

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: P917451

Luminaire Tested: DFN2DIP-SQ3F0-090D080US930-RLONL

Issue Date: 11/21/2024

**Test Information**

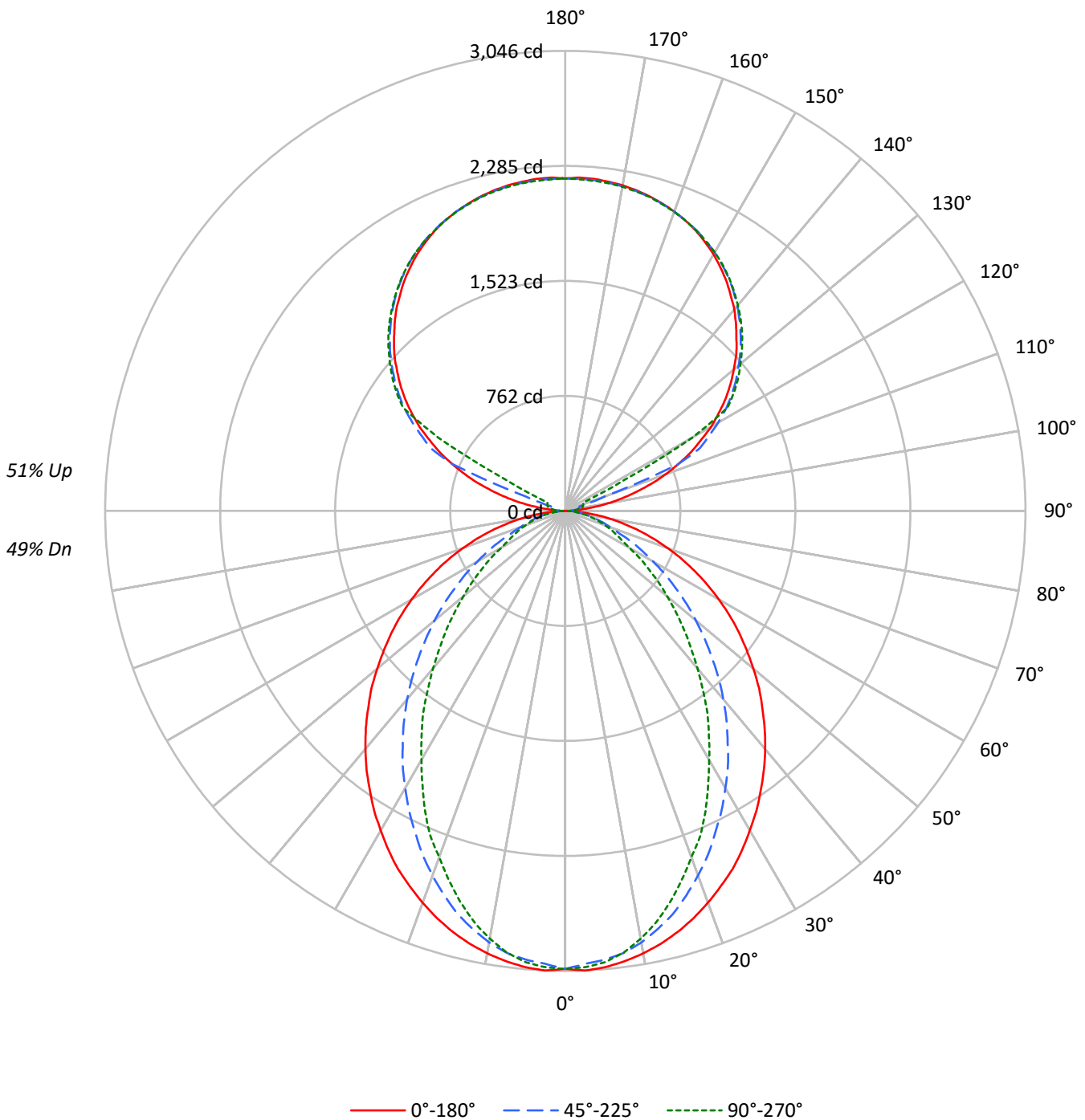
Test Method: LM-79-2019  
Report Number: P917451  
REPORT IS A COMBINATION OF REPORTS P901464 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-090D080US930-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12694.2 lumens  
Efficiency: N/A  
Efficacy: 85.7 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): 148.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.996  
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				
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	55	55	55	49			49
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48	42			42
2	90	83	77	72	82	76	71	67	65	61	58	54	52	49	44	42	41	36			36
3	82	73	66	60	75	68	62	57	58	53	49	48	45	42	40	37	35	31			31
4	75	65	57	51	69	60	54	48	51	46	42	43	40	37	36	33	31	27			27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	30	27	24			24
6	64	52	44	39	59	49	42	37	42	36	32	36	31	28	30	27	24	21			21
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22	19			19
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20	17			17
9	51	39	32	27	47	37	30	26	32	27	23	28	23	20	23	20	18	16			16
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16	14			14

