

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: P917663

Luminaire Tested: DFN2DIP-SQ4F0-080D090US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917663
REPORT IS A COMBINATION OF REPORTS P901638 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D090US930-RLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

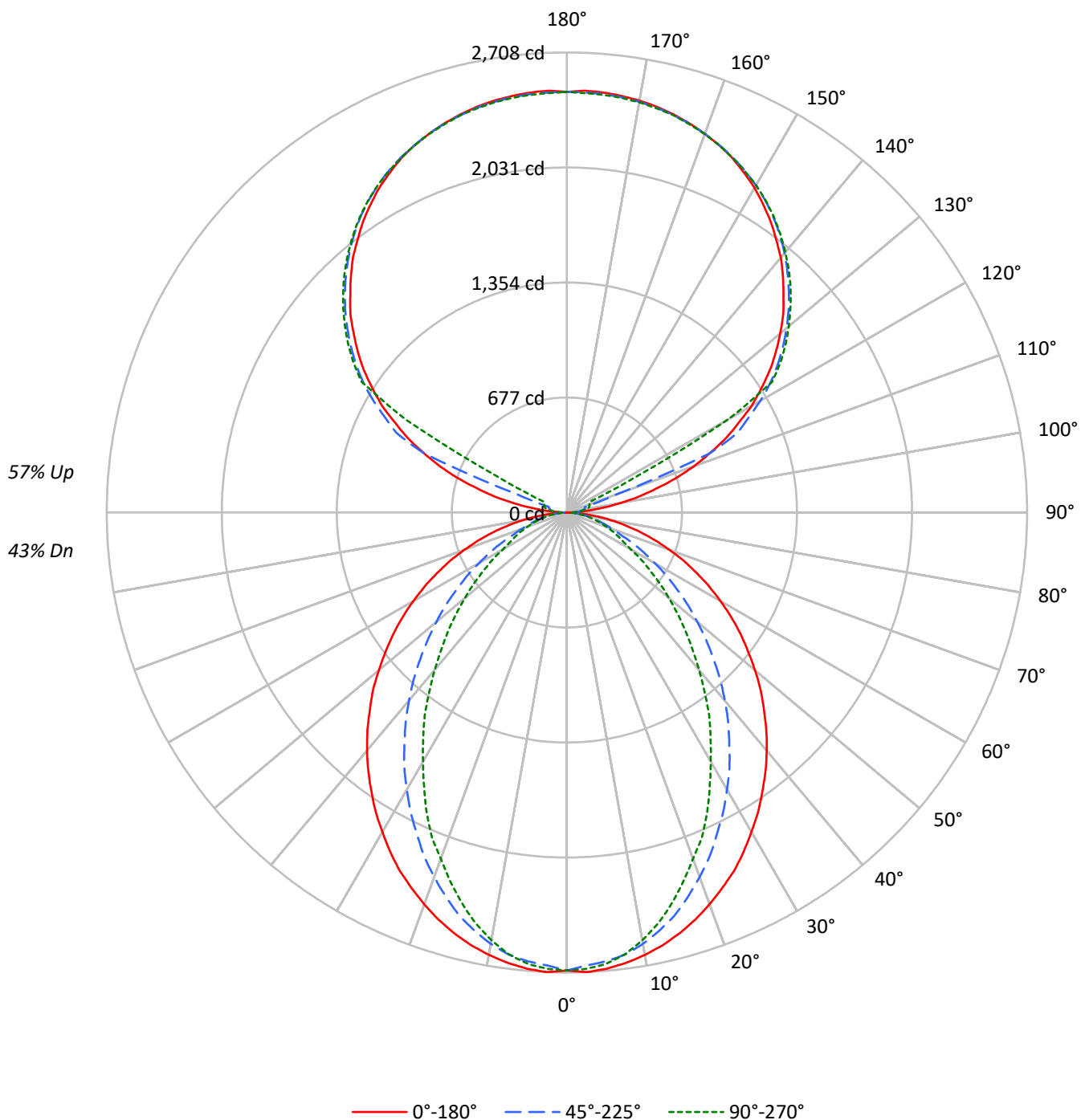
Lumens per Lamp: N/A
Luminaire Lumens: 12808.3 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 138.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	106	106	106	106	97	97	97	97	80	80	80	64	64	64	50	50	50
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	27	24
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19
8	54	42	35	30	49	39	32	28	33	28	24	28	24	21	23	20	18
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1892	1892	1892
5°	1895	1862	1874
10°	1876	1826	1813
15°	1850	1766	1720
20°	1816	1683	1604
25°	1781	1590	1493
30°	1734	1495	1352
35°	1688	1392	1228
40°	1641	1286	1085
45°	1586	1168	956
50°	1530	1049	830
55°	1471	922	708
60°	1403	789	584
65°	1325	654	526
70°	1230	528	477
75°	1111	466	435
80°	938	392	379
85°	653	264	289

