

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: P914499

Luminaire Tested: DFN2DIP-SQ2F0-070D080US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

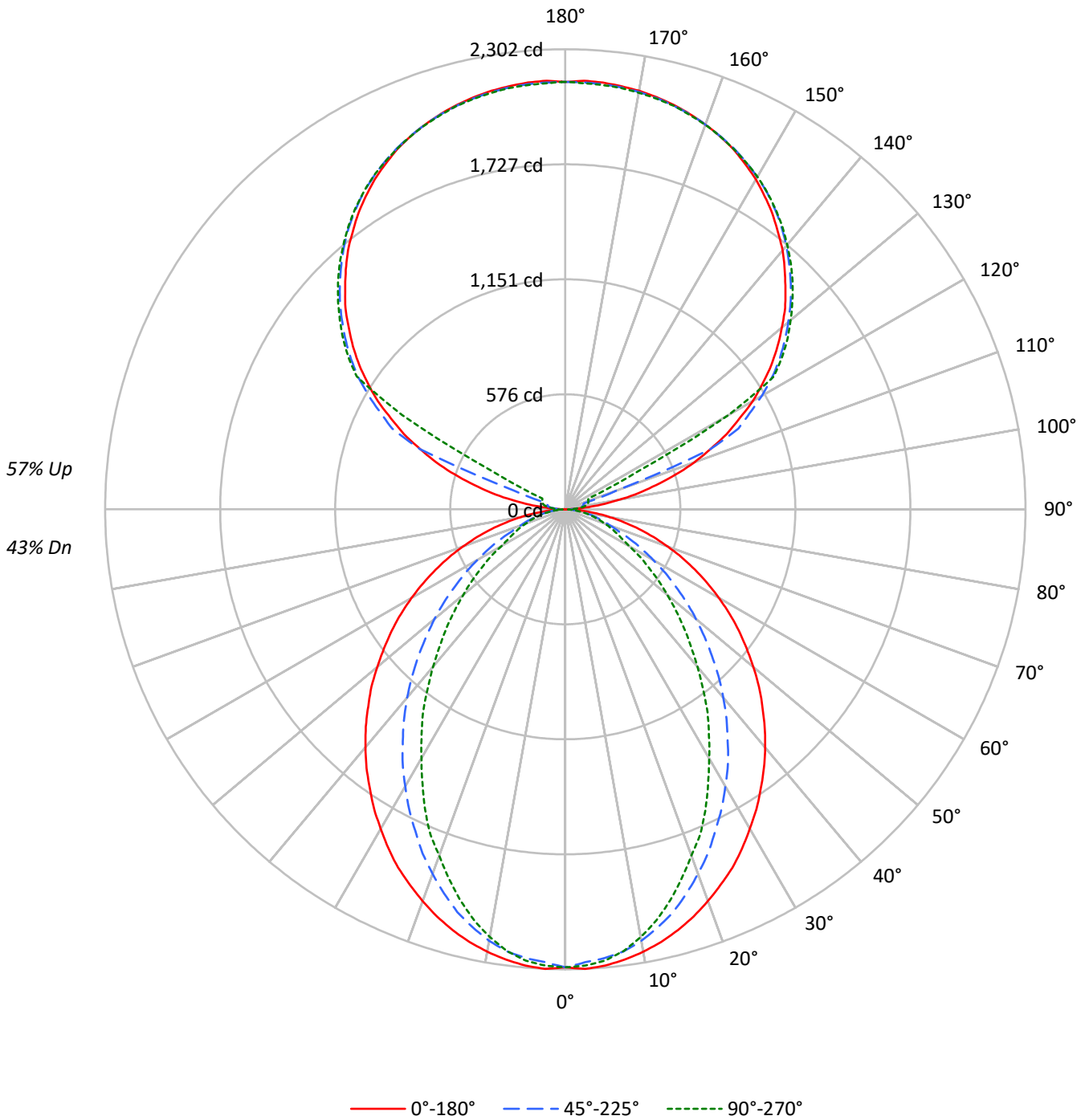
Test Method: LM-79-2019  
Report Number: P914499  
REPORT IS A COMBINATION OF REPORTS P901360 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-070D080US927-RLONL  
Description: 2 foot, 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: 10987.5 lumens  
Efficiency: N/A  
Efficacy: 82.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 132.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9977  
Total Harmonic Distortion (THDi): 0.049  
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	96	96	96	96	79	79	79	64	64	64	50	50	50	43				43
1	97	92	89	85	88	85	82	79	70	68	66	57	55	54	44	44	43	37				37
2	88	81	75	70	81	75	70	65	62	58	55	50	48	46	40	38	37	32				32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	33	32	27				27
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28	24				24
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	26	24	21				21
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	26	24	22	19				19
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19	17				17
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	20	17	15				15
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16	14				14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	16	14	12				12