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

	0°	45°	90°
0°	3475	3475	3475
5°	3478	3417	3440
10°	3442	3348	3327
15°	3392	3235	3153
20°	3327	3080	2940
25°	3261	2908	2734
30°	3172	2730	2473
35°	3085	2540	2244
40°	2997	2343	1982
45°	2894	2126	1744
50°	2788	1906	1512
55°	2677	1672	1289
60°	2548	1427	1060
65°	2399	1178	952
70°	2219	946	860
75°	1993	829	780
80°	1665	688	673
85°	1129	448	499

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2894 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	284.2	2.2
10°-20°	780.3	6.1
20°-30°	1095.5	8.6
30°-40°	1194.1	9.4
40°-50°	1097.5	8.6
50°-60°	861.9	6.8
60°-70°	561.0	4.4
70°-80°	288.8	2.3
80°-90°	77.6	0.6
90°-100°	72.6	0.6
100°-110°	270.6	2.1
110°-120°	717.6	5.7
120°-130°	1190.2	9.4
130°-140°	1264.3	10.0
140°-150°	1175.0	9.3
150°-160°	944.7	7.4
160°-170°	608.7	4.8
170°-180°	209.5	1.7
0°-30°	2159.9	17.0
0°-40°	3354.0	26.4
0°-60°	5313.5	41.9
0°-90°	6240.9	49.2
90°-120°	1060.8	8.4
90°-150°	4690.4	36.9
90°-180°	6453.0	50.8
0°-180°	12694.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3033	3033	3033	3033	3033	
5°	3033	3019	2983	3008	3000	288
15°	2884	2854	2761	2709	2682	813
25°	2618	2530	2349	2237	2196	1204
35°	2256	2116	1875	1702	1641	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	947	724	478	384	376	939
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	2	19	32	40	43	12
95°	104	51	62	70	68	123
105°	484	532	97	115	121	517
115°	916	943	983	245	131	902
125°	1295	1316	1346	1357	1362	1155
135°	1602	1628	1642	1658	1655	1238
145°	1859	1857	1884	1895	1887	1163
155°	2047	2032	2052	2061	2048	943
165°	2157	2147	2152	2163	2152	609
175°	2206	2195	2198	2209	2193	210
180°	2201	2201	2201	2201	2201	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3032.7	3032.7	3032.7	3032.7	3032.7
2.5°	3046.4	3032.7	3002.3	3030.1	3024.5
5°	3032.7	3019.0	2983.2	3007.9	2999.7
7.5°	3007.9	2991.6	2953.2	2963.9	2950.2
10°	2975.0	2955.8	2901.1	2892.6	2876.3
12.5°	2933.9	2909.2	2835.0	2818.6	2788.3
15°	2884.4	2854.2	2761.0	2708.8	2681.5
17.5°	2826.8	2782.9	2667.5	2607.2	2563.3
20°	2761.0	2706.0	2568.8	2500.4	2439.8
22.5°	2689.7	2626.5	2467.2	2374.0	2333.0
25°	2618.3	2530.4	2349.3	2236.9	2195.5
27.5°	2533.3	2439.8	2239.5	2110.5	2047.3
30°	2442.7	2338.2	2118.6	1978.9	1904.6
32.5°	2354.7	2228.4	2003.6	1838.8	1770.1
35°	2256.1	2116.0	1874.6	1701.7	1641.1
37.5°	2160.0	2008.9	1753.8	1564.2	1495.8
40°	2058.4	1893.9	1627.4	1432.6	1361.3
42.5°	1954.1	1778.6	1501.3	1298.1	1229.6
45°	1844.4	1660.4	1372.3	1177.2	1111.4
47.5°	1740.1	1545.3	1248.9	1053.8	993.5
50°	1624.8	1430.0	1128.0	938.5	881.1
52.5°	1512.1	1306.3	1012.8	831.6	779.5
55°	1402.3	1188.3	891.9	727.4	675.2
57.5°	1290.0	1070.4	785.1	631.3	587.3
60°	1174.6	955.0	672.4	532.6	488.6
62.5°	1062.3	842.7	576.3	444.7	422.8
65°	946.9	724.5	477.5	384.3	375.9
67.5°	837.1	614.7	384.3	337.5	329.3
70°	721.9	507.8	318.3	290.9	279.8
72.5°	612.0	408.8	266.1	244.3	238.8
75°	504.9	312.7	219.6	200.3	197.7
77.5°	398.0	222.2	172.9	161.9	156.4
80°	299.1	159.3	131.6	120.8	120.8
82.5°	208.5	107.1	90.6	85.0	85.0
85°	117.9	60.3	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.5	50.9	62.0	70.2	68.5
97.5°	186.3	55.8	81.1	86.1	87.6
100°	282.0	63.8	90.8	103.5	106.6
102.5°	387.0	383.9	94.0	111.4	116.3
105°	484.2	532.1	97.2	114.6	121.1
107.5°	597.3	637.0	100.4	117.8	124.3
110°	705.7	739.0	278.8	119.5	125.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	807.6	836.2	809.2	122.5	127.5
115°	915.8	942.9	982.8	245.3	130.7
117.5°	1009.8	1041.6	1068.9	840.9	423.7
120°	1115.0	1138.8	1167.6	1186.7	971.6
122.5°	1204.0	1229.6	1261.6	1271.0	1272.8
125°	1294.9	1315.6	1345.9	1357.1	1361.8
127.5°	1377.7	1400.0	1424.1	1439.9	1441.4
130°	1455.8	1481.3	1498.8	1516.4	1514.8
132.5°	1535.5	1556.2	1573.7	1588.0	1586.5
135°	1602.4	1627.9	1642.1	1658.2	1655.0
137.5°	1672.4	1691.5	1707.6	1723.5	1718.7
140°	1740.8	1753.7	1771.2	1785.5	1777.5
142.5°	1798.4	1809.5	1830.1	1842.8	1834.8
145°	1858.9	1857.2	1884.2	1895.4	1887.4
147.5°	1911.3	1906.6	1933.6	1941.6	1935.3
150°	1962.3	1951.2	1976.7	1986.1	1978.2
152.5°	2005.3	1992.6	2016.4	2026.1	2014.9
155°	2046.7	2032.5	2051.6	2061.1	2048.4
157.5°	2080.2	2067.5	2081.9	2093.0	2080.2
160°	2108.9	2099.3	2108.9	2118.4	2107.2
162.5°	2134.3	2124.8	2132.7	2143.9	2129.6
165°	2156.6	2147.2	2151.9	2163.0	2151.9
167.5°	2174.2	2164.5	2169.4	2180.6	2166.2
170°	2188.6	2178.9	2182.1	2193.3	2178.9
172.5°	2198.0	2188.6	2191.8	2202.9	2188.6
175°	2206.0	2194.8	2198.0	2209.1	2193.3
177.5°	2209.1	2198.0	2199.7	2210.8	2196.5
180°	2201.2	2201.2	2201.2	2201.2	2201.2



