

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: P923293

Luminaire Tested: DFN2DIP-SQ4F0-140D080US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923293
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-SQ4F0-140D080US940-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

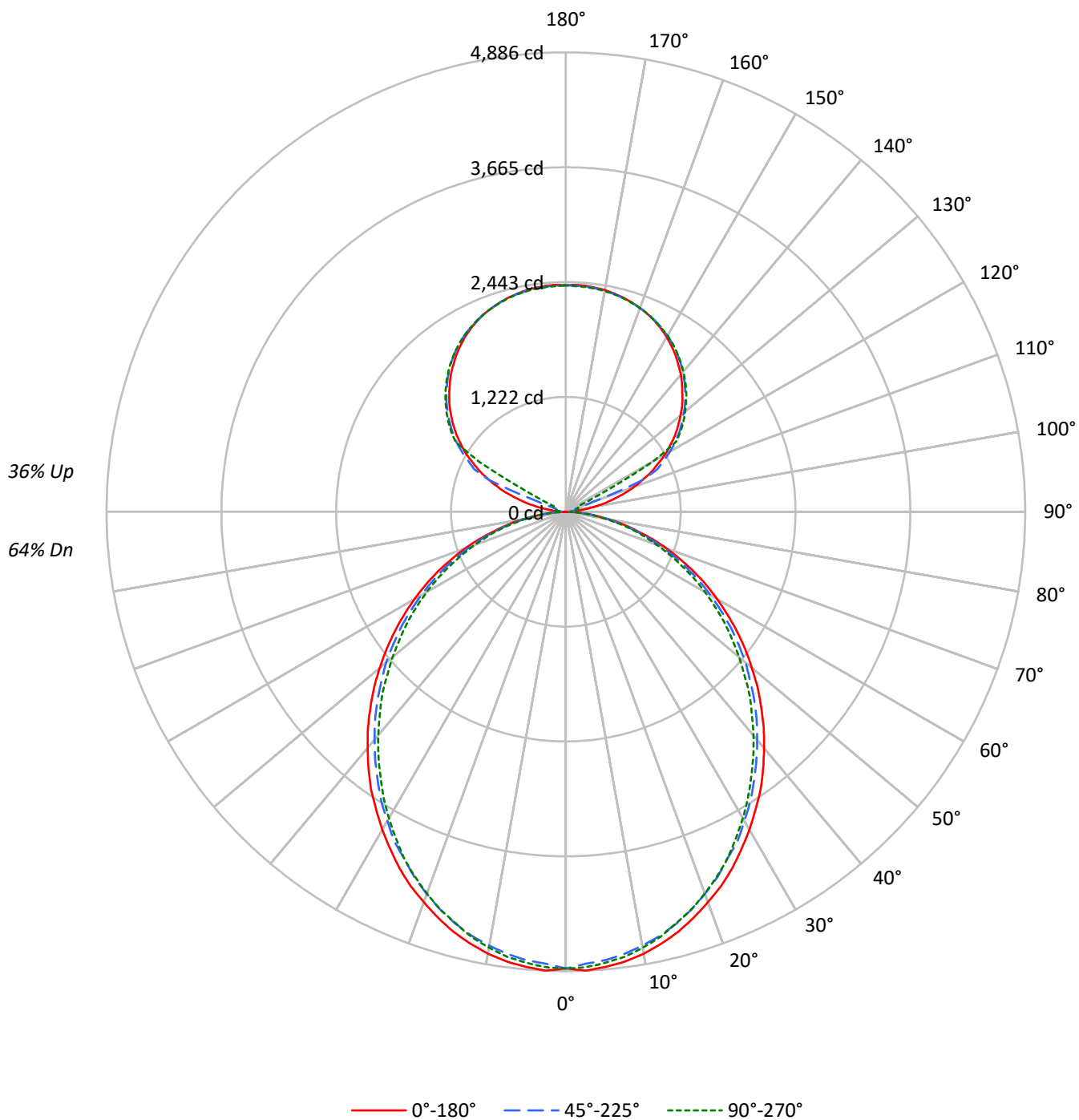
Lumens per Lamp: N/A
Luminaire Lumens: 19421.5 lumens
Efficiency: N/A
Efficacy: 95.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	110	110	110	110	104	104	104	104	91	91	91		79	79	79		69
1	101	96	92	89	94	91	87	84	80	77	75		70	68	66		61
2	92	84	78	73	86	79	74	69	70	66	62		61	58	55		53
3	84	74	67	61	78	70	63	58	62	57	52		54	50	47		47
4	77	66	58	51	72	62	55	49	55	49	45		48	44	40		42
5	71	59	50	44	66	55	48	42	49	43	39		44	39	35		38
6	65	53	44	38	61	50	42	37	44	38	34		39	34	31		35
7	60	48	39	34	56	45	38	32	40	34	30		36	31	27		32
8	56	43	35	30	52	41	34	29	37	31	27		33	28	24		29
9	52	40	32	27	49	38	31	26	34	28	24		30	25	22		27
10	49	36	29	24	46	35	28	23	31	26	22		28	23	20		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3408	3408	3408
5°	3414	3362	3385
10°	3386	3317	3340
15°	3336	3263	3269
20°	3269	3188	3197
25°	3202	3098	3113
30°	3118	3014	3006
35°	3039	2915	2893
40°	2941	2815	2786
45°	2843	2715	2676
50°	2736	2610	2548
55°	2625	2489	2432
60°	2498	2344	2298
65°	2361	2196	2140
70°	2185	2014	1970
75°	1942	1796	1815
80°	1649	1519	1516
85°	1192	1039	1019