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

	0°	45°	90°
0°	5040	5040	5040
5°	5039	4949	4984
10°	4980	4841	4815
15°	4903	4670	4558
20°	4803	4439	4245
25°	4702	4183	3942
30°	4568	3921	3562
35°	4436	3640	3227
40°	4302	3351	2845
45°	4147	3031	2499
50°	3986	2710	2162
55°	3817	2368	1838
60°	3620	2012	1506
65°	3394	1651	1348
70°	3120	1315	1209
75°	2774	1138	1086
80°	2278	925	920
85°	1482	574	655

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4147 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.8	2.0
10°-20°	589.7	5.4
20°-30°	827.9	7.5
30°-40°	902.4	8.2
40°-50°	829.4	7.5
50°-60°	651.4	5.9
60°-70°	424.0	3.9
70°-80°	218.2	2.0
80°-90°	59.5	0.5
90°-100°	70.5	0.6
100°-110°	262.9	2.4
110°-120°	697.3	6.3
120°-130°	1156.5	10.5
130°-140°	1228.4	11.2
140°-150°	1141.7	10.4
150°-160°	917.9	8.4
160°-170°	591.5	5.4
170°-180°	203.6	1.9
0°-30°	1632.3	14.9
0°-40°	2534.7	23.1
0°-60°	4015.5	36.5
0°-90°	4717.2	42.9
90°-120°	1030.7	9.4
90°-150°	4557.3	41.5
90°-180°	6270.0	57.1
0°-180°	10987.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2282	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	2	18	31	39	42	10
95°	100	49	60	68	66	119
105°	470	517	94	111	118	503
115°	890	916	955	238	127	876
125°	1258	1278	1308	1319	1323	1122
135°	1557	1582	1596	1611	1608	1203
145°	1806	1804	1831	1842	1834	1130
155°	1989	1975	1993	2003	1990	916
165°	2096	2086	2091	2102	2091	592
175°	2143	2133	2136	2146	2131	204
180°	2139	2139	2139	2139	2139	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2291.9	2291.9	2291.9	2291.9	2291.9
2.5°	2302.2	2291.9	2269.0	2289.9	2285.7
5°	2291.9	2281.5	2254.5	2273.2	2267.0
7.5°	2273.2	2260.8	2231.8	2239.9	2229.6
10°	2248.3	2233.8	2192.4	2186.0	2173.7
12.5°	2217.2	2198.5	2142.5	2130.1	2107.2
15°	2179.8	2157.0	2086.5	2047.2	2026.5
17.5°	2136.3	2103.1	2015.9	1970.3	1937.1
20°	2086.5	2044.9	1941.3	1889.6	1843.8
22.5°	2032.7	1984.9	1864.5	1794.1	1763.1
25°	1978.7	1912.2	1775.4	1690.4	1659.2
27.5°	1914.5	1843.8	1692.4	1595.0	1547.2
30°	1846.0	1767.0	1601.1	1495.5	1439.4
32.5°	1779.6	1684.1	1514.2	1389.6	1337.7
35°	1704.9	1599.1	1416.7	1286.0	1240.2
37.5°	1632.4	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.9	1082.7	1028.7
42.5°	1476.8	1344.1	1134.6	981.0	929.3
45°	1393.8	1254.7	1037.1	889.7	839.9
47.5°	1315.0	1167.8	943.8	796.4	750.8
50°	1227.9	1080.7	852.5	709.2	665.9
52.5°	1142.7	987.1	765.3	628.4	589.1
55°	1059.8	898.0	674.0	549.7	510.3
57.5°	974.9	808.9	593.3	477.1	443.9
60°	887.7	721.8	508.1	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.6	547.5	360.9	290.5	284.1
67.5°	632.6	464.5	290.5	255.0	248.9
70°	545.5	383.7	240.5	219.8	211.4
72.5°	462.6	309.0	201.1	184.7	180.5
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.7	122.3	118.2
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.1	45.6	39.4	39.4	39.4
87.5°	33.2	16.5	16.5	14.5	14.5
90°	1.5	18.5	30.9	38.7	41.7
92.5°	38.7	32.6	37.2	40.2	41.7
95°	100.5	49.4	60.3	68.2	66.5
97.5°	181.0	54.2	78.8	83.7	85.1
100°	274.0	61.9	88.2	100.5	103.6
102.5°	376.0	373.0	91.3	108.2	113.0
105°	470.5	517.0	94.4	111.4	117.6
107.5°	580.4	618.9	97.6	114.5	120.7
110°	685.7	718.0	270.9	116.1	122.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	784.7	812.5	786.2	119.1	123.9
115°	889.9	916.2	954.9	238.4	127.0
117.5°	981.2	1012.1	1038.5	817.1	411.7
120°	1083.4	1106.5	1134.5	1153.0	944.0
122.5°	1169.9	1194.8	1225.8	1235.0	1236.7
125°	1258.1	1278.3	1307.7	1318.6	1323.2
127.5°	1338.6	1360.3	1383.7	1399.1	1400.6
130°	1414.5	1439.3	1456.3	1473.4	1471.9
132.5°	1491.9	1512.1	1529.1	1543.0	1541.5
135°	1557.0	1581.7	1595.5	1611.2	1608.0
137.5°	1625.0	1643.5	1659.1	1674.6	1670.0
140°	1691.5	1704.0	1720.9	1734.9	1727.1
142.5°	1747.4	1758.2	1778.2	1790.6	1782.8
145°	1806.2	1804.5	1830.8	1841.7	1833.9
147.5°	1857.1	1852.5	1878.7	1886.5	1880.4
150°	1906.7	1895.8	1920.6	1929.8	1922.1
152.5°	1948.4	1936.1	1959.2	1968.6	1957.8
155°	1988.7	1974.9	1993.4	2002.6	1990.4
157.5°	2021.2	2008.9	2022.8	2033.7	2021.2
160°	2049.1	2039.8	2049.1	2058.3	2047.5
162.5°	2073.8	2064.6	2072.3	2083.1	2069.2
165°	2095.5	2086.3	2090.9	2101.7	2090.9
167.5°	2112.5	2103.2	2107.9	2118.8	2104.8
170°	2126.5	2117.1	2120.3	2131.1	2117.1
172.5°	2135.7	2126.5	2129.6	2140.5	2126.5
175°	2143.4	2132.6	2135.7	2146.5	2131.1
177.5°	2146.5	2135.7	2137.3	2148.2	2134.2
180°	2138.8	2138.8	2138.8	2138.8	2138.8



