

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: P912298

Luminaire Tested: DFN2DIP-SQ4F0-100D160US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912298
REPORT IS A COMBINATION OF REPORTS P900212 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D160US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

