

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: P917843

Luminaire Tested: DFN2DIP-SQ4F0-140D090US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917843
REPORT IS A COMBINATION OF REPORTS P901648 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

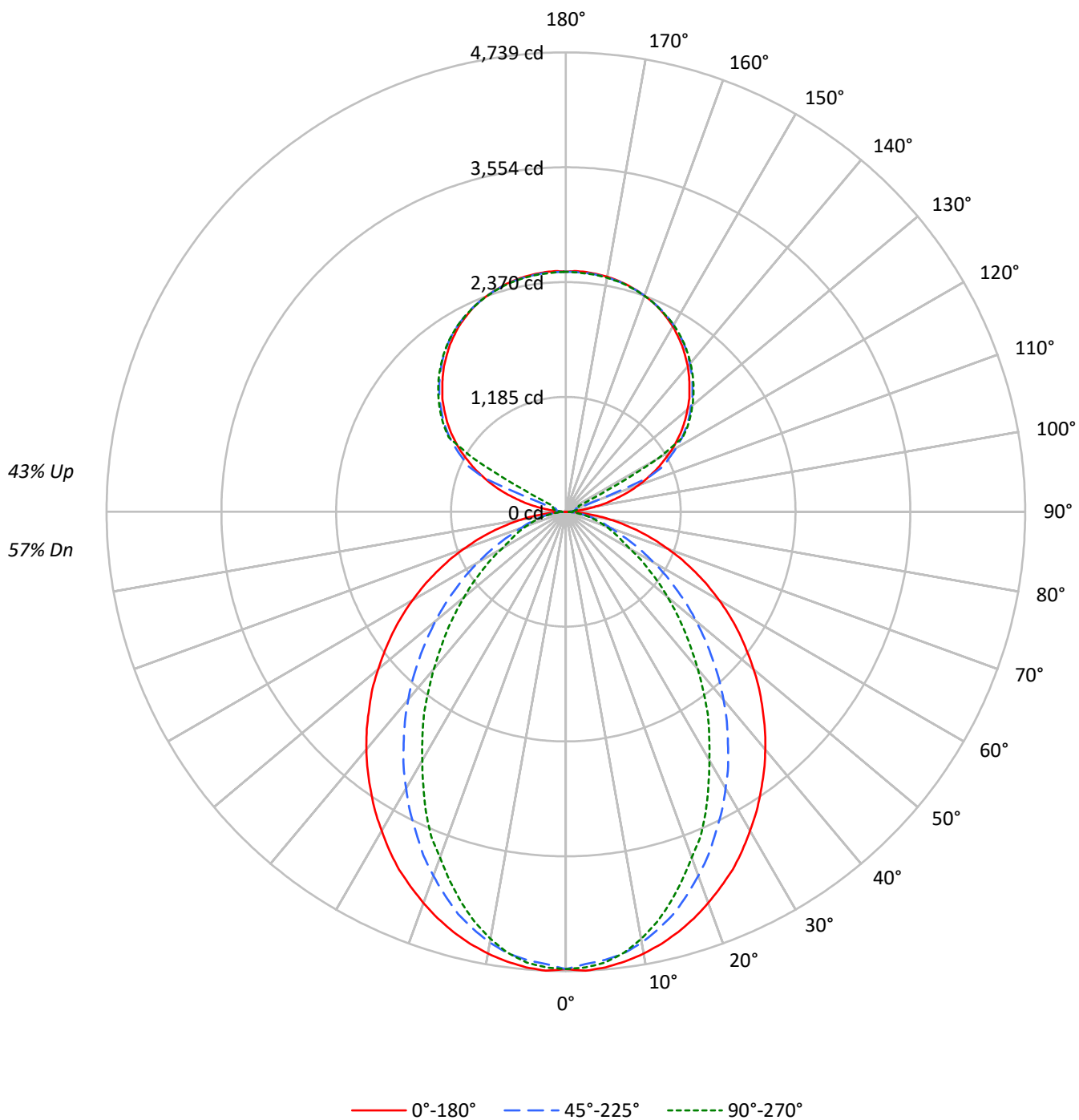
Lumens per Lamp: N/A
Luminaire Lumens: 16966.3 lumens
Efficiency: N/A
Efficacy: 80.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.5
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
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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63
1	100	96	92	89	93	89	86	83	77	75	73	66	65	63	56	55	54
2	91	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	46
3	84	75	67	62	78	70	64	59	61	56	52	53	49	46	45	42	40
4	77	66	59	53	72	62	55	50	55	49	45	47	43	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	38	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	34	31	34	30	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25
8	57	44	37	31	53	42	35	30	37	32	27	33	28	25	29	25	22
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	26	23	20
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19