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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	11.95	12.73	12.98	13.76	15.13	7.91	8.69	8.94	9.72	11.09
	3H	13.61	14.30	14.64	15.34	16.73	9.08	9.77	10.11	10.81	12.20
	4H	14.20	14.86	15.24	15.89	17.29	9.52	10.17	10.56	11.21	12.61
	6H	14.60	15.21	15.66	16.25	17.66	9.82	10.42	10.87	11.46	12.87
	8H	14.72	15.29	15.78	16.35	17.76	9.90	10.47	10.96	11.53	12.94
	12H	14.77	15.32	15.84	16.37	17.80	9.93	10.48	10.99	11.53	12.96
4H	2H	11.96	12.62	13.01	13.65	15.05	8.49	9.15	9.54	10.19	11.59
	3H	13.76	14.31	14.82	15.37	16.78	9.82	10.36	10.87	11.43	12.84
	4H	14.44	14.94	15.50	15.99	17.43	10.35	10.85	11.41	11.90	13.34
	6H	14.93	15.36	16.00	16.44	17.87	10.74	11.17	11.82	12.25	13.68
	8H	15.09	15.49	16.17	16.57	18.01	10.86	11.26	11.93	12.33	13.78
	12H	15.17	15.54	16.27	16.62	18.07	10.91	11.27	12.00	12.36	13.81
8H	4H	14.40	14.80	15.47	15.87	17.31	10.61	11.01	11.69	12.08	13.53
	6H	14.94	15.27	16.03	16.38	17.82	11.10	11.43	12.20	12.55	13.99
	8H	15.14	15.43	16.24	16.53	17.99	11.28	11.57	12.38	12.67	14.13
	12H	15.26	15.52	16.37	16.61	18.11	11.38	11.64	12.49	12.73	14.23
12H	4H	14.34	14.71	15.44	15.79	17.24	10.61	10.97	11.70	12.06	13.51
	6H	14.91	15.20	16.01	16.30	17.76	11.15	11.44	12.25	12.53	13.99
	8H	15.12	15.37	16.22	16.46	17.96	11.34	11.59	12.44	12.69	14.19