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2843 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	457.2	2.4
10°-20°	1286.4	6.6
20°-30°	1890.5	9.7
30°-40°	2195.7	11.3
40°-50°	2192.9	11.3
50°-60°	1912.2	9.8
60°-70°	1413.5	7.3
70°-80°	799.7	4.1
80°-90°	215.3	1.1
90°-100°	79.4	0.4
100°-110°	295.9	1.5
110°-120°	784.9	4.0
120°-130°	1301.8	6.7
130°-140°	1382.8	7.1
140°-150°	1285.1	6.6
150°-160°	1033.2	5.3
160°-170°	665.8	3.4
170°-180°	229.2	1.2
0°-30°	3634.0	18.7
0°-40°	5829.7	30.0
0°-60°	9934.8	51.2
0°-90°	12363.4	63.7
90°-120°	1160.2	6.0
90°-150°	5129.9	26.4
90°-180°	7058.0	36.3
0°-180°	19421.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4858	4858	4858	4858	4858	
5°	4858	4839	4788	4825	4816	461
15°	4624	4596	4535	4554	4531	1302
25°	4185	4148	4069	4078	4069	1926
35°	3611	3564	3489	3461	3438	2255
45°	2938	2906	2835	2784	2765	2268
55°	2224	2195	2139	2083	2060	1988
65°	1500	1471	1425	1383	1359	1483
75°	784	776	752	724	733	837
85°	191	187	182	168	164	213
90°	2	21	35	44	47	18
95°	113	56	68	77	75	134
105°	530	582	106	125	132	566
115°	1002	1031	1075	268	143	986
125°	1416	1439	1472	1484	1489	1263
135°	1753	1780	1796	1814	1810	1354
145°	2033	2031	2061	2073	2064	1272
155°	2238	2223	2244	2254	2240	1032
165°	2359	2348	2354	2366	2354	666
175°	2413	2400	2404	2416	2399	230
180°	2408	2408	2408	2408	2408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4857.6	4857.6	4857.6	4857.6	4857.6
2.5°	4885.8	4862.5	4811.0	4857.6	4848.7
5°	4857.6	4839.2	4787.7	4824.9	4815.9
7.5°	4824.9	4797.1	4745.6	4783.2	4773.8
10°	4773.8	4741.1	4685.1	4722.3	4708.4
12.5°	4703.4	4675.7	4619.7	4643.0	4633.6
15°	4624.1	4596.4	4535.4	4554.3	4531.0
17.5°	4526.1	4498.3	4437.3	4460.6	4437.3
20°	4418.5	4390.8	4325.3	4339.2	4320.9
22.5°	4311.4	4269.3	4208.3	4208.3	4199.0
25°	4185.1	4147.9	4068.6	4077.5	4068.6
27.5°	4044.8	4012.2	3951.7	3937.8	3914.5
30°	3905.1	3867.4	3797.5	3783.7	3764.8
32.5°	3755.4	3727.7	3652.8	3624.6	3605.7
35°	3610.7	3564.2	3489.3	3461.1	3437.7
37.5°	3447.2	3405.1	3330.2	3297.5	3274.2
40°	3279.2	3241.5	3166.6	3125.1	3106.2
42.5°	3115.6	3078.0	3003.6	2956.6	2928.8
45°	2938.2	2905.5	2835.2	2784.1	2765.3
47.5°	2765.3	2732.6	2657.7	2606.2	2578.5
50°	2582.9	2559.7	2494.2	2428.8	2405.5
52.5°	2405.5	2372.8	2312.3	2260.8	2228.1
55°	2223.7	2195.4	2139.4	2083.4	2060.1
57.5°	2041.2	2017.9	1957.0	1901.0	1882.1
60°	1858.9	1840.6	1775.1	1723.6	1709.7
62.5°	1681.5	1648.8	1602.1	1555.6	1536.8
65°	1499.6	1471.3	1424.8	1382.6	1359.3
67.5°	1312.8	1289.0	1247.3	1214.6	1195.8
70°	1139.8	1121.0	1078.9	1046.2	1027.8
72.5°	962.4	943.5	920.2	887.6	873.7
75°	784.5	775.6	751.8	724.1	733.4
77.5°	625.9	607.1	597.6	583.8	569.9
80°	467.3	462.4	453.0	439.1	429.6
82.5°	317.6	317.6	313.2	294.4	294.4
85°	191.3	186.8	182.4	168.0	163.5
87.5°	84.3	74.8	65.5	51.5	46.5
90°	1.7	20.9	34.8	43.6	47.0
92.5°	43.6	36.6	41.8	45.3	47.0
95°	113.2	55.6	67.9	76.8	74.9
97.5°	203.8	61.0	88.7	94.2	95.8
100°	308.4	69.7	99.3	113.2	116.6
102.5°	423.3	419.9	102.8	121.8	127.2
105°	529.6	581.9	106.3	125.4	132.4
107.5°	653.3	696.7	109.9	128.9	135.9
110°	771.9	808.2	305.0	130.7	137.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	883.3	914.5	885.0	134.0	139.5
115°	1001.7	1031.3	1074.9	268.3	142.9
117.5°	1104.5	1139.2	1169.0	919.7	463.4
120°	1219.5	1245.5	1277.0	1297.9	1062.7
122.5°	1316.9	1344.9	1379.8	1390.2	1392.0
125°	1416.2	1439.0	1472.0	1484.3	1489.4
127.5°	1506.8	1531.2	1557.6	1574.8	1576.5
130°	1592.2	1620.1	1639.2	1658.5	1656.8
132.5°	1679.4	1702.1	1721.2	1736.9	1735.2
135°	1752.6	1780.5	1796.0	1813.6	1810.1
137.5°	1829.2	1850.0	1867.6	1885.0	1879.8
140°	1904.0	1918.1	1937.2	1952.8	1944.1
142.5°	1966.9	1979.1	2001.6	2015.5	2006.8
145°	2033.1	2031.2	2060.8	2073.0	2064.3
147.5°	2090.4	2085.3	2114.8	2123.5	2116.7
150°	2146.3	2134.0	2162.0	2172.3	2163.6
152.5°	2193.3	2179.3	2205.4	2216.0	2203.8
155°	2238.5	2223.0	2243.9	2254.2	2240.4
157.5°	2275.1	2261.3	2277.0	2289.2	2275.1
160°	2306.6	2296.1	2306.6	2316.9	2304.7
162.5°	2334.3	2324.0	2332.6	2344.8	2329.1
165°	2358.8	2348.4	2353.6	2365.7	2353.6
167.5°	2377.9	2367.4	2372.8	2385.0	2369.3
170°	2393.7	2383.1	2386.7	2398.9	2383.1
172.5°	2404.1	2393.7	2397.2	2409.4	2393.7
175°	2412.7	2400.5	2404.1	2416.2	2398.9
177.5°	2416.2	2404.1	2405.8	2418.1	2402.4
180°	2407.5	2407.5	2407.5	2407.5	2407.5

