

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: P914945

Luminaire Tested: DFN2DIP-SQ4F0-080D120US927-FLLONL

Issue Date: 11/21/2024

**Test Information**

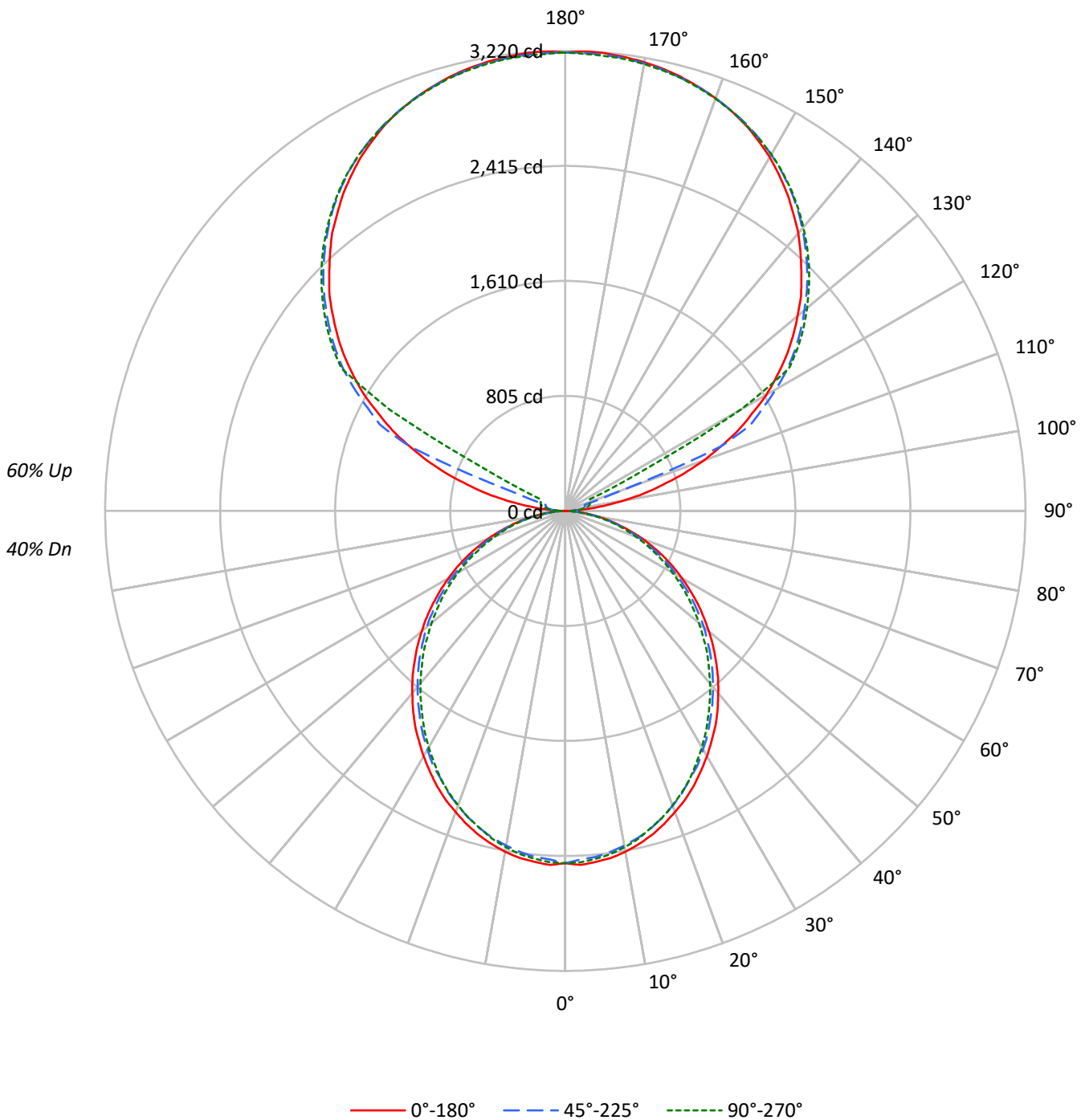
Test Method: LM-79-2019  
Report Number: P914945  
REPORT IS A COMBINATION OF REPORTS P901691 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-080D120US927-FLLONL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15685.2 lumens  
Efficiency: N/A  
Efficacy: 97.1 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: General Diffuse  
  
Input Watts (W): 161.5  
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				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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	47	47	47	40
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40	40	40	40	34
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33	33	33	33	28
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28	28	28	28	24
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	24	21
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21	21	21	21	18
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19	19	19	19	16
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17	17	17	17	14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	15	12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13	13	13	13	11
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12	12	12	12	10

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

	0°	45°	90°
0°	1730	1730	1730
5°	1733	1707	1718
10°	1719	1684	1695
15°	1694	1657	1660
20°	1660	1618	1623
25°	1626	1573	1580
30°	1583	1530	1526
35°	1542	1480	1469
40°	1493	1429	1414
45°	1443	1378	1358
50°	1389	1325	1294
55°	1332	1264	1234
60°	1268	1190	1166
65°	1198	1115	1086
70°	1109	1022	1000
75°	986	912	922
80°	838	771	770
85°	605	528	517

