

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: P917839

Luminaire Tested: DFN2DIP-SQ4F0-140D080US930-RLLONL

Issue Date: 11/21/2024

**Test Information**

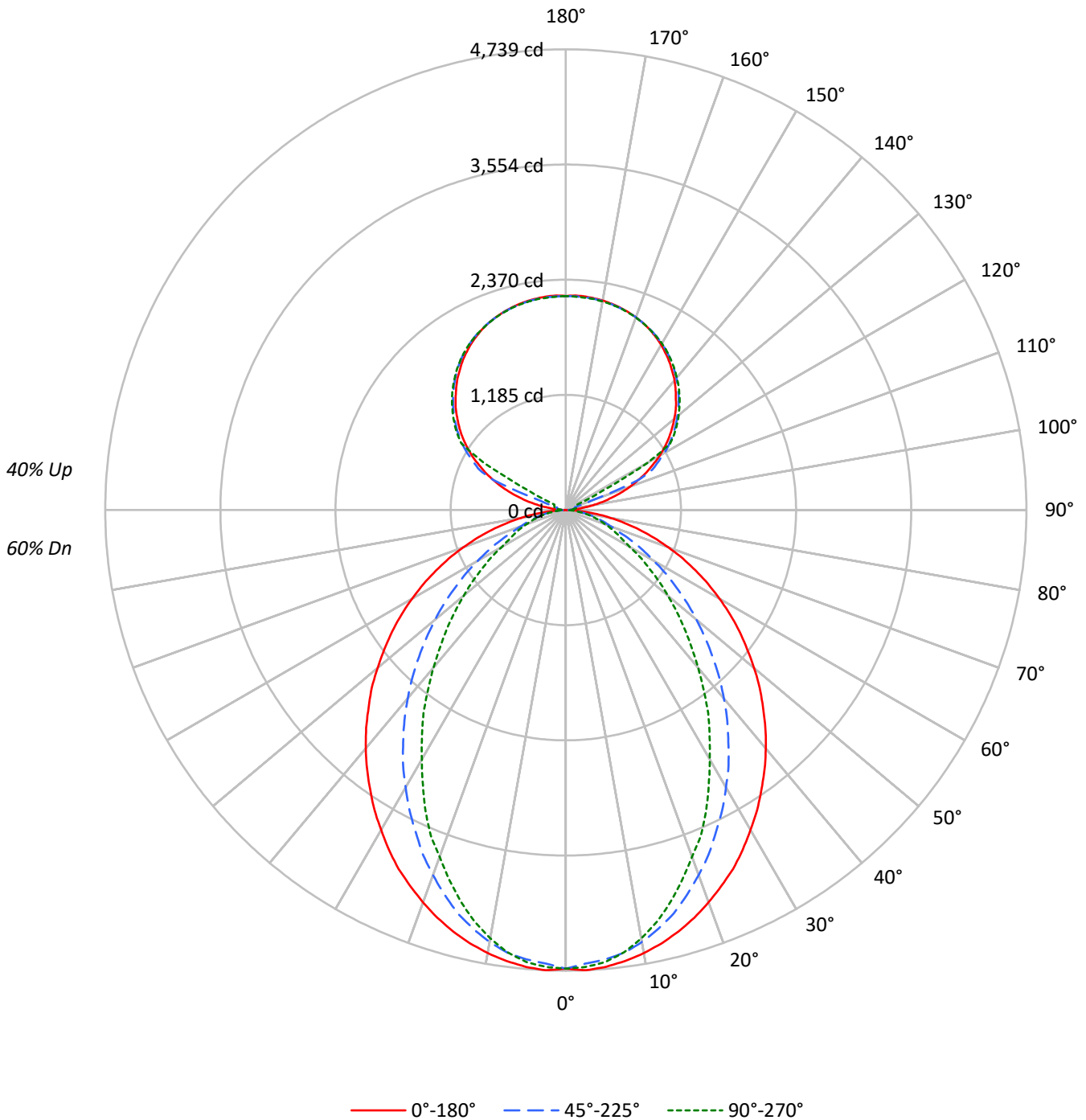
Test Method: LM-79-2019  
Report Number: P917839  
REPORT IS A COMBINATION OF REPORTS P901630 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-140D080US930-RLLONL  
Description: 4 foot, 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: 16159.2 lumens  
Efficiency: N/A  
Efficacy: 79.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 203.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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





