

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: P925133

Luminaire Tested: DFN2DIP-PN4F0-080D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925133
REPORT IS A COMBINATION OF REPORTS P901227 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D090US950-FLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

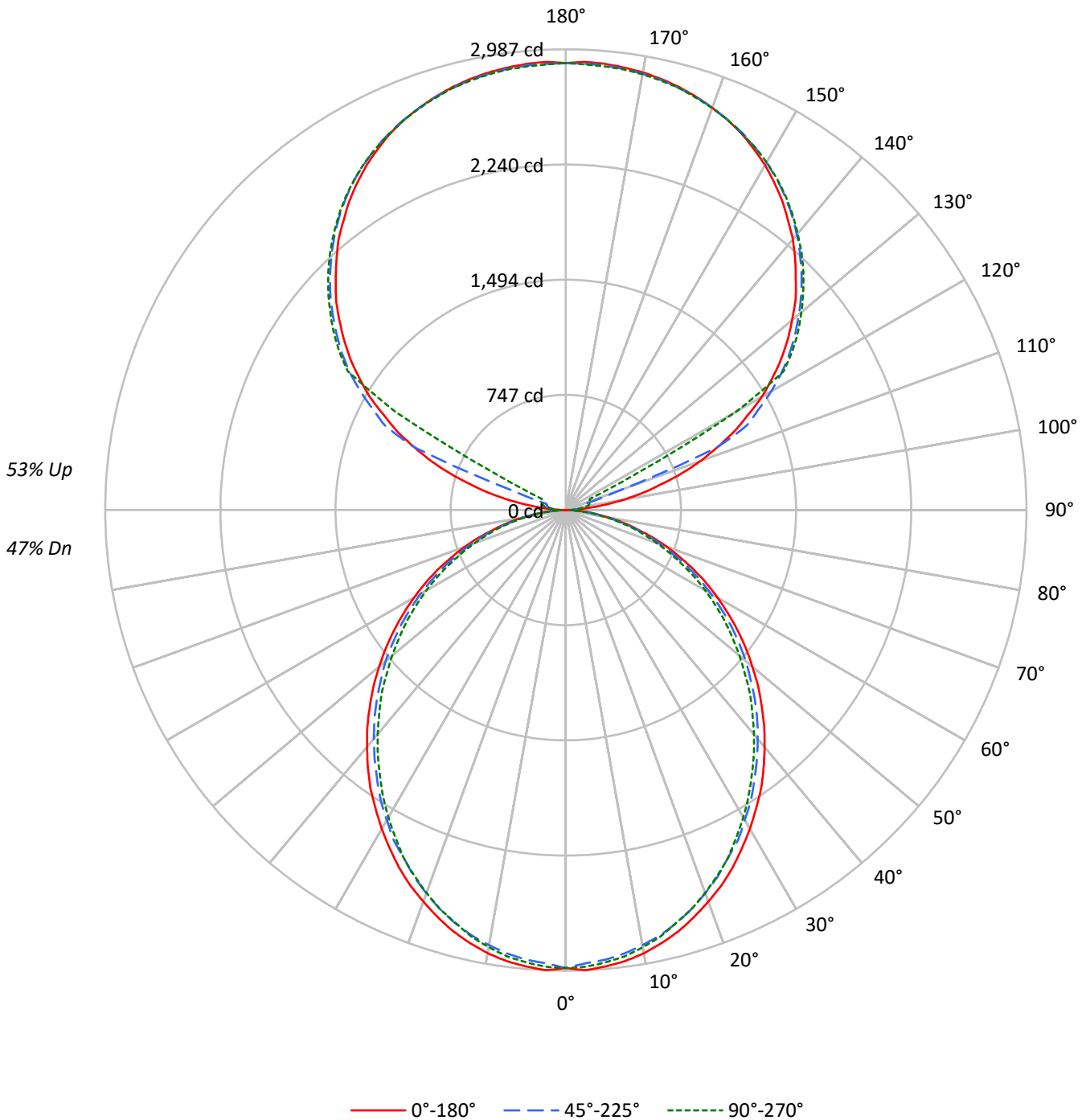
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16055.8 lumens
Efficiency: N/A
Efficacy: 111.7 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: General Diffuse

Input Watts (W): 143.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	50	30	10	0
RCR																					
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47	47	47	47
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40	40	40	40
2	88	81	75	70	81	75	69	65	63	59	56	52	49	47	42	40	38	33	33	33	33
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	34	32	28	28	28	28
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24	24
5	68	56	48	42	62	52	45	39	44	39	34	37	32	29	30	27	24	21	21	21	21
6	62	50	42	36	57	47	39	34	40	34	30	33	29	26	27	24	21	18	18	18	18
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	21	19	16	16	16	16
8	53	41	34	28	49	38	31	27	33	27	23	28	23	20	23	19	17	15	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13	13
10	47	34	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2168	2168	2168
5°	2171	2138	2152
10°	2154	2109	2124
15°	2122	2075	2078
20°	2079	2027	2032
25°	2037	1970	1979
30°	1983	1916	1911
35°	1933	1853	1838
40°	1870	1789	1770
45°	1808	1726	1700
50°	1741	1659	1619
55°	1669	1581	1544
60°	1589	1489	1458
65°	1502	1394	1358
70°	1390	1278	1249
75°	1236	1140	1150
80°	1050	963	959
85°	759	657	642

