

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: P915045

Luminaire Tested: DFN2DIP-SQ4F0-110D100US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915045
REPORT IS A COMBINATION OF REPORTS P901661 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D100US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

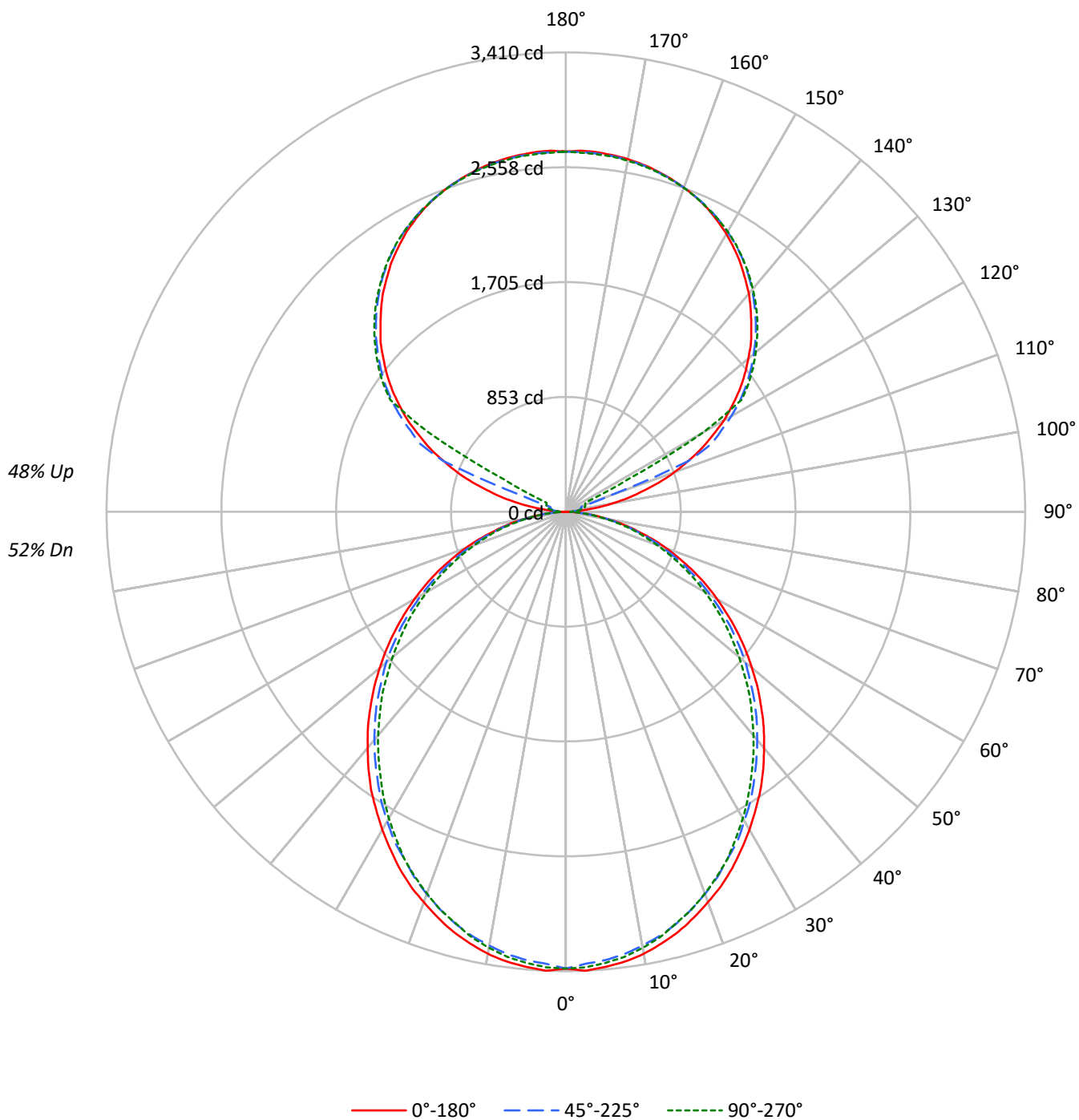
Lumens per Lamp: N/A
Luminaire Lumens: 16469.4 lumens
Efficiency: N/A
Efficacy: 91.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 179.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58
1	98	94	90	87	91	87	84	81	74	72	70	62	61	59	52	50	49
2	90	82	76	71	83	76	71	66	65	61	58	55	52	49	45	43	42
3	82	72	65	59	75	67	61	55	57	53	48	49	45	42	40	38	35
4	75	64	56	50	69	59	52	47	51	46	41	43	39	36	36	33	30
5	69	57	49	43	63	53	46	40	46	40	36	39	34	31	32	29	27
6	63	51	43	37	58	48	40	35	41	35	31	35	31	27	29	26	23
7	58	46	38	33	54	43	36	31	37	32	27	32	27	24	27	23	21
8	54	42	34	29	50	39	32	27	34	28	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	22	19	23	19	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2379	2379	2379
5°	2383	2346	2362
10°	2364	2315	2331
15°	2329	2278	2282
20°	2282	2225	2231
25°	2235	2162	2173
30°	2176	2104	2098
35°	2121	2035	2019
40°	2053	1965	1944
45°	1985	1895	1868
50°	1910	1822	1779
55°	1832	1737	1697
60°	1744	1637	1604
65°	1648	1533	1494
70°	1525	1405	1375
75°	1355	1254	1267
80°	1151	1061	1059
85°	833	725	712