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	2.6
10°-20°	1213.7	7.2
20°-30°	1704.0	10.0
30°-40°	1857.5	10.9
40°-50°	1707.2	10.1
50°-60°	1340.8	7.9
60°-70°	872.7	5.1
70°-80°	449.2	2.6
80°-90°	119.0	0.7
90°-100°	81.7	0.5
100°-110°	304.4	1.8
110°-120°	807.3	4.8
120°-130°	1339.0	7.9
130°-140°	1422.3	8.4
140°-150°	1321.9	7.8
150°-160°	1062.8	6.3
160°-170°	684.8	4.0
170°-180°	235.7	1.4
0°-30°	3359.9	19.8
0°-40°	5217.4	30.8
0°-60°	8265.4	48.7
0°-90°	9706.4	57.2
90°-120°	1193.4	7.0
90°-150°	5276.6	31.1
90°-180°	7260.0	42.8
0°-180°	16966.3	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	22	36	45	48	16
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°	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°	1.7	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	11.97	12.86	12.87	13.77	14.94	7.93	8.82	8.83	9.73	10.90
	3H	13.65	14.45	14.57	15.38	16.57	9.12	9.92	10.03	10.84	12.04
	4H	14.27	15.02	15.19	15.95	17.15	9.57	10.33	10.50	11.26	12.46
	6H	14.70	15.39	15.63	16.33	17.54	9.90	10.59	10.84	11.53	12.74
	8H	14.83	15.49	15.77	16.44	17.65	9.99	10.65	10.94	11.60	12.82
	12H	14.89	15.52	15.84	16.47	17.70	10.04	10.67	10.99	11.61	12.85
4H	2H	11.99	12.75	12.92	13.68	14.88	8.53	9.29	9.47	10.22	11.42
	3H	13.83	14.46	14.77	15.42	16.63	9.89	10.52	10.83	11.48	12.69
	4H	14.53	15.10	15.48	16.06	17.30	10.44	11.01	11.39	11.97	13.21
	6H	15.05	15.54	16.02	16.52	17.76	10.86	11.36	11.83	12.33	13.57
	8H	15.23	15.69	16.20	16.66	17.92	10.99	11.45	11.96	12.42	13.68
	12H	15.33	15.75	16.32	16.73	17.99	11.06	11.48	12.05	12.46	13.72
8H	4H	14.50	14.96	15.47	15.93	17.19	10.73	11.19	11.69	12.16	13.41
	6H	15.08	15.45	16.07	16.47	17.72	11.25	11.63	12.24	12.64	13.89
	8H	15.30	15.63	16.30	16.63	17.90	11.44	11.78	12.44	12.78	14.05
	12H	15.44	15.73	16.44	16.73	18.05	11.56	11.86	12.57	12.85	14.17
12H	4H	14.46	14.87	15.44	15.86	17.12	10.74	11.15	11.72	12.14	13.40
	6H	15.05	15.39	16.05	16.39	17.66	11.30	11.63	12.30	12.64	13.91
	8H	15.28	15.57	16.28	16.57	17.89	11.51	11.81	12.52	12.80	14.12