

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: P920121

Luminaire Tested: DFN2DIP-SQ3F0-070D120US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920121
REPORT IS A COMBINATION OF REPORTS P901531 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D120US935-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

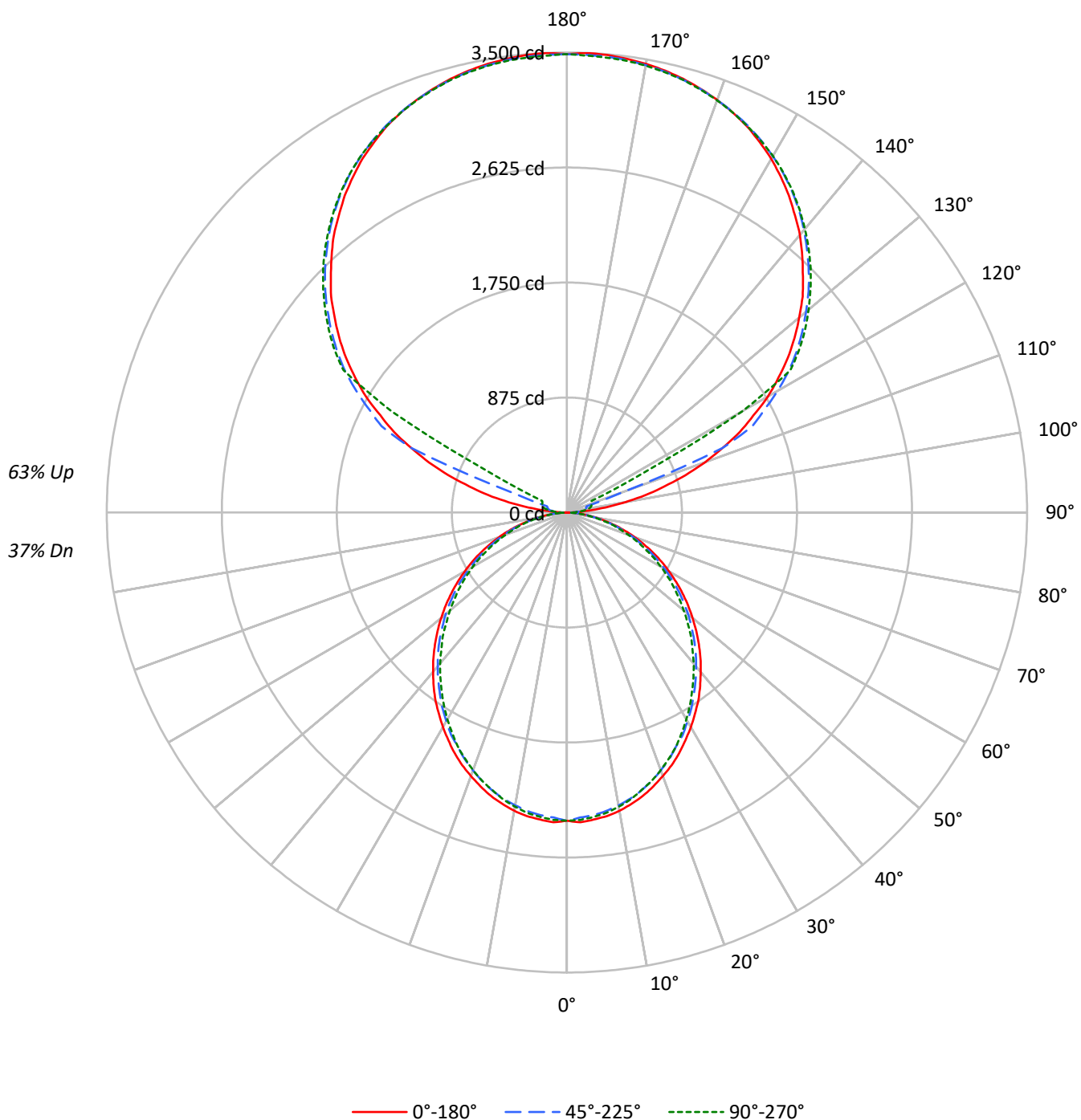
Lumens per Lamp: N/A
Luminaire Lumens: 16195.4 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 159.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	37		
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37	31		
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31	26		
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27	22		
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	19		
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20	16		
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18	14		
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16	13		
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14	11		
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13	10		
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11	9		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2687	2687	2687
5°	2690	2648	2667
10°	2666	2610	2630
15°	2625	2566	2572
20°	2570	2504	2514
25°	2516	2431	2446
30°	2448	2363	2360
35°	2384	2282	2270
40°	2305	2201	2183
45°	2226	2120	2095
50°	2140	2034	1993
55°	2049	1936	1898
60°	1946	1819	1790
65°	1835	1697	1663
70°	1692	1548	1526
75°	1495	1371	1397
80°	1256	1144	1155
85°	885	758	756

