

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: P920573

Luminaire Tested: DFN2DIP-SQ4F0-140D100US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920573
REPORT IS A COMBINATION OF REPORTS P901665 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D100US935-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

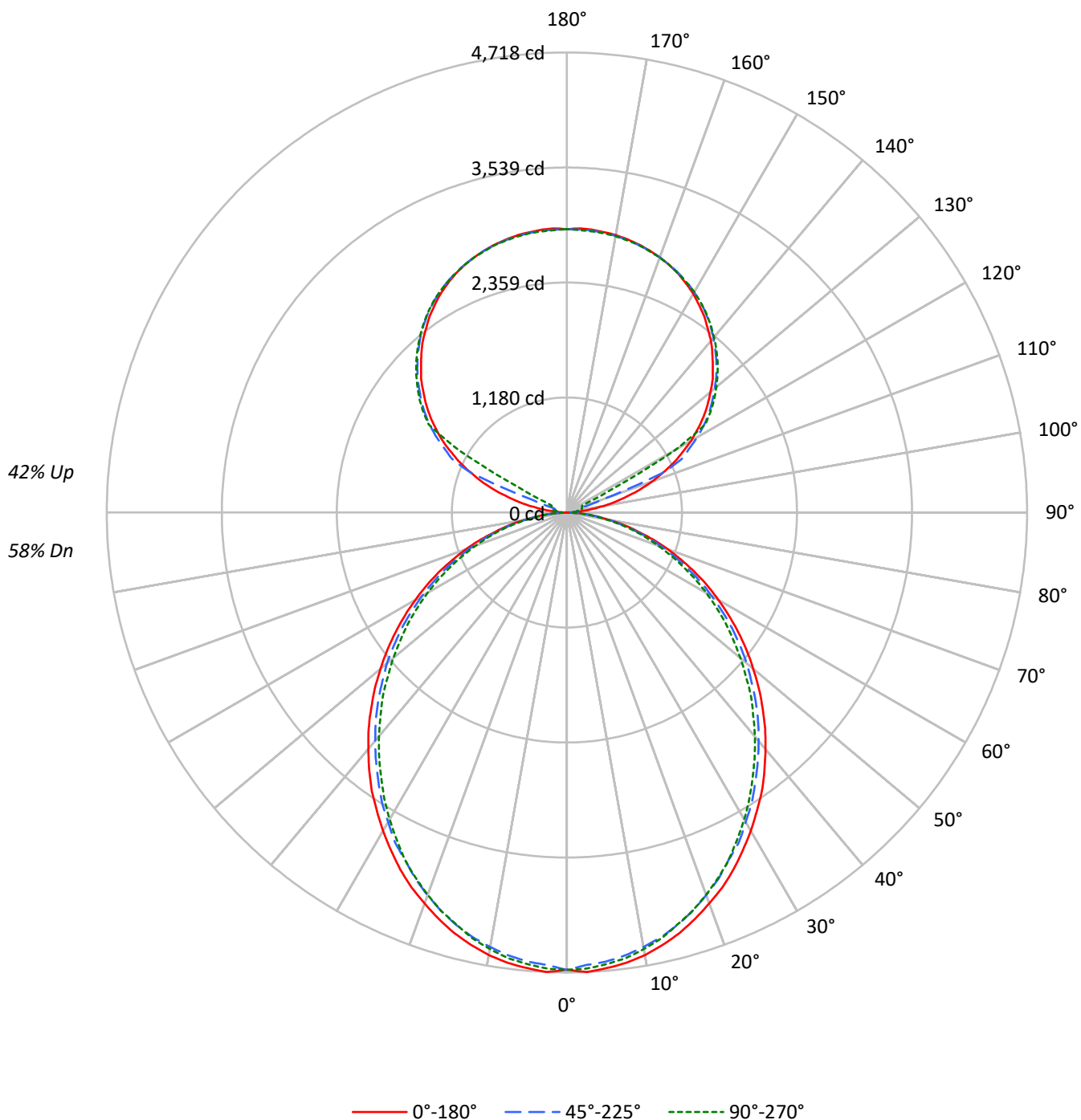
Lumens per Lamp: N/A
Luminaire Lumens: 20457.4 lumens
Efficiency: N/A
Efficacy: 93.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 218.5
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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	53	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3291	3291	3291
5°	3296	3246	3268
10°	3269	3203	3225
15°	3221	3151	3156
20°	3156	3078	3087
25°	3092	2991	3006
30°	3011	2910	2902
35°	2934	2815	2793
40°	2839	2718	2690
45°	2745	2622	2584
50°	2642	2520	2461
55°	2534	2403	2348
60°	2412	2264	2219
65°	2279	2120	2066
70°	2110	1944	1903
75°	1875	1734	1753
80°	1593	1467	1464
85°	1151	1004	984

