

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: P915109

Luminaire Tested: DFN2DIP-SQ4F0-140D080US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915109
REPORT IS A COMBINATION OF REPORTS P901629 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D080US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

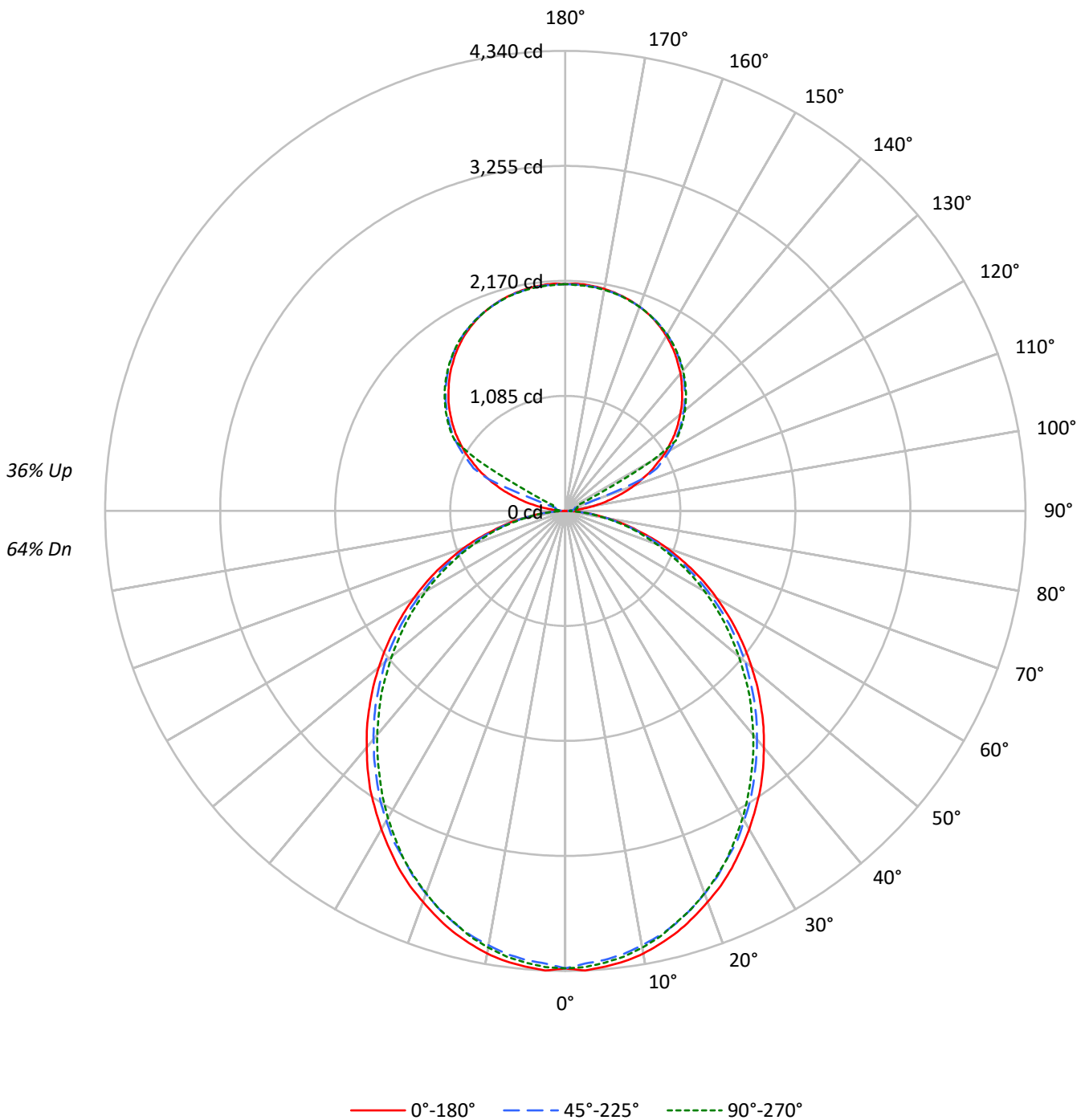
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17253.7 lumens
Efficiency: N/A
Efficacy: 84.9 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: 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





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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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	69	69	69	64
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	61	59	58	61	59	58	54
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49	53	51	49	45
3	84	74	67	61	78	70	63	58	62	57	52	54	50	47	47	44	42	47	44	42	38
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36	42	39	36	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	34	31	38	34	31	28
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28	35	31	28	25
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25	32	28	25	22
8	56	43	35	30	52	41	34	29	37	31	27	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20	27	23	20	18
10	49	36	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3028	3028	3028
5°	3033	2986	3007
10°	3008	2947	2967
15°	2964	2899	2904
20°	2904	2832	2840
25°	2845	2752	2765
30°	2770	2678	2671
35°	2699	2590	2570
40°	2612	2501	2475
45°	2526	2412	2377
50°	2431	2319	2264
55°	2332	2211	2160
60°	2219	2083	2041
65°	2097	1950	1901
70°	1941	1789	1750
75°	1725	1596	1613
80°	1466	1350	1347
85°	1059	923	906