TEST NUMBER: P917839

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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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	65	65	65	60
1	101	96	93	89	94	90	87	84	79	77	74	68	67	65	59	57	56	56	56	56	52
2	92	85	79	74	86	80	74	70	70	66	62	61	58	55	52	50	48	48	48	48	44
3	84	75	68	62	79	71	64	59	62	57	53	54	51	47	47	44	42	42	42	42	38
4	78	67	59	53	72	63	56	51	56	50	46	49	45	41	42	39	37	37	37	37	33
5	71	60	52	46	67	57	49	44	50	44	40	44	40	36	38	35	32	32	32	32	29
6	66	54	46	40	62	51	44	39	45	40	35	40	35	32	35	32	29	29	29	29	26
7	61	49	41	36	57	46	39	34	41	36	31	37	32	29	32	29	26	26	26	26	23
8	57	45	37	32	53	42	35	31	38	32	28	34	29	26	30	26	23	23	23	23	21
9	53	41	34	29	50	39	32	28	35	29	25	31	27	23	28	24	21	21	21	21	19
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	26	22	19	19	19	19	17

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

	0°	45°	90°
0°	3310	3310	3310
5°	3315	3258	3279
10°	3283	3195	3174
15°	3237	3090	3009
20°	3177	2945	2808
25°	3116	2782	2613
30°	3034	2616	2366
35°	2953	2436	2148
40°	2871	2251	1899
45°	2776	2045	1673
50°	2677	1836	1452
55°	2575	1614	1240
60°	2456	1381	1021
65°	2319	1145	920
70°	2153	924	835
75°	1944	816	761
80°	1642	687	664
85°	1143	462	505