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2745 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	441.4	2.2
10°-20°	1242.1	6.1
20°-30°	1825.4	8.9
30°-40°	2120.0	10.4
40°-50°	2117.4	10.4
50°-60°	1846.3	9.0
60°-70°	1364.8	6.7
70°-80°	772.2	3.8
80°-90°	208.9	1.0
90°-100°	95.8	0.5
100°-110°	357.2	1.7
110°-120°	947.3	4.6
120°-130°	1571.2	7.7
130°-140°	1669.0	8.2
140°-150°	1551.1	7.6
150°-160°	1247.1	6.1
160°-170°	803.6	3.9
170°-180°	276.6	1.4
0°-30°	3508.9	17.2
0°-40°	5628.9	27.5
0°-60°	9592.6	46.9
0°-90°	11938.5	58.4
90°-120°	1400.3	6.8
90°-150°	6191.6	30.3
90°-180°	8519.0	41.6
0°-180°	20457.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4690	4690	4690	4690	4690	
5°	4690	4672	4623	4659	4650	445
15°	4465	4438	4379	4398	4375	1257
25°	4041	4005	3928	3937	3928	1859
35°	3486	3441	3369	3342	3319	2177
45°	2837	2806	2738	2688	2670	2189
55°	2147	2120	2066	2012	1989	1920
65°	1448	1421	1376	1335	1312	1432
75°	758	749	726	699	708	809
85°	185	180	176	162	158	206
90°	2	25	42	53	57	19
95°	137	67	82	93	90	162
105°	639	702	128	151	160	683
115°	1209	1245	1297	324	172	1190
125°	1709	1737	1777	1792	1798	1524
135°	2115	2149	2168	2189	2185	1634
145°	2454	2452	2487	2502	2492	1535
155°	2702	2683	2708	2721	2704	1245
165°	2847	2834	2841	2855	2841	804
175°	2912	2897	2902	2916	2895	277
180°	2906	2906	2906	2906	2906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4690.3	4690.3	4690.3	4690.3	4690.3
2.5°	4717.5	4695.0	4645.3	4690.3	4681.7
5°	4690.3	4672.5	4622.8	4658.7	4650.1
7.5°	4658.7	4631.9	4582.1	4618.5	4609.4
10°	4609.4	4577.8	4523.8	4559.7	4546.2
12.5°	4541.4	4514.6	4460.6	4483.0	4474.0
15°	4464.9	4438.1	4379.2	4397.5	4374.9
17.5°	4370.2	4343.4	4284.5	4307.0	4284.5
20°	4266.3	4239.6	4176.4	4189.8	4172.1
22.5°	4162.9	4122.3	4063.4	4063.4	4054.4
25°	4040.9	4005.0	3928.5	3937.1	3928.5
27.5°	3905.5	3874.0	3815.6	3802.2	3779.7
30°	3770.6	3734.2	3666.7	3653.4	3635.1
32.5°	3626.1	3599.3	3527.0	3499.8	3481.5
35°	3486.4	3441.4	3369.1	3341.9	3319.3
37.5°	3328.4	3287.8	3215.5	3184.0	3161.4
40°	3166.2	3129.9	3057.6	3017.5	2999.2
42.5°	3008.3	2972.0	2900.2	2854.7	2827.9
45°	2837.0	2805.5	2737.5	2688.2	2670.0
47.5°	2670.0	2638.4	2566.2	2516.4	2489.7
50°	2494.0	2471.5	2408.3	2345.1	2322.6
52.5°	2322.6	2291.0	2232.7	2182.9	2151.4
55°	2147.1	2119.8	2065.7	2011.6	1989.2
57.5°	1970.9	1948.4	1889.6	1835.6	1817.3
60°	1794.8	1777.2	1714.0	1664.2	1650.8
62.5°	1623.6	1592.0	1547.0	1502.0	1483.8
65°	1447.9	1420.6	1375.7	1335.0	1312.5
67.5°	1267.6	1244.6	1204.4	1172.8	1154.6
70°	1100.5	1082.4	1041.7	1010.1	992.4
72.5°	929.3	911.0	888.5	857.0	843.6
75°	757.5	748.9	725.9	699.1	708.2
77.5°	604.3	586.2	577.0	563.7	550.3
80°	451.2	446.4	437.4	424.0	414.8
82.5°	306.7	306.7	302.4	284.2	284.2
85°	184.7	180.4	176.1	162.2	157.9
87.5°	81.4	72.2	63.2	49.8	44.9
90°	2.0	25.2	41.9	52.7	56.7
92.5°	52.7	44.2	50.5	54.7	56.7
95°	136.6	67.2	81.9	92.6	90.4
97.5°	245.9	73.6	107.1	113.6	115.6
100°	372.3	84.1	119.9	136.6	140.9
102.5°	510.8	506.9	124.1	147.1	153.5
105°	639.2	702.3	128.4	151.3	159.8
107.5°	788.5	840.9	132.6	155.6	164.0
110°	931.5	975.5	368.0	157.8	166.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1066.1	1103.8	1068.2	161.8	168.3
115°	1208.9	1244.7	1297.4	323.8	172.5
117.5°	1333.0	1375.0	1410.9	1110.1	559.3
120°	1471.9	1503.3	1541.3	1566.5	1282.6
122.5°	1589.5	1623.2	1665.3	1677.8	1680.1
125°	1709.3	1736.8	1776.8	1791.5	1797.7
127.5°	1818.7	1848.1	1879.8	1900.8	1902.8
130°	1921.7	1955.5	1978.5	2001.6	1999.7
132.5°	2026.9	2054.3	2077.3	2096.3	2094.3
135°	2115.3	2149.0	2167.7	2188.9	2184.7
137.5°	2207.7	2232.9	2254.1	2275.1	2268.8
140°	2298.0	2315.1	2338.0	2357.0	2346.5
142.5°	2373.9	2388.7	2415.9	2432.6	2422.2
145°	2453.8	2451.6	2487.3	2502.1	2491.6
147.5°	2523.0	2516.8	2552.4	2562.9	2554.8
150°	2590.4	2575.7	2609.4	2621.9	2611.4
152.5°	2647.1	2630.3	2661.9	2674.5	2659.8
155°	2701.8	2683.0	2708.3	2720.8	2704.0
157.5°	2746.0	2729.3	2748.2	2762.9	2746.0
160°	2784.0	2771.2	2784.0	2796.4	2781.7
162.5°	2817.4	2804.9	2815.4	2830.1	2811.2
165°	2846.8	2834.3	2840.6	2855.3	2840.6
167.5°	2870.1	2857.3	2863.9	2878.6	2859.5
170°	2889.0	2876.3	2880.6	2895.3	2876.3
172.5°	2901.5	2889.0	2893.3	2908.0	2889.0
175°	2912.0	2897.3	2901.5	2916.3	2895.3
177.5°	2916.3	2901.5	2903.8	2918.5	2899.5
180°	2905.8	2905.8	2905.8	2905.8	2905.8