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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	11.36	12.19	12.33	13.17	14.45	7.32	8.15	8.29	9.13	10.41
	3H	13.03	13.77	14.02	14.76	16.07	8.50	9.24	9.49	10.23	11.54
	4H	13.64	14.34	14.64	15.33	16.65	8.95	9.65	9.95	10.64	11.96
	6H	14.06	14.70	15.06	15.70	17.02	9.26	9.91	10.27	10.90	12.23
	8H	14.18	14.79	15.19	15.80	17.13	9.35	9.96	10.36	10.98	12.30
	12H	14.24	14.82	15.26	15.83	17.18	9.39	9.97	10.41	10.98	12.33
4H	2H	11.38	12.07	12.38	13.07	14.38	7.91	8.61	8.92	9.60	10.92
	3H	13.20	13.78	14.21	14.80	16.13	9.26	9.84	10.27	10.86	12.19
	4H	13.89	14.42	14.91	15.43	16.79	9.80	10.33	10.82	11.34	12.70
	6H	14.40	14.85	15.43	15.89	17.24	10.21	10.66	11.24	11.70	13.05
	8H	14.57	15.00	15.60	16.03	17.39	10.34	10.76	11.37	11.79	13.16
	12H	14.66	15.05	15.71	16.09	17.46	10.40	10.78	11.44	11.83	13.19
8H	4H	13.85	14.28	14.88	15.31	16.67	10.08	10.50	11.11	11.53	12.90
	6H	14.41	14.76	15.47	15.84	17.20	10.59	10.94	11.64	12.01	13.37
	8H	14.63	14.94	15.69	15.99	17.38	10.77	11.08	11.83	12.14	13.52
	12H	14.76	15.03	15.83	16.09	17.51	10.88	11.16	11.95	12.21	13.63
12H	4H	13.81	14.19	14.85	15.23	16.60	10.08	10.46	11.13	11.51	12.88
	6H	14.39	14.70	15.45	15.76	17.14	10.63	10.94	11.69	12.00	13.38
	8H	14.61	14.88	15.67	15.93	17.35	10.84	11.11	11.90	12.16	13.58