

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: P925845

Luminaire Tested: DFN2DIP-SQ4F0-080D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925845
REPORT IS A COMBINATION OF REPORTS P901637 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D090US950-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

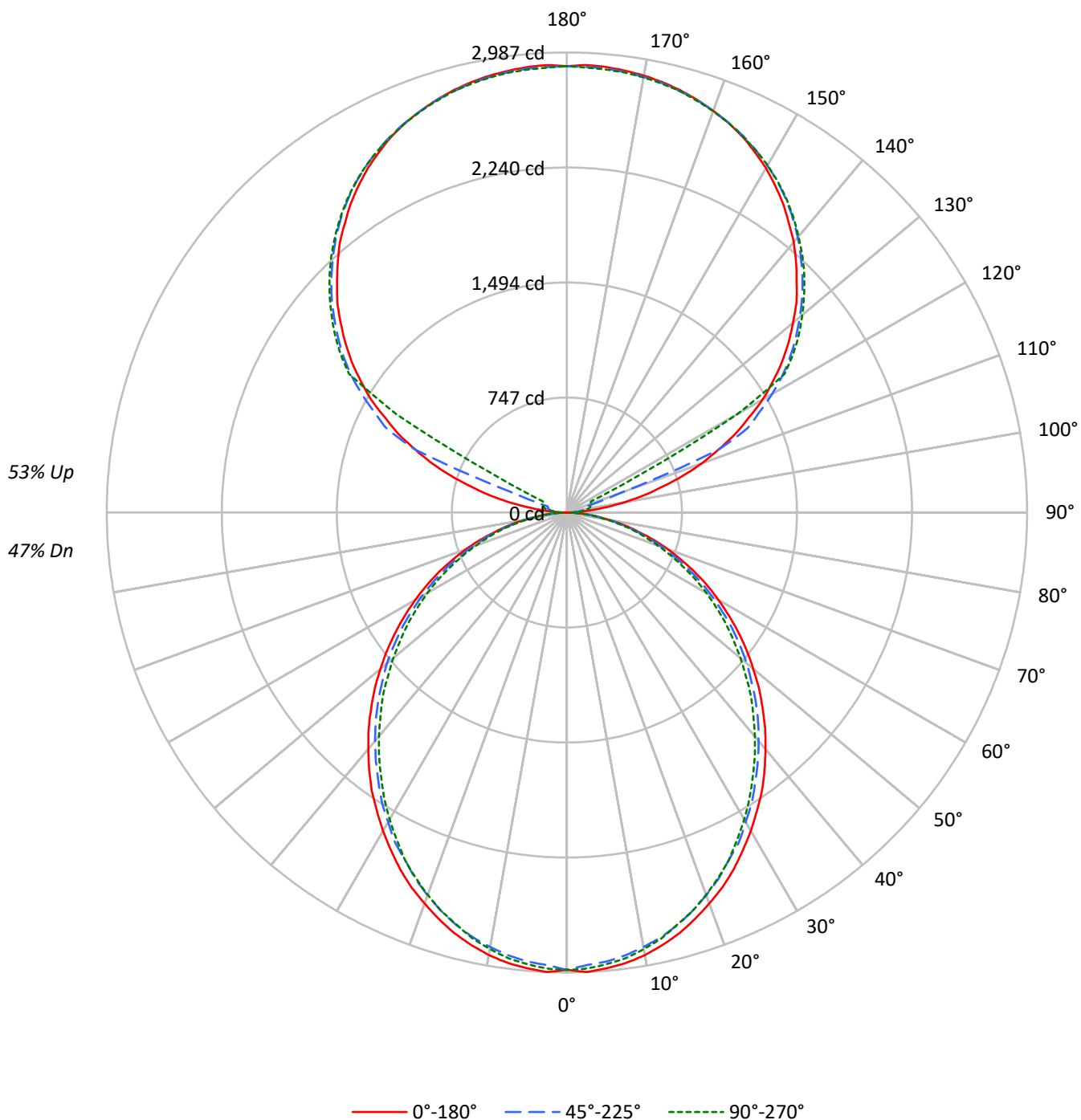
Lumens per Lamp: N/A
Luminaire Lumens: 16055.8 lumens
Efficiency: N/A
Efficacy: 116.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 138.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47	47	47
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40	40	40
2	88	81	75	70	81	75	69	65	63	59	56	52	49	47	42	40	38	33	33	33
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	34	32	28	28	28
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24
5	68	56	48	42	62	52	45	39	44	39	34	37	32	29	30	27	24	21	21	21
6	62	50	42	36	57	47	39	34	40	34	30	33	29	26	27	24	21	18	18	18
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	21	19	16	16	16
8	53	41	34	28	49	38	31	27	33	27	23	28	23	20	23	19	17	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13
10	47	34	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2084	2084	2084
5°	2087	2055	2069
10°	2070	2028	2042
15°	2040	1995	1999
20°	1999	1949	1954
25°	1958	1894	1903
30°	1906	1843	1838
35°	1858	1782	1769
40°	1798	1721	1703
45°	1738	1660	1636
50°	1673	1596	1558
55°	1604	1522	1486
60°	1527	1433	1405
65°	1443	1342	1308
70°	1336	1231	1205
75°	1187	1098	1110
80°	1008	929	927
85°	729	635	623

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1738 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	9.56	10.40	10.54	11.39	12.70	9.12	9.95	10.10	10.95	12.26
	3H	11.22	11.97	12.22	12.98	14.31	10.73	11.48	11.72	12.49	13.82
	4H	11.81	12.52	12.82	13.53	14.87	11.32	12.03	12.32	13.03	14.38
	6H	12.21	12.87	13.23	13.88	15.23	11.71	12.37	12.73	13.38	14.73
	8H	12.32	12.94	13.34	13.97	15.32	11.82	12.44	12.84	13.47	14.82
	12H	12.37	12.96	13.40	13.98	15.36	11.86	12.45	12.89	13.47	14.85
4H	2H	10.02	10.73	11.03	11.74	13.08	9.66	10.37	10.68	11.38	12.72
	3H	11.89	12.48	12.91	13.51	14.87	11.48	12.07	12.50	13.11	14.46
	4H	12.60	13.15	13.63	14.17	15.55	12.18	12.72	13.21	13.75	15.13
	6H	13.12	13.59	14.16	14.64	16.01	12.69	13.16	13.73	14.21	15.58
	8H	13.27	13.71	14.31	14.75	16.14	12.84	13.27	13.87	14.32	15.70
	12H	13.35	13.74	14.40	14.80	16.19	12.90	13.29	13.96	14.35	15.74
8H	4H	12.80	13.23	13.84	14.28	15.67	12.42	12.86	13.46	13.90	15.29
	6H	13.43	13.79	14.50	14.88	16.27	13.05	13.41	14.11	14.50	15.88
	8H	13.66	13.97	14.73	15.04	16.45	13.26	13.58	14.34	14.65	16.06
	12H	13.79	14.07	14.86	15.13	16.58	13.38	13.66	14.45	14.72	16.17
12H	4H	12.78	13.18	13.84	14.24	15.63	12.42	12.81	13.47	13.87	15.26
	6H	13.46	13.78	14.53	14.85	16.26	13.09	13.41	14.16	14.48	15.88
	8H	13.71	13.99	14.78	15.05	16.50	13.33	13.61	14.40	14.67	16.12