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1985 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	319.1	1.9
10°-20°	897.9	5.5
20°-30°	1319.6	8.0
30°-40°	1532.6	9.3
40°-50°	1530.7	9.3
50°-60°	1334.7	8.1
60°-70°	986.7	6.0
70°-80°	558.2	3.4
80°-90°	152.0	0.9
90°-100°	88.1	0.5
100°-110°	328.6	2.0
110°-120°	871.6	5.3
120°-130°	1445.6	8.8
130°-140°	1535.6	9.3
140°-150°	1427.1	8.7
150°-160°	1147.4	7.0
160°-170°	739.3	4.5
170°-180°	254.5	1.5
0°-30°	2536.6	15.4
0°-40°	4069.2	24.7
0°-60°	6934.6	42.1
0°-90°	8631.5	52.4
90°-120°	1288.4	7.8
90°-150°	5696.7	34.6
90°-180°	7838.0	47.6
0°-180°	16469.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3391	3391	3391	3391	3391	
5°	3391	3378	3342	3368	3362	322
15°	3228	3208	3166	3179	3163	909
25°	2921	2895	2840	2846	2840	1344
35°	2520	2488	2436	2416	2400	1574
45°	2051	2028	1979	1943	1930	1583
55°	1552	1532	1493	1454	1438	1388
65°	1047	1027	994	965	949	1035
75°	548	541	525	505	512	585
85°	134	130	127	117	114	149
90°	2	23	39	48	52	15
95°	126	62	75	85	83	149
105°	588	646	118	139	147	628
115°	1112	1145	1194	298	159	1095
125°	1573	1598	1635	1648	1654	1403
135°	1946	1977	1994	2014	2010	1503
145°	2258	2256	2288	2302	2292	1412
155°	2486	2469	2492	2503	2488	1146
165°	2619	2608	2614	2627	2614	740
175°	2679	2666	2670	2683	2664	255
180°	2674	2674	2674	2674	2674	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3390.7	3390.7	3390.7	3390.7	3390.7
2.5°	3410.3	3394.1	3358.1	3390.7	3384.4
5°	3390.7	3377.9	3341.9	3367.8	3361.6
7.5°	3367.8	3348.5	3312.5	3338.8	3332.2
10°	3332.2	3309.3	3270.3	3296.2	3286.5
12.5°	3283.1	3263.7	3224.7	3240.9	3234.3
15°	3227.7	3208.3	3165.8	3178.9	3162.7
17.5°	3159.2	3139.9	3097.3	3113.6	3097.3
20°	3084.2	3064.8	3019.2	3028.8	3016.1
22.5°	3009.5	2980.0	2937.5	2937.5	2930.9
25°	2921.2	2895.3	2840.0	2846.2	2840.0
27.5°	2823.3	2800.5	2758.3	2748.6	2732.4
30°	2725.8	2699.5	2650.7	2641.1	2627.9
32.5°	2621.3	2602.0	2549.7	2530.0	2516.8
35°	2520.3	2487.8	2435.6	2415.8	2399.6
37.5°	2406.2	2376.8	2324.6	2301.7	2285.4
40°	2288.9	2262.6	2210.4	2181.4	2168.2
42.5°	2174.8	2148.5	2096.6	2063.7	2044.4
45°	2051.0	2028.1	1978.9	1943.4	1930.2
47.5°	1930.2	1907.4	1855.1	1819.2	1799.8
50°	1802.9	1786.7	1741.0	1695.3	1679.1
52.5°	1679.1	1656.2	1614.1	1578.0	1555.2
55°	1552.1	1532.4	1493.3	1454.2	1438.0
57.5°	1424.8	1408.6	1366.0	1326.9	1313.8
60°	1297.5	1284.8	1239.1	1203.1	1193.4
62.5°	1173.7	1150.9	1118.3	1085.8	1072.7
65°	1046.7	1027.0	994.5	965.1	948.9
67.5°	916.3	899.8	870.7	847.9	834.7
70°	795.6	782.4	753.0	730.2	717.4
72.5°	671.8	658.6	642.4	619.6	609.8
75°	547.6	541.4	524.7	505.4	512.0
77.5°	436.9	423.7	417.2	407.5	397.8
80°	326.2	322.7	316.2	306.5	299.9
82.5°	221.7	221.7	218.6	205.5	205.5
85°	133.6	130.4	127.3	117.2	114.2
87.5°	58.8	52.2	45.6	36.0	32.5
90°	1.8	23.2	38.6	48.5	52.1
92.5°	48.5	40.6	46.4	50.3	52.1
95°	125.6	61.8	75.3	85.2	83.2
97.5°	226.2	67.7	98.5	104.5	106.4
100°	342.5	77.4	110.3	125.6	129.6
102.5°	470.0	466.4	114.2	135.3	141.2
105°	588.1	646.2	118.1	139.2	147.0
107.5°	725.5	773.7	122.0	143.1	150.9
110°	857.1	897.5	338.6	145.2	152.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	980.9	1015.6	982.8	148.9	154.9
115°	1112.3	1145.2	1193.7	297.9	158.8
117.5°	1226.5	1265.1	1298.1	1021.4	514.6
120°	1354.2	1383.1	1418.1	1441.3	1180.1
122.5°	1462.4	1493.4	1532.2	1543.7	1545.8
125°	1572.7	1598.0	1634.7	1648.3	1654.0
127.5°	1673.3	1700.4	1729.6	1748.9	1750.7
130°	1768.1	1799.2	1820.4	1841.7	1839.8
132.5°	1864.9	1890.1	1911.3	1928.7	1926.9
135°	1946.2	1977.2	1994.5	2014.0	2010.1
137.5°	2031.2	2054.4	2073.9	2093.3	2087.5
140°	2114.3	2130.0	2151.1	2168.6	2158.9
142.5°	2184.2	2197.7	2222.8	2238.1	2228.6
145°	2257.7	2255.7	2288.5	2302.1	2292.4
147.5°	2321.3	2315.6	2348.4	2358.1	2350.6
150°	2383.4	2369.8	2400.9	2412.4	2402.7
152.5°	2435.5	2420.1	2449.1	2460.8	2447.2
155°	2485.9	2468.6	2491.8	2503.3	2487.9
157.5°	2526.5	2511.1	2528.6	2542.1	2526.5
160°	2561.4	2549.7	2561.4	2572.9	2559.4
162.5°	2592.2	2580.7	2590.4	2603.9	2586.5
165°	2619.3	2607.8	2613.6	2627.1	2613.6
167.5°	2640.7	2628.9	2635.0	2648.5	2631.0
170°	2658.1	2646.4	2650.3	2663.9	2646.4
172.5°	2669.6	2658.1	2662.0	2675.6	2658.1
175°	2679.2	2665.7	2669.6	2683.2	2663.9
177.5°	2683.2	2669.6	2671.7	2685.3	2667.7
180°	2673.5	2673.5	2673.5	2673.5	2673.5

