

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: P906812

Luminaire Tested: DFN2DIP-SQ4F0-100D070US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

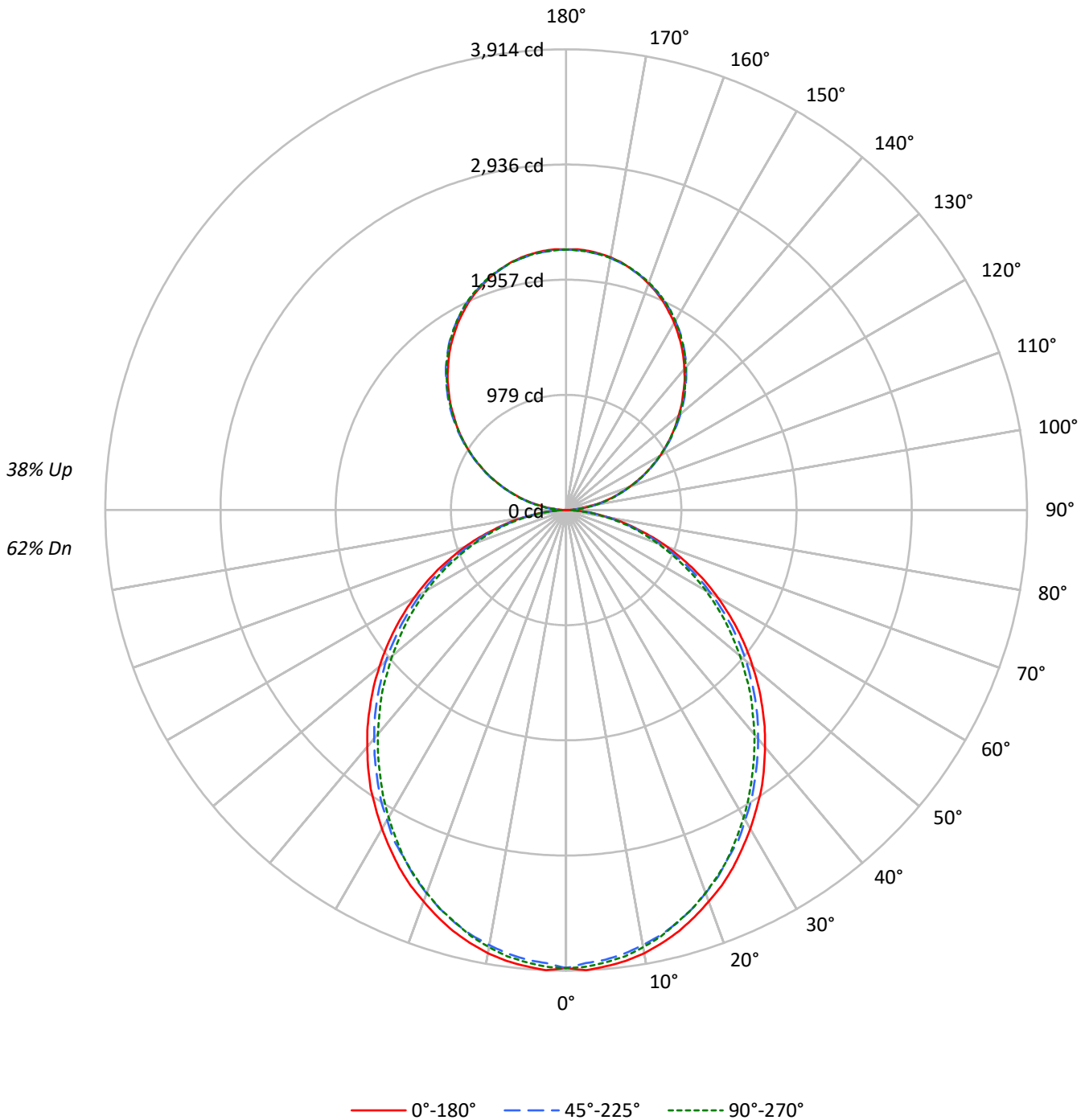
Test Method: LM-79-2019  
Report Number: P906812  
REPORT IS A COMBINATION OF REPORTS P900085 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-100D070US835-FLLFLL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16095.0 lumens  
Efficiency: N/A  
Efficacy: 111.1 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: Semi-Direct  
  
Input Watts (W): 144.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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				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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	67	67	67	62
1	100	96	92	88	94	90	87	83	79	76	74	68	67	65	59	58	56	59	58	56	52
2	91	84	78	72	85	79	73	68	69	65	61	60	57	54	52	50	48	52	50	48	43
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40	46	43	40	37
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35	41	38	35	32
5	70	58	50	44	65	55	47	42	49	43	38	43	38	34	37	33	30	37	33	30	27
6	65	52	44	38	60	49	42	36	44	38	33	39	34	30	34	30	27	34	30	27	24
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24	31	27	24	21
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	28	24	21	28	24	21	19
9	52	39	32	27	49	37	30	26	33	28	23	30	25	21	26	22	19	26	22	19	17
10	49	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18	24	20	18	16

