

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: P922842

Luminaire Tested: DFN2DIP-SQ3F0-070D100US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

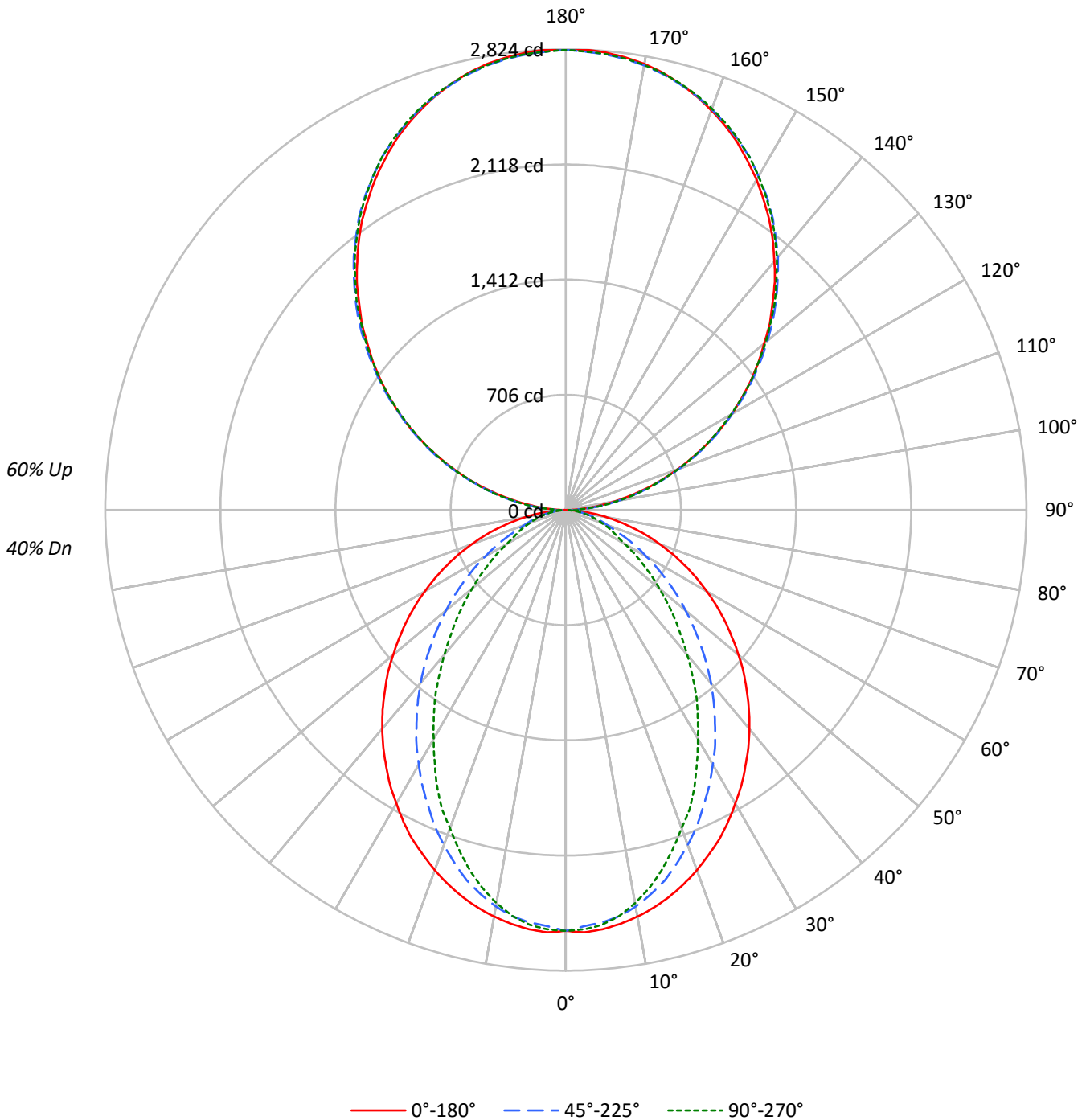
Test Method: LM-79-2019  
Report Number: P922842  
REPORT IS A COMBINATION OF REPORTS P899976 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-070D100US940-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13197.3 lumens  
Efficiency: N/A  
Efficacy: 92.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 143.1  
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			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	92	88	85	87	84	81	78	69	67	65	55	54	52	42	41	41	41	41	41	35
2	88	81	75	70	80	74	69	65	61	57	54	49	46	44	38	36	35	35	35	35	30
3	80	71	64	59	73	65	59	54	54	50	46	43	40	38	34	32	30	30	30	30	26
4	74	63	56	50	67	58	51	46	48	43	39	39	35	33	30	28	26	26	26	26	22
5	68	56	49	43	61	52	45	40	43	38	34	35	31	29	28	25	23	23	23	23	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	20	20	20	20	17
7	58	46	38	33	53	42	35	31	35	30	27	29	25	22	23	20	18	18	18	18	16
8	54	42	34	29	49	38	32	27	32	27	24	27	23	20	21	19	17	17	17	17	14
9	50	38	31	26	45	35	29	24	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	32	26	22	27	22	19	23	19	16	18	16	14	14	14	14	12

