.5	3259.0	3239.8
30°	3231.9	3200.8	3142.9	3131.4	3115.9
32.5°	3108.0	3085.1	3023.1	2999.8	2984.2
35°	2988.3	2949.8	2887.8	2864.5	2845.2
37.5°	2852.9	2818.1	2756.1	2729.1	2709.8
40°	2714.0	2682.8	2620.8	2586.4	2570.8
42.5°	2578.6	2547.4	2485.9	2447.0	2424.0
45°	2431.7	2404.7	2346.4	2304.2	2288.6
47.5°	2288.6	2261.5	2199.6	2157.0	2134.0
50°	2137.7	2118.4	2064.2	2010.1	1990.8
52.5°	1990.8	1963.8	1913.7	1871.0	1844.0
55°	1840.3	1817.0	1770.6	1724.2	1704.9
57.5°	1689.4	1670.1	1619.6	1573.3	1557.7
60°	1538.4	1523.3	1469.1	1426.5	1415.0
62.5°	1391.6	1364.5	1326.0	1287.5	1271.9
65°	1241.1	1217.7	1179.1	1144.3	1125.1
67.5°	1086.5	1066.8	1032.3	1005.3	989.7
70°	943.3	927.7	892.9	865.8	850.7
72.5°	796.5	780.9	761.6	734.6	723.1
75°	649.3	641.9	622.2	599.3	607.0
77.5°	518.0	502.4	494.6	483.1	471.7
80°	386.8	382.6	374.9	363.4	355.6
82.5°	262.9	262.9	259.2	243.7	243.7
85°	158.3	154.6	150.9	139.1	135.3
87.5°	69.7	61.9	54.2	42.6	38.6
90°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.3	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.1
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.6	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.4	2146.5	2166.6	2176.6	2163.3
157.5°	2196.7	2183.4	2198.6	2210.4	2196.7
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6

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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	11.90	12.86	12.76	13.74	14.86	11.46	12.41	12.32	13.30	14.42
	3H	13.57	14.43	14.44	15.32	16.47	13.08	13.94	13.96	14.84	15.99
	4H	14.16	14.97	15.05	15.88	17.03	13.67	14.49	14.57	15.39	16.55
	6H	14.57	15.32	15.47	16.23	17.40	14.08	14.83	14.98	15.74	16.91
	8H	14.68	15.39	15.59	16.32	17.49	14.18	14.90	15.10	15.83	16.99
	12H	14.73	15.41	15.65	16.33	17.53	14.23	14.91	15.15	15.83	17.03
4H	2H	12.37	13.18	13.27	14.09	15.24	12.02	12.83	12.92	13.73	14.89
	3H	14.25	14.93	15.16	15.86	17.03	13.84	14.52	14.75	15.46	16.63
	4H	14.97	15.59	15.89	16.52	17.71	14.55	15.17	15.47	16.10	17.30
	6H	15.49	16.03	16.43	16.98	18.18	15.07	15.60	16.00	16.56	17.75
	8H	15.65	16.15	16.58	17.09	18.30	15.22	15.72	16.15	16.66	17.88
	12H	15.72	16.18	16.68	17.14	18.36	15.28	15.74	16.24	16.70	17.92
8H	4H	15.17	15.67	16.11	16.62	17.83	14.80	15.30	15.74	16.25	17.46
	6H	15.81	16.23	16.78	17.21	18.42	15.44	15.85	16.40	16.84	18.05
	8H	16.04	16.40	17.01	17.38	18.61	15.65	16.02	16.62	17.00	18.22
	12H	16.17	16.50	17.15	17.47	18.74	15.77	16.09	16.75	17.07	18.34
12H	4H	15.16	15.61	16.12	16.58	17.80	14.80	15.25	15.76	16.22	17.43
	6H	15.84	16.21	16.82	17.19	18.42	15.48	15.84	16.45	16.82	18.05
	8H	16.09	16.41	17.07	17.39	18.66	15.72	16.04	16.70	17.01	18.29