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1808 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	279.5	1.7
10°-20°	786.4	4.9
20°-30°	1155.7	7.2
30°-40°	1342.3	8.4
40°-50°	1340.6	8.3
50°-60°	1169.0	7.3
60°-70°	864.1	5.4
70°-80°	488.9	3.0
80°-90°	134.1	0.8
90°-100°	95.6	0.6
100°-110°	356.2	2.2
110°-120°	944.7	5.9
120°-130°	1566.8	9.8
130°-140°	1664.3	10.4
140°-150°	1546.8	9.6
150°-160°	1243.6	7.7
160°-170°	801.3	5.0
170°-180°	275.8	1.7
0°-30°	2221.6	13.8
0°-40°	3563.9	22.2
0°-60°	6073.6	37.8
0°-90°	7560.8	47.1
90°-120°	1396.4	8.7
90°-150°	6174.3	38.5
90°-180°	8495.0	52.9
0°-180°	16055.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2970	2970	2970	2970	2970	
5°	2970	2958	2927	2950	2944	282
15°	2827	2810	2773	2784	2770	796
25°	2558	2536	2487	2493	2487	1177
35°	2207	2179	2133	2116	2102	1378
45°	1796	1776	1733	1702	1691	1386
55°	1359	1342	1308	1274	1259	1215
65°	917	900	871	845	831	906
75°	480	474	460	443	448	512
85°	117	114	112	103	100	130
90°	2	25	42	53	56	15
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2969.6	2969.6	2969.6	2969.6	2969.6
2.5°	2986.9	2972.7	2941.2	2969.6	2964.2
5°	2969.6	2958.4	2927.0	2949.7	2944.2
7.5°	2949.7	2932.7	2901.2	2924.2	2918.5
10°	2918.5	2898.4	2864.2	2886.9	2878.5
12.5°	2875.5	2858.5	2824.2	2838.4	2832.7
15°	2827.0	2810.0	2772.7	2784.2	2770.0
17.5°	2767.0	2750.0	2712.7	2727.0	2712.7
20°	2701.3	2684.3	2644.3	2652.8	2641.5
22.5°	2635.8	2610.0	2572.7	2572.7	2567.0
25°	2558.5	2535.8	2487.4	2492.8	2487.4
27.5°	2472.8	2452.8	2415.8	2407.3	2393.1
30°	2387.4	2364.3	2321.7	2313.2	2301.6
32.5°	2295.9	2278.9	2233.1	2215.9	2204.4
35°	2207.4	2178.9	2133.1	2115.9	2101.7
37.5°	2107.4	2081.6	2035.9	2015.9	2001.7
40°	2004.7	1981.6	1936.0	1910.5	1898.9
42.5°	1904.8	1881.7	1836.3	1807.4	1790.6
45°	1796.3	1776.3	1733.2	1702.0	1690.6
47.5°	1690.6	1670.5	1624.8	1593.3	1576.3
50°	1579.1	1564.8	1524.8	1484.8	1470.6
52.5°	1470.6	1450.6	1413.6	1382.2	1362.1
55°	1359.4	1342.1	1307.9	1273.7	1259.4
57.5°	1247.9	1233.7	1196.4	1162.2	1150.6
60°	1136.4	1125.2	1085.2	1053.7	1045.2
62.5°	1027.9	1008.0	979.5	951.0	939.5
65°	916.8	899.5	871.0	845.2	831.0
67.5°	802.5	788.0	762.5	742.6	731.1
70°	696.8	685.3	659.6	639.6	628.3
72.5°	588.3	576.9	562.6	542.6	534.1
75°	479.6	474.1	459.6	442.7	448.4
77.5°	382.6	371.1	365.4	356.9	348.4
80°	285.7	282.7	276.9	268.5	262.6
82.5°	194.2	194.2	191.5	179.9	179.9
85°	117.0	114.2	111.5	102.7	100.0
87.5°	51.5	45.8	40.0	31.5	28.5
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7



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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	9.69	10.53	10.67	11.52	12.83	9.25	10.09	10.23	11.08	12.39
	3H	11.35	12.10	12.35	13.11	14.44	10.87	11.62	11.86	12.62	13.96
	4H	11.94	12.65	12.95	13.66	15.00	11.45	12.16	12.46	13.17	14.51
	6H	12.34	13.00	13.36	14.01	15.36	11.85	12.50	12.87	13.52	14.87
	8H	12.45	13.07	13.47	14.10	15.45	11.95	12.58	12.98	13.61	14.96
	12H	12.50	13.09	13.52	14.11	15.48	12.00	12.59	13.02	13.61	14.98
4H	2H	10.15	10.86	11.16	11.87	13.21	9.80	10.51	10.81	11.52	12.86
	3H	12.02	12.61	13.04	13.64	15.00	11.61	12.21	12.64	13.24	14.60
	4H	12.73	13.27	13.76	14.30	15.68	12.31	12.86	13.34	13.88	15.26
	6H	13.25	13.72	14.29	14.77	16.14	12.82	13.29	13.86	14.34	15.72
	8H	13.40	13.84	14.44	14.88	16.27	12.97	13.41	14.01	14.45	15.84
	12H	13.47	13.87	14.53	14.93	16.32	13.03	13.43	14.09	14.49	15.88
8H	4H	12.93	13.36	13.97	14.41	15.80	12.56	12.99	13.60	14.04	15.43
	6H	13.56	13.92	14.62	15.01	16.39	13.18	13.54	14.25	14.63	16.02
	8H	13.78	14.10	14.85	15.17	16.58	13.40	13.72	14.47	14.79	16.19
	12H	13.92	14.19	14.99	15.26	16.71	13.51	13.79	14.59	14.86	16.30
12H	4H	12.91	13.31	13.97	14.36	15.76	12.55	12.94	13.61	14.00	15.40
	6H	13.59	13.91	14.66	14.98	16.38	13.23	13.54	14.30	14.61	16.02
	8H	13.83	14.11	14.91	15.18	16.62	13.46	13.74	14.54	14.81	16.25