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2776 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	442.1	2.7
10°-20°	1213.7	7.5
20°-30°	1704.0	10.5
30°-40°	1857.5	11.5
40°-50°	1707.2	10.6
50°-60°	1340.8	8.3
60°-70°	872.7	5.4
70°-80°	449.2	2.8
80°-90°	118.6	0.7
90°-100°	72.6	0.4
100°-110°	270.6	1.7
110°-120°	717.6	4.4
120°-130°	1190.2	7.4
130°-140°	1264.3	7.8
140°-150°	1175.0	7.3
150°-160°	944.7	5.8
160°-170°	608.7	3.8
170°-180°	209.5	1.3
0°-30°	3359.9	20.8
0°-40°	5217.4	32.3
0°-60°	8265.4	51.1
0°-90°	9705.9	60.1
90°-120°	1060.8	6.6
90°-150°	4690.4	29.0
90°-180°	6453.0	39.9
0°-180°	16159.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4718	4718	4718	4718	4718	
5°	4718	4696	4640	4679	4666	447
15°	4487	4440	4295	4214	4171	1264
25°	4073	3936	3654	3480	3415	1873
35°	3510	3292	2916	2647	2553	2197
45°	2869	2583	2135	1831	1729	2216
55°	2181	1848	1387	1132	1050	1949
65°	1473	1127	743	598	585	1460
75°	785	486	342	312	308	831
85°	183	94	81	81	81	211
90°	2	19	32	40	43	15
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°	4717.5	4717.5	4717.5	4717.5	4717.5
2.5°	4738.8	4717.5	4670.4	4713.4	4704.8
5°	4717.5	4696.2	4640.4	4679.0	4666.3
7.5°	4679.0	4653.6	4593.8	4610.6	4589.3
10°	4627.8	4597.9	4512.8	4499.5	4474.2
12.5°	4563.9	4525.4	4409.9	4384.5	4337.5
15°	4486.9	4439.8	4294.8	4213.8	4171.2
17.5°	4397.2	4328.8	4149.5	4055.7	3987.3
20°	4294.8	4209.2	3995.9	3889.5	3795.3
22.5°	4183.9	4085.6	3837.9	3692.9	3629.1
25°	4072.9	3936.1	3654.4	3479.5	3415.2
27.5°	3940.7	3795.3	3483.6	3283.0	3184.7
30°	3799.8	3637.2	3295.7	3078.2	2962.7
32.5°	3663.0	3466.4	3116.7	2860.4	2753.5
35°	3509.5	3291.6	2916.1	2647.0	2552.8
37.5°	3360.0	3124.9	2728.1	2433.3	2326.8
40°	3201.9	2946.0	2531.5	2228.5	2117.6
42.5°	3039.8	2766.6	2335.4	2019.2	1912.8
45°	2869.0	2582.7	2134.8	1831.2	1728.9
47.5°	2706.8	2403.8	1942.7	1639.2	1545.5
50°	2527.4	2224.5	1754.7	1459.9	1370.6
52.5°	2352.1	2031.9	1575.3	1293.6	1212.5
55°	2181.4	1848.4	1387.4	1131.5	1050.3
57.5°	2006.5	1665.0	1221.2	982.0	913.6
60°	1827.2	1485.6	1045.9	828.4	760.0
62.5°	1652.4	1310.8	896.4	691.6	657.7
65°	1473.0	1126.9	742.8	597.9	584.7
67.5°	1302.2	956.2	597.9	525.0	512.3
70°	1122.8	789.9	495.0	452.5	435.3
72.5°	952.1	635.9	414.0	380.0	371.4
75°	785.4	486.5	341.5	311.6	307.5
77.5°	619.2	345.6	269.0	251.8	243.2
80°	465.2	247.8	204.7	188.0	188.0
82.5°	324.3	166.6	140.9	132.2	132.2
85°	183.4	93.8	81.0	81.0	81.0
87.5°	68.4	34.0	34.0	29.9	29.9
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	12.21	13.13	13.08	14.02	15.14	8.17	9.09	9.04	9.98	11.10
	3H	13.90	14.72	14.78	15.62	16.77	9.37	10.19	10.25	11.09	12.24
	4H	14.51	15.29	15.42	16.19	17.35	9.82	10.60	10.72	11.50	12.66
	6H	14.94	15.66	15.86	16.57	17.74	10.15	10.86	11.06	11.77	12.94
	8H	15.07	15.75	16.00	16.68	17.85	10.24	10.92	11.16	11.85	13.02
	12H	15.14	15.79	16.07	16.71	17.91	10.29	10.93	11.21	11.86	13.05
4H	2H	12.24	13.01	13.14	13.92	15.08	8.78	9.56	9.69	10.46	11.62
	3H	14.08	14.73	15.00	15.66	16.83	10.14	10.78	11.05	11.72	12.89
	4H	14.78	15.37	15.71	16.30	17.50	10.69	11.28	11.62	12.21	13.41
	6H	15.30	15.81	16.25	16.76	17.96	11.12	11.62	12.06	12.58	13.78
	8H	15.48	15.96	16.43	16.90	18.12	11.25	11.72	12.19	12.67	13.88
	12H	15.59	16.01	16.55	16.98	18.19	11.32	11.74	12.28	12.71	13.93
8H	4H	14.75	15.23	15.70	16.17	17.39	10.98	11.45	11.92	12.40	13.61
	6H	15.33	15.72	16.30	16.71	17.92	11.50	11.89	12.47	12.88	14.10
	8H	15.55	15.89	16.53	16.87	18.10	11.69	12.04	12.67	13.02	14.25
	12H	15.69	16.00	16.67	16.97	18.25	11.82	12.12	12.80	13.09	14.37
12H	4H	14.71	15.14	15.67	16.10	17.32	10.99	11.41	11.95	12.38	13.60
	6H	15.30	15.65	16.28	16.63	17.86	11.55	11.90	12.53	12.88	14.11
	8H	15.53	15.84	16.51	16.81	18.09	11.77	12.07	12.75	13.04	14.32