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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	12.72	13.72	13.55	14.57	15.63	12.27	13.27	13.10	14.13	15.19
	3H	14.39	15.29	15.24	16.15	17.24	13.90	14.80	14.75	15.66	16.75
	4H	14.99	15.84	15.85	16.71	17.81	14.50	15.34	15.35	16.21	17.31
	6H	15.40	16.18	16.27	17.06	18.17	14.90	15.68	15.77	16.56	17.67
	8H	15.51	16.26	16.39	17.15	18.26	15.01	15.75	15.89	16.65	17.76
	12H	15.57	16.27	16.45	17.16	18.30	15.06	15.77	15.94	16.65	17.79
4H	2H	13.20	14.04	14.06	14.91	16.01	12.84	13.69	13.71	14.56	15.66
	3H	15.08	15.79	15.95	16.69	17.80	14.67	15.38	15.55	16.28	17.40
	4H	15.80	16.45	16.69	17.35	18.49	15.38	16.02	16.27	16.92	18.06
	6H	16.33	16.89	17.23	17.81	18.95	15.90	16.45	16.80	17.38	18.52
	8H	16.48	17.01	17.39	17.92	19.08	16.05	16.57	16.95	17.48	18.64
	12H	16.57	17.04	17.49	17.97	19.13	16.12	16.59	17.04	17.52	18.68
8H	4H	16.01	16.53	16.92	17.45	18.60	15.63	16.15	16.54	17.07	18.23
	6H	16.65	17.08	17.58	18.04	19.20	16.27	16.70	17.20	17.66	18.81
	8H	16.88	17.26	17.82	18.21	19.38	16.48	16.87	17.43	17.82	18.99
	12H	17.02	17.35	17.96	18.30	19.52	16.61	16.94	17.55	17.89	19.11
12H	4H	16.00	16.47	16.93	17.41	18.57	15.63	16.10	16.56	17.04	18.20
	6H	16.68	17.07	17.63	18.02	19.19	16.31	16.69	17.25	17.64	18.82
	8H	16.94	17.27	17.88	18.21	19.44	16.56	16.89	17.50	17.83	19.06