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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	10.52	11.40	11.45	12.35	13.59	10.07	10.95	11.01	11.91	13.14
	3H	12.18	12.98	13.13	13.94	15.20	11.69	12.48	12.64	13.45	14.71
	4H	12.77	13.52	13.74	14.49	15.76	12.28	13.03	13.24	14.00	15.26
	6H	13.18	13.87	14.15	14.84	16.12	12.68	13.37	13.65	14.34	15.62
	8H	13.29	13.94	14.27	14.93	16.21	12.78	13.44	13.76	14.43	15.71
	12H	13.34	13.96	14.32	14.95	16.25	12.83	13.45	13.81	14.44	15.74
4H	2H	10.98	11.73	11.95	12.70	13.97	10.63	11.38	11.59	12.34	13.61
	3H	12.85	13.48	13.83	14.48	15.76	12.45	13.07	13.42	14.07	15.35
	4H	13.57	14.14	14.56	15.13	16.44	13.15	13.72	14.13	14.71	16.02
	6H	14.09	14.59	15.09	15.60	16.90	13.66	14.15	14.66	15.17	16.47
	8H	14.24	14.71	15.24	15.71	17.03	13.81	14.27	14.81	15.27	16.59
	12H	14.32	14.74	15.34	15.76	17.08	13.87	14.29	14.89	15.31	16.63
8H	4H	13.77	14.23	14.77	15.24	16.56	13.39	13.85	14.39	14.86	16.18
	6H	14.41	14.79	15.43	15.84	17.15	14.02	14.41	15.05	15.45	16.77
	8H	14.63	14.97	15.66	16.00	17.34	14.24	14.57	15.27	15.61	16.95
	12H	14.77	15.06	15.80	16.09	17.47	14.36	14.65	15.39	15.68	17.06
12H	4H	13.76	14.17	14.78	15.20	16.52	13.39	13.81	14.41	14.83	16.15
	6H	14.44	14.77	15.47	15.81	17.14	14.07	14.40	15.10	15.44	16.77
	8H	14.68	14.98	15.72	16.01	17.39	14.30	14.60	15.34	15.63	17.01