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2730	2730	2730
5°	2735	2693	2711
10°	2712	2657	2675
15°	2672	2614	2619
20°	2618	2554	2561
25°	2565	2481	2494
30°	2498	2414	2408
35°	2434	2335	2317
40°	2356	2255	2231
45°	2277	2175	2143
50°	2192	2091	2041
55°	2102	1994	1948
60°	2001	1878	1841
65°	1891	1759	1714
70°	1750	1613	1578
75°	1555	1439	1454
80°	1321	1217	1215
85°	955	833	816

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2277 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	366.2	2.3
10°-20°	1030.4	6.4
20°-30°	1514.3	9.4
30°-40°	1758.8	10.9
40°-50°	1756.6	10.9
50°-60°	1531.7	9.5
60°-70°	1132.3	7.0
70°-80°	640.6	4.0
80°-90°	175.4	1.1
90°-100°	137.0	0.9
100°-110°	435.3	2.7
110°-120°	744.9	4.6
120°-130°	979.6	6.1
130°-140°	1099.6	6.8
140°-150°	1078.3	6.7
150°-160°	904.5	5.6
160°-170°	599.9	3.7
170°-180°	209.7	1.3
0°-30°	2911.0	18.1
0°-40°	4669.7	29.0
0°-60°	7958.0	49.4
0°-90°	9906.3	61.5
90°-120°	1317.2	8.2
90°-150°	4474.7	27.8
90°-180°	6189.0	38.5
0°-180°	16095.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3891	3891	3891	3891	3891	
5°	3891	3876	3835	3865	3858	369
15°	3704	3682	3633	3648	3630	1043
25°	3352	3323	3259	3266	3259	1543
35°	2892	2855	2795	2772	2754	1806
45°	2354	2327	2271	2230	2215	1816
55°	1781	1759	1714	1669	1650	1592
65°	1201	1179	1141	1108	1089	1188
75°	628	621	602	580	588	671
85°	153	150	146	135	131	171
90°	2	24	65	61	63	15
95°	97	116	120	120	116	108
105°	402	407	411	414	414	424
115°	748	758	755	753	748	739
125°	1087	1104	1099	1093	1091	972
135°	1406	1427	1431	1429	1424	1087
145°	1707	1721	1731	1733	1726	1067
155°	1952	1958	1964	1973	1967	899
165°	2124	2122	2122	2135	2126	599
175°	2210	2204	2200	2214	2202	210
180°	2214	2214	2214	2214	2214	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3891.1	3891.1	3891.1	3891.1	3891.1
2.5°	3913.7	3895.0	3853.7	3891.1	3883.9
5°	3891.1	3876.4	3835.1	3864.9	3857.7
7.5°	3864.9	3842.6	3801.3	3831.5	3824.0
10°	3824.0	3797.8	3752.9	3782.7	3771.6
12.5°	3767.6	3745.4	3700.5	3719.2	3711.6
15°	3704.1	3681.9	3633.0	3648.1	3629.5
17.5°	3625.5	3603.3	3554.4	3573.1	3554.4
20°	3539.3	3517.1	3464.7	3475.8	3461.1
22.5°	3453.6	3419.9	3371.0	3371.0	3363.5
25°	3352.4	3322.6	3259.1	3266.2	3259.1
27.5°	3240.0	3213.8	3165.4	3154.3	3135.6
30°	3128.1	3097.9	3041.9	3030.8	3015.7
32.5°	3008.2	2986.0	2926.0	2903.4	2888.3
35°	2892.3	2855.0	2795.0	2772.4	2753.7
37.5°	2761.3	2727.5	2667.6	2641.4	2622.7
40°	2626.7	2596.5	2536.6	2503.3	2488.2
42.5°	2495.7	2465.5	2406.0	2368.3	2346.1
45°	2353.6	2327.4	2271.0	2230.1	2215.1
47.5°	2215.1	2188.9	2128.9	2087.6	2065.4
50°	2069.0	2050.3	1997.9	1945.5	1926.9
52.5°	1926.9	1900.7	1852.2	1811.0	1784.8
55°	1781.2	1758.6	1713.7	1668.8	1650.2
57.5°	1635.1	1616.4	1567.6	1522.8	1507.7
60°	1489.0	1474.3	1421.9	1380.6	1369.5
62.5°	1346.9	1320.7	1283.4	1246.1	1231.0
65°	1201.2	1178.6	1141.3	1107.5	1088.9
67.5°	1051.6	1032.5	999.2	973.0	957.9
70°	913.0	897.9	864.2	838.0	823.3
72.5°	770.9	755.8	737.2	711.0	699.8
75°	628.4	621.3	602.2	580.0	587.5
77.5°	501.4	486.3	478.7	467.6	456.5
80°	374.3	370.4	362.8	351.7	344.2
82.5°	254.5	254.5	250.9	235.8	235.8
85°	153.2	149.7	146.1	134.6	131.0
87.5°	67.5	59.9	52.4	41.3	37.3
90°	2.0	24.0	65.4	61.4	63.4
92.5°	41.4	56.1	58.1	60.1	60.1
95°	97.4	116.1	119.5	119.5	116.1
97.5°	162.2	179.5	186.9	186.9	186.9
100°	236.9	252.3	257.6	257.6	255.6
102.5°	315.7	327.0	334.4	336.4	334.4
105°	401.8	407.1	411.1	414.5	414.5
107.5°	487.2	495.2	495.2	496.6	487.2
110°	570.0	580.7	580.7	580.7	575.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	659.4	670.8	668.8	663.4	659.4
115°	747.5	758.2	754.9	752.9	747.5
117.5°	834.9	849.6	840.3	834.9	829.6
120°	923.0	937.7	923.0	923.0	917.0
122.5°	1003.1	1021.8	1012.5	1007.1	1003.1
125°	1087.2	1103.9	1098.6	1092.6	1090.6
127.5°	1169.3	1190.0	1182.7	1174.7	1169.3
130°	1246.1	1270.1	1266.8	1262.8	1255.4
132.5°	1332.2	1350.9	1352.2	1342.9	1337.5
135°	1406.3	1426.9	1431.0	1428.9	1423.6
137.5°	1489.0	1505.7	1509.0	1507.7	1499.7
140°	1561.8	1578.5	1587.8	1587.8	1580.5
142.5°	1636.5	1653.2	1658.5	1660.5	1653.2
145°	1707.3	1720.6	1731.3	1733.3	1726.0
147.5°	1770.7	1787.4	1795.4	1798.7	1791.4
150°	1836.1	1847.4	1854.8	1860.8	1854.8
152.5°	1894.1	1905.5	1914.8	1922.2	1914.8
155°	1952.2	1957.5	1963.6	1972.9	1966.9
157.5°	2002.3	2006.3	2009.6	2023.0	2013.6
160°	2047.0	2051.0	2053.0	2064.3	2056.3
162.5°	2088.4	2088.4	2090.4	2103.0	2093.7
165°	2123.7	2121.7	2121.7	2135.1	2125.7
167.5°	2155.8	2149.8	2149.8	2163.1	2153.8
170°	2179.8	2174.5	2172.5	2185.8	2174.5
172.5°	2196.5	2191.1	2189.1	2202.5	2191.1
175°	2209.8	2204.5	2200.5	2213.8	2202.5
177.5°	2217.2	2211.8	2207.8	2219.2	2207.8
180°	2213.8	2213.8	2213.8	2213.8	2213.8