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1586 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	2.0
10°-20°	693.6	5.4
20°-30°	973.7	7.6
30°-40°	1061.4	8.3
40°-50°	975.6	7.6
50°-60°	766.2	6.0
60°-70°	498.7	3.9
70°-80°	256.7	2.0
80°-90°	69.9	0.5
90°-100°	81.7	0.6
100°-110°	304.4	2.4
110°-120°	807.3	6.3
120°-130°	1339.0	10.5
130°-140°	1422.3	11.1
140°-150°	1321.9	10.3
150°-160°	1062.8	8.3
160°-170°	684.8	5.3
170°-180°	235.7	1.8
0°-30°	1919.9	15.0
0°-40°	2981.4	23.3
0°-60°	4723.1	36.9
0°-90°	5548.4	43.3
90°-120°	1193.4	9.3
90°-150°	5276.6	41.2
90°-180°	7260.0	56.7
0°-180°	12808.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2696	2696	2696	2696	2696	
5°	2696	2684	2652	2674	2666	256
15°	2564	2537	2454	2408	2384	722
25°	2327	2249	2088	1988	1952	1070
35°	2005	1881	1666	1513	1459	1255
45°	1639	1476	1220	1046	988	1266
55°	1246	1056	793	646	600	1114
65°	842	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	2	22	36	45	48	12
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2695.7	2695.7	2695.7	2695.7	2695.7
2.5°	2707.9	2695.7	2668.8	2693.3	2688.4
5°	2695.7	2683.6	2651.7	2673.7	2666.4
7.5°	2673.7	2659.2	2625.0	2634.6	2622.4
10°	2644.4	2627.4	2578.7	2571.2	2556.7
12.5°	2608.0	2586.0	2519.9	2505.4	2478.5
15°	2563.9	2537.0	2454.2	2407.9	2383.5
17.5°	2512.7	2473.6	2371.1	2317.6	2278.4
20°	2454.2	2405.3	2283.4	2222.6	2168.7
22.5°	2390.8	2334.6	2193.1	2110.2	2073.7
25°	2327.4	2249.2	2088.2	1988.3	1951.6
27.5°	2251.8	2168.7	1990.6	1876.0	1819.8
30°	2171.3	2078.4	1883.3	1759.0	1693.0
32.5°	2093.1	1980.8	1781.0	1634.5	1573.4
35°	2005.4	1880.9	1666.3	1512.6	1458.7
37.5°	1919.9	1785.7	1558.9	1390.4	1329.6
40°	1829.7	1683.4	1446.6	1273.4	1210.0
42.5°	1737.0	1580.9	1334.5	1153.9	1093.0
45°	1639.4	1475.9	1219.8	1046.4	988.0
47.5°	1546.8	1373.6	1110.1	936.7	883.1
50°	1444.2	1271.1	1002.7	834.2	783.2
52.5°	1344.1	1161.1	900.2	739.2	692.9
55°	1246.5	1056.3	792.8	646.5	600.2
57.5°	1146.6	951.5	697.8	561.2	522.0
60°	1044.1	849.0	597.6	473.4	434.3
62.5°	944.2	749.0	512.3	395.3	375.9
65°	841.7	643.9	424.4	341.7	334.1
67.5°	744.1	546.4	341.7	299.9	292.8
70°	641.6	451.4	282.9	258.5	248.7
72.5°	544.0	363.4	236.6	217.2	212.2
75°	448.8	278.0	195.2	178.1	175.8
77.5°	353.8	197.5	153.8	143.9	139.0
80°	265.8	141.6	117.0	107.4	107.4
82.5°	185.3	95.2	80.5	75.6	75.6
85°	104.8	53.6	46.3	46.3	46.3
87.5°	39.1	19.4	19.4	17.1	17.1
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

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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	8.72	9.50	9.74	10.52	11.88	4.68	5.46	5.70	6.48	7.85
	3H	10.39	11.09	11.42	12.12	13.51	5.86	6.56	6.89	7.59	8.98
	4H	11.00	11.66	12.05	12.70	14.09	6.31	6.97	7.35	8.00	9.40
	6H	11.43	12.03	12.48	13.07	14.48	6.63	7.24	7.68	8.28	9.68
	8H	11.55	12.13	12.61	13.18	14.59	6.72	7.30	7.78	8.35	9.75
	12H	11.62	12.16	12.68	13.21	14.64	6.76	7.31	7.82	8.36	9.78
4H	2H	8.73	9.39	9.78	10.42	11.82	5.27	5.93	6.32	6.96	8.36
	3H	10.56	11.11	11.61	12.17	13.58	6.62	7.16	7.67	8.23	9.63
	4H	11.25	11.75	12.31	12.81	14.24	7.16	7.66	8.22	8.72	10.15
	6H	11.77	12.20	12.84	13.28	14.70	7.58	8.01	8.65	9.09	10.51
	8H	11.94	12.35	13.02	13.42	14.85	7.71	8.11	8.78	9.18	10.62
	12H	12.04	12.40	13.13	13.49	14.93	7.77	8.13	8.86	9.22	10.66
8H	4H	11.22	11.62	12.29	12.69	14.13	7.44	7.84	8.51	8.91	10.35
	6H	11.78	12.12	12.88	13.23	14.66	7.96	8.29	9.05	9.40	10.84
	8H	12.00	12.29	13.10	13.39	14.84	8.15	8.44	9.25	9.54	10.99
	12H	12.14	12.40	13.25	13.49	14.98	8.27	8.52	9.37	9.61	11.11
12H	4H	11.17	11.53	12.25	12.61	14.06	7.44	7.81	8.53	8.89	10.33
	6H	11.76	12.05	12.86	13.15	14.60	8.01	8.30	9.11	9.39	10.85
	8H	11.98	12.24	13.08	13.33	14.82	8.22	8.47	9.32	9.56	11.06