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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	12.16	13.10	13.04	14.01	15.15	11.72	12.66	12.60	13.56	14.71
	3H	13.83	14.68	14.73	15.59	16.76	13.34	14.19	14.24	15.10	16.27
	4H	14.43	15.22	15.34	16.14	17.32	13.93	14.73	14.84	15.65	16.83
	6H	14.83	15.57	15.75	16.49	17.69	14.33	15.07	15.25	15.99	17.19
	8H	14.94	15.64	15.87	16.59	17.78	14.44	15.14	15.37	16.08	17.28
	12H	15.00	15.66	15.93	16.60	17.82	14.49	15.15	15.42	16.09	17.31
4H	2H	12.63	13.43	13.55	14.35	15.53	12.28	13.08	13.19	13.99	15.18
	3H	14.51	15.18	15.44	16.13	17.32	14.10	14.77	15.03	15.72	16.91
	4H	15.23	15.84	16.17	16.78	18.01	14.81	15.42	15.74	16.36	17.58
	6H	15.75	16.28	16.70	17.25	18.47	15.32	15.85	16.27	16.82	18.04
	8H	15.91	16.40	16.86	17.36	18.60	15.47	15.96	16.42	16.92	18.16
	12H	15.99	16.43	16.96	17.41	18.65	15.54	15.98	16.51	16.96	18.20
8H	4H	15.43	15.93	16.39	16.89	18.12	15.06	15.55	16.01	16.51	17.75
	6H	16.07	16.48	17.05	17.48	18.72	15.69	16.10	16.67	17.10	18.33
	8H	16.30	16.66	17.28	17.65	18.90	15.91	16.26	16.89	17.26	18.51
	12H	16.44	16.75	17.43	17.74	19.04	16.03	16.34	17.02	17.33	18.63
12H	4H	15.42	15.87	16.40	16.85	18.09	15.06	15.50	16.03	16.48	17.72
	6H	16.10	16.46	17.09	17.46	18.71	15.73	16.09	16.72	17.08	18.34
	8H	16.35	16.67	17.34	17.66	18.95	15.97	16.29	16.96	17.28	18.57