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1720 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	232.1	1.5
10°-20°	653.0	4.2
20°-30°	959.7	6.1
30°-40°	1114.6	7.1
40°-50°	1113.2	7.1
50°-60°	970.7	6.2
60°-70°	717.6	4.6
70°-80°	406.0	2.6
80°-90°	112.8	0.7
90°-100°	105.8	0.7
100°-110°	394.4	2.5
110°-120°	1045.9	6.7
120°-130°	1734.7	11.1
130°-140°	1842.7	11.7
140°-150°	1712.6	10.9
150°-160°	1376.9	8.8
160°-170°	887.2	5.7
170°-180°	305.4	1.9
0°-30°	1844.8	11.8
0°-40°	2959.4	18.9
0°-60°	5043.4	32.2
0°-90°	6279.7	40.0
90°-120°	1546.1	9.9
90°-150°	6836.0	43.6
90°-180°	9405.0	60.0
0°-180°	15685.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	2	28	46	58	63	14
95°	151	74	90	102	100	179
105°	706	776	142	167	176	754
115°	1335	1374	1432	358	190	1314
125°	1887	1918	1962	1978	1985	1683
135°	2335	2373	2393	2417	2412	1804
145°	2709	2707	2746	2762	2751	1694
155°	2983	2962	2990	3004	2986	1375
165°	3143	3129	3136	3153	3136	888
175°	3215	3199	3204	3220	3197	306
180°	3208	3208	3208	3208	3208	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.8	74.1	90.4	102.3	99.8
97.5°	271.6	81.4	118.3	125.4	127.6
100°	411.0	92.9	132.3	150.8	155.5
102.5°	564.0	559.6	137.0	162.4	169.5
105°	705.7	775.5	141.7	167.1	176.4
107.5°	870.5	928.4	146.4	171.7	181.1
110°	1028.5	1077.0	406.3	174.2	183.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1177.1	1218.7	1179.3	178.6	185.8
115°	1334.7	1374.2	1432.3	357.5	190.5
117.5°	1471.8	1518.1	1557.8	1225.6	617.5
120°	1625.1	1659.8	1701.7	1729.6	1416.1
122.5°	1754.9	1792.2	1838.7	1852.5	1855.0
125°	1887.2	1917.6	1961.7	1977.9	1984.8
127.5°	2007.9	2040.5	2075.5	2098.6	2100.9
130°	2121.8	2159.0	2184.4	2210.0	2207.8
132.5°	2237.8	2268.2	2293.5	2314.5	2312.3
135°	2335.4	2372.7	2393.3	2416.8	2412.1
137.5°	2437.5	2465.3	2488.7	2511.8	2505.0
140°	2537.3	2556.0	2581.3	2602.3	2590.7
142.5°	2621.0	2637.3	2667.4	2685.8	2674.2
145°	2709.3	2706.8	2746.2	2762.5	2750.8
147.5°	2785.6	2778.7	2818.2	2829.8	2820.6
150°	2860.0	2843.8	2881.0	2894.8	2883.2
152.5°	2922.6	2904.1	2938.9	2952.9	2936.7
155°	2983.0	2962.3	2990.2	3004.0	2985.5
157.5°	3031.8	3013.3	3034.3	3050.5	3031.8
160°	3073.7	3059.6	3073.7	3087.4	3071.2
162.5°	3110.7	3096.9	3108.4	3124.7	3103.8
165°	3143.1	3129.4	3136.2	3152.6	3136.2
167.5°	3168.8	3154.7	3161.9	3178.2	3157.2
170°	3189.7	3175.7	3180.4	3196.6	3175.7
172.5°	3203.5	3189.7	3194.5	3210.7	3189.7
175°	3215.1	3198.8	3203.5	3219.8	3196.6
177.5°	3219.8	3203.5	3206.0	3222.3	3201.4
180°	3208.3	3208.3	3208.3	3208.3	3208.3



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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	8.19	8.97	9.23	10.01	11.42	7.75	8.53	8.79	9.57	10.98
	3H	9.85	10.55	10.90	11.60	13.03	9.36	10.06	10.41	11.11	12.54
	4H	10.44	11.10	11.50	12.15	13.59	9.94	10.60	11.00	11.66	13.09
	6H	10.84	11.45	11.91	12.50	13.95	10.34	10.94	11.41	12.00	13.45
	8H	10.94	11.52	12.01	12.60	14.04	10.44	11.02	11.51	12.09	13.53
	12H	10.99	11.54	12.07	12.61	14.07	10.48	11.03	11.56	12.10	13.56
4H	2H	8.64	9.31	9.71	10.36	11.79	8.29	8.95	9.36	10.01	11.44
	3H	10.51	11.06	11.58	12.14	13.59	10.10	10.65	11.17	11.73	13.18
	4H	11.22	11.73	12.30	12.80	14.27	10.80	11.30	11.88	12.38	13.84
	6H	11.74	12.17	12.82	13.27	14.73	11.30	11.74	12.39	12.83	14.30
	8H	11.89	12.29	12.97	13.38	14.86	11.45	11.85	12.54	12.94	14.42
	12H	11.96	12.32	13.06	13.43	14.91	11.51	11.87	12.61	12.98	14.46
8H	4H	11.41	11.82	12.50	12.91	14.38	11.03	11.44	12.12	12.53	14.01
	6H	12.04	12.38	13.15	13.51	14.98	11.66	12.00	12.77	13.13	14.60
	8H	12.27	12.56	13.38	13.67	15.17	11.87	12.17	12.99	13.28	14.77
	12H	12.40	12.66	13.52	13.76	15.30	11.99	12.24	13.11	13.35	14.89
12H	4H	11.39	11.76	12.50	12.86	14.34	11.02	11.39	12.13	12.49	13.98
	6H	12.07	12.37	13.19	13.48	14.97	11.70	12.00	12.82	13.11	14.60
	8H	12.31	12.57	13.44	13.68	15.21	11.93	12.19	13.06	13.30	14.83