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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	11.78	12.75	12.63	13.62	14.72	11.33	12.31	12.18	13.18	14.28
	3H	13.45	14.32	14.31	15.21	16.33	12.96	13.83	13.82	14.72	15.84
	4H	14.04	14.87	14.92	15.76	16.89	13.55	14.38	14.43	15.27	16.40
	6H	14.45	15.22	15.35	16.11	17.26	13.95	14.72	14.84	15.61	16.76
	8H	14.56	15.29	15.46	16.20	17.35	14.06	14.79	14.96	15.70	16.85
	12H	14.62	15.31	15.52	16.22	17.39	14.11	14.80	15.01	15.71	16.88
4H	2H	12.25	13.08	13.13	13.97	15.10	11.90	12.72	12.78	13.61	14.75
	3H	14.13	14.82	15.03	15.74	16.89	13.72	14.42	14.62	15.34	16.48
	4H	14.85	15.48	15.76	16.40	17.57	14.43	15.06	15.34	15.98	17.15
	6H	15.38	15.92	16.30	16.86	18.04	14.95	15.49	15.87	16.43	17.61
	8H	15.53	16.04	16.46	16.98	18.17	15.10	15.61	16.02	16.54	17.73
	12H	15.62	16.07	16.56	17.03	18.22	15.17	15.62	16.11	16.58	17.77
8H	4H	15.06	15.57	15.98	16.50	17.69	14.68	15.19	15.61	16.13	17.32
	6H	15.70	16.12	16.65	17.10	18.29	15.32	15.74	16.27	16.72	17.90
	8H	15.93	16.30	16.89	17.27	18.47	15.53	15.91	16.49	16.87	18.08
	12H	16.07	16.39	17.03	17.35	18.61	15.65	15.98	16.62	16.94	18.20
12H	4H	15.05	15.51	15.99	16.46	17.66	14.68	15.14	15.63	16.10	17.29
	6H	15.73	16.11	16.69	17.07	18.28	15.36	15.73	16.32	16.70	17.91
	8H	15.98	16.31	16.95	17.27	18.53	15.60	15.93	16.57	16.89	18.15