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2388 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.7	1.4
10°-20°	621.0	3.8
20°-30°	912.7	5.6
30°-40°	1060.0	6.5
40°-50°	1058.7	6.5
50°-60°	923.2	5.7
60°-70°	682.4	4.2
70°-80°	386.1	2.4
80°-90°	108.1	0.7
90°-100°	115.0	0.7
100°-110°	428.6	2.6
110°-120°	1136.8	7.0
120°-130°	1885.4	11.6
130°-140°	2002.8	12.4
140°-150°	1861.3	11.5
150°-160°	1496.5	9.2
160°-170°	964.3	6.0
170°-180°	331.9	2.0
0°-30°	1754.4	10.8
0°-40°	2814.4	17.4
0°-60°	4796.3	29.6
0°-90°	5972.9	36.9
90°-120°	1680.4	10.4
90°-150°	7429.9	45.9
90°-180°	10223.0	63.1
0°-180°	16195.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	2	30	50	63	68	15
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.0	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.2	2153.5	2142.2
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1564.9	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.5	857.0	832.2	825.4
62.5°	811.7	796.0	773.5	751.0	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.6	1650.0	1693.2	1332.0	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.2	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2941.9	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.8
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.6	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.5	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

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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	9.32	10.08	10.38	11.14	12.59	8.88	9.63	9.94	10.70	12.14
	3H	10.97	11.64	12.04	12.72	14.18	10.48	11.15	11.55	12.23	13.69
	4H	11.55	12.19	12.63	13.27	14.74	11.05	11.70	12.14	12.77	14.24
	6H	11.94	12.53	13.03	13.61	15.09	11.44	12.03	12.53	13.11	14.59
	8H	12.04	12.60	13.14	13.70	15.17	11.54	12.10	12.63	13.19	14.67
	12H	12.08	12.62	13.18	13.70	15.21	11.57	12.11	12.67	13.20	14.70
4H	2H	9.77	10.41	10.86	11.48	12.95	9.41	10.05	10.50	11.13	12.60
	3H	11.62	12.15	12.71	13.25	14.74	11.21	11.74	12.30	12.85	14.33
	4H	12.32	12.81	13.42	13.91	15.41	11.90	12.39	13.00	13.48	14.99
	6H	12.83	13.25	13.94	14.36	15.86	12.39	12.82	13.50	13.93	15.43
	8H	12.97	13.37	14.08	14.47	15.99	12.53	12.93	13.64	14.04	15.55
	12H	13.04	13.39	14.16	14.51	16.03	12.59	12.94	13.71	14.07	15.58
8H	4H	12.51	12.90	13.61	14.01	15.52	12.13	12.52	13.24	13.63	15.14
	6H	13.13	13.45	14.26	14.60	16.11	12.74	13.07	13.87	14.22	15.73
	8H	13.34	13.63	14.48	14.76	16.29	12.95	13.23	14.09	14.37	15.90
	12H	13.47	13.72	14.61	14.84	16.41	13.06	13.31	14.20	14.43	16.00
12H	4H	12.49	12.84	13.61	13.96	15.48	12.12	12.47	13.24	13.59	15.11
	6H	13.15	13.44	14.29	14.57	16.10	12.78	13.07	13.92	14.20	15.73
	8H	13.39	13.64	14.53	14.76	16.33	13.01	13.26	14.15	14.38	15.95