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2526 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.2	2.4
10°-20°	1142.8	6.6
20°-30°	1679.5	9.7
30°-40°	1950.6	11.3
40°-50°	1948.2	11.3
50°-60°	1698.7	9.8
60°-70°	1255.7	7.3
70°-80°	710.5	4.1
80°-90°	191.3	1.1
90°-100°	70.5	0.4
100°-110°	262.9	1.5
110°-120°	697.3	4.0
120°-130°	1156.5	6.7
130°-140°	1228.4	7.1
140°-150°	1141.7	6.6
150°-160°	917.9	5.3
160°-170°	591.5	3.4
170°-180°	203.6	1.2
0°-30°	3228.4	18.7
0°-40°	5179.0	30.0
0°-60°	8825.9	51.2
0°-90°	10983.4	63.7
90°-120°	1030.7	6.0
90°-150°	4557.3	26.4
90°-180°	6270.0	36.3
0°-180°	17253.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2519	2473	2457	2014
55°	1976	1950	1901	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	2	18	31	39	42	16
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°	4315.4	4315.4	4315.4	4315.4	4315.4
2.5°	4340.4	4319.8	4274.0	4315.4	4307.5
5°	4315.4	4299.1	4253.3	4286.3	4278.4
7.5°	4286.3	4261.7	4215.9	4249.3	4240.9
10°	4240.9	4211.9	4162.2	4195.2	4182.9
12.5°	4178.4	4153.8	4104.1	4124.7	4116.4
15°	4108.0	4083.4	4029.2	4046.0	4025.2
17.5°	4020.9	3996.2	3942.1	3962.7	3942.1
20°	3925.3	3900.7	3842.6	3854.9	3838.6
22.5°	3830.2	3792.8	3738.6	3738.6	3730.3
25°	3717.9	3684.9	3614.5	3622.4	3614.5
27.5°	3593.3	3564.3	3510.6	3498.3	3477.6
30°	3469.2	3435.8	3373.7	3361.4	3344.6
32.5°	3336.3	3311.6	3245.1	3220.1	3203.3
35°	3207.7	3166.3	3099.8	3074.8	3054.0
37.5°	3062.4	3025.0	2958.5	2929.5	2908.7
40°	2913.2	2879.7	2813.2	2776.3	2759.5
42.5°	2767.9	2734.5	2668.4	2626.6	2601.9
45°	2610.2	2581.2	2518.7	2473.3	2456.6
47.5°	2456.6	2427.6	2361.1	2315.3	2290.7
50°	2294.6	2274.0	2215.8	2157.7	2137.0
52.5°	2137.0	2107.9	2054.2	2008.4	1979.4
55°	1975.5	1950.4	1900.6	1850.9	1830.2
57.5°	1813.4	1792.7	1738.6	1688.9	1672.1
60°	1651.4	1635.1	1577.0	1531.2	1518.8
62.5°	1493.8	1464.7	1423.3	1382.0	1365.2
65°	1332.2	1307.1	1265.7	1228.3	1207.6
67.5°	1166.2	1145.1	1108.1	1079.0	1062.3
70°	1012.6	995.9	958.5	929.4	913.1
72.5°	855.0	838.2	817.5	788.5	776.2
75°	697.0	689.0	667.9	643.3	651.6
77.5°	556.0	539.3	530.9	518.6	506.3
80°	415.2	410.7	402.4	390.1	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.2	145.3
87.5°	74.9	66.5	58.1	45.8	41.4
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	12.31	13.31	13.14	14.16	15.22	11.86	12.86	12.69	13.71	14.78
	3H	13.98	14.88	14.82	15.74	16.83	13.49	14.39	14.33	15.25	16.34
	4H	14.58	15.43	15.44	16.30	17.39	14.08	14.93	14.94	15.80	16.90
	6H	14.99	15.77	15.86	16.65	17.76	14.49	15.27	15.36	16.15	17.26
	8H	15.10	15.84	15.98	16.74	17.85	14.60	15.34	15.48	16.24	17.35
	12H	15.15	15.86	16.04	16.75	17.89	14.64	15.35	15.53	16.24	17.38
4H	2H	12.78	13.63	13.65	14.50	15.60	12.43	13.28	13.29	14.15	15.25
	3H	14.67	15.38	15.54	16.28	17.39	14.26	14.97	15.14	15.87	16.98
	4H	15.39	16.04	16.28	16.93	18.08	14.97	15.61	15.85	16.51	17.65
	6H	15.92	16.48	16.82	17.40	18.54	15.49	16.04	16.39	16.97	18.11
	8H	16.07	16.59	16.98	17.51	18.67	15.64	16.16	16.54	17.07	18.23
	12H	16.16	16.62	17.08	17.56	18.72	15.71	16.18	16.63	17.11	18.27
8H	4H	15.60	16.12	16.50	17.04	18.19	15.22	15.74	16.13	16.66	17.82
	6H	16.24	16.67	17.17	17.63	18.79	15.86	16.29	16.79	17.25	18.40
	8H	16.47	16.85	17.41	17.80	18.97	16.07	16.46	17.02	17.41	18.58
	12H	16.61	16.94	17.55	17.89	19.11	16.20	16.53	17.14	17.47	18.70
12H	4H	15.59	16.06	16.52	17.00	18.16	15.22	15.69	16.15	16.63	17.79
	6H	16.27	16.65	17.21	17.60	18.78	15.90	16.28	16.84	17.23	18.41
	8H	16.52	16.86	17.47	17.80	19.03	16.14	16.48	17.09	17.42	18.65