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

	0°	45°	90°
0°	2956	2956	2956
5°	2959	2907	2927
10°	2928	2848	2831
15°	2885	2752	2682
20°	2830	2620	2501
25°	2774	2473	2326
30°	2698	2323	2104
35°	2624	2161	1909
40°	2549	1994	1686
45°	2462	1808	1484
50°	2372	1621	1286
55°	2277	1422	1096
60°	2168	1214	901
65°	2041	1002	810
70°	1888	805	732
75°	1695	705	664
80°	1417	586	572
85°	960	381	424

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2838 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	241.8	1.8
10°-20°	663.7	5.0
20°-30°	931.9	7.1
30°-40°	1015.8	7.7
40°-50°	933.6	7.1
50°-60°	733.2	5.6
60°-70°	477.3	3.6
70°-80°	245.7	1.9
80°-90°	70.7	0.5
90°-100°	174.5	1.3
100°-110°	554.5	4.2
110°-120°	948.9	7.2
120°-130°	1247.9	9.5
130°-140°	1400.8	10.6
140°-150°	1373.6	10.4
150°-160°	1152.3	8.7
160°-170°	764.1	5.8
170°-180°	267.1	2.0
0°-30°	1837.4	13.9
0°-40°	2853.2	21.6
0°-60°	4520.0	34.2
0°-90°	5313.7	40.3
90°-120°	1677.9	12.7
90°-150°	5700.1	43.2
90°-180°	7884.0	59.7
0°-180°	13197.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	3	31	83	78	81	13
95°	124	148	152	152	148	138
105°	512	519	524	528	528	540
115°	952	966	962	959	952	942
125°	1385	1406	1400	1392	1389	1238
135°	1791	1818	1823	1820	1814	1385
145°	2175	2192	2206	2208	2199	1359
155°	2487	2494	2501	2513	2506	1145
165°	2705	2703	2703	2720	2708	763
175°	2815	2808	2803	2820	2806	267
180°	2820	2820	2820	2820	2820	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	2.6	30.6	83.3	78.2	80.8
92.5°	52.7	71.4	74.0	76.5	76.5
95°	124.1	147.9	152.2	152.2	147.9
97.5°	206.6	228.7	238.1	238.1	238.1
100°	301.8	321.4	328.1	328.1	325.7
102.5°	402.2	416.6	426.0	428.5	426.0
105°	511.8	518.6	523.7	528.0	528.0
107.5°	620.6	630.9	630.9	632.6	620.6
110°	726.1	739.7	739.7	739.7	732.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	840.0	854.4	851.9	845.1	840.0
115°	952.3	965.8	961.6	959.0	952.3
117.5°	1063.6	1082.4	1070.4	1063.6	1056.8
120°	1175.8	1194.5	1175.8	1175.8	1168.2
122.5°	1277.8	1301.6	1289.8	1283.0	1277.8
125°	1385.0	1406.2	1399.5	1391.8	1389.3
127.5°	1489.6	1515.9	1506.5	1496.4	1489.6
130°	1587.3	1617.9	1613.7	1608.6	1599.3
132.5°	1697.0	1720.8	1722.5	1710.7	1703.8
135°	1791.4	1817.8	1822.8	1820.3	1813.5
137.5°	1896.8	1918.1	1922.3	1920.7	1910.4
140°	1989.5	2010.7	2022.7	2022.7	2013.3
142.5°	2084.7	2106.0	2112.7	2115.3	2106.0
145°	2174.8	2191.8	2205.5	2208.0	2198.6
147.5°	2255.6	2276.9	2287.1	2291.3	2282.0
150°	2339.0	2353.4	2362.8	2370.3	2362.8
152.5°	2412.9	2427.3	2439.3	2448.6	2439.3
155°	2486.9	2493.7	2501.3	2513.2	2505.5
157.5°	2550.6	2555.7	2560.0	2577.0	2565.1
160°	2607.6	2612.7	2615.2	2629.7	2619.5
162.5°	2660.3	2660.3	2662.8	2679.0	2667.1
165°	2705.4	2702.8	2702.8	2719.8	2707.9
167.5°	2746.2	2738.5	2738.5	2755.6	2743.6
170°	2776.8	2770.0	2767.4	2784.5	2770.0
172.5°	2798.0	2791.2	2788.6	2805.7	2791.2
175°	2815.0	2808.3	2803.2	2820.1	2805.7
177.5°	2824.4	2817.6	2812.5	2826.9	2812.5
180°	2820.1	2820.1	2820.1	2820.1	2820.1



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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	9.89	10.65	10.94	11.69	13.10	5.85	6.61	6.90	7.66	9.06
	3H	11.56	12.24	12.61	13.29	14.72	7.03	7.71	8.08	8.76	10.19
	4H	12.16	12.80	13.23	13.86	15.29	7.47	8.11	8.54	9.17	10.60
	6H	12.58	13.17	13.65	14.23	15.67	7.79	8.37	8.86	9.43	10.88
	8H	12.70	13.26	13.78	14.34	15.77	7.87	8.43	8.95	9.51	10.94
	12H	12.76	13.29	13.84	14.36	15.82	7.91	8.44	8.99	9.51	10.97
4H	2H	9.90	10.54	10.97	11.60	13.03	6.44	7.08	7.51	8.13	9.57
	3H	11.72	12.25	12.80	13.33	14.78	7.77	8.31	8.85	9.39	10.84
	4H	12.40	12.89	13.49	13.97	15.43	8.31	8.80	9.40	9.88	11.34
	6H	12.91	13.33	14.00	14.43	15.89	8.72	9.14	9.81	10.24	11.70
	8H	13.08	13.47	14.17	14.56	16.04	8.85	9.24	9.94	10.33	11.80
	12H	13.17	13.52	14.28	14.63	16.11	8.90	9.26	10.01	10.36	11.84
8H	4H	12.36	12.76	13.46	13.84	15.32	8.59	8.98	9.68	10.07	11.54
	6H	12.92	13.25	14.04	14.38	15.85	9.09	9.42	10.21	10.55	12.02
	8H	13.14	13.42	14.26	14.53	16.02	9.28	9.56	10.40	10.67	12.17
	12H	13.27	13.52	14.39	14.62	16.16	9.39	9.64	10.51	10.75	12.28
12H	4H	12.31	12.67	13.42	13.77	15.25	8.59	8.94	9.70	10.04	11.52
	6H	12.90	13.18	14.02	14.29	15.79	9.14	9.42	10.26	10.54	12.03
	8H	13.11	13.36	14.23	14.47	16.00	9.34	9.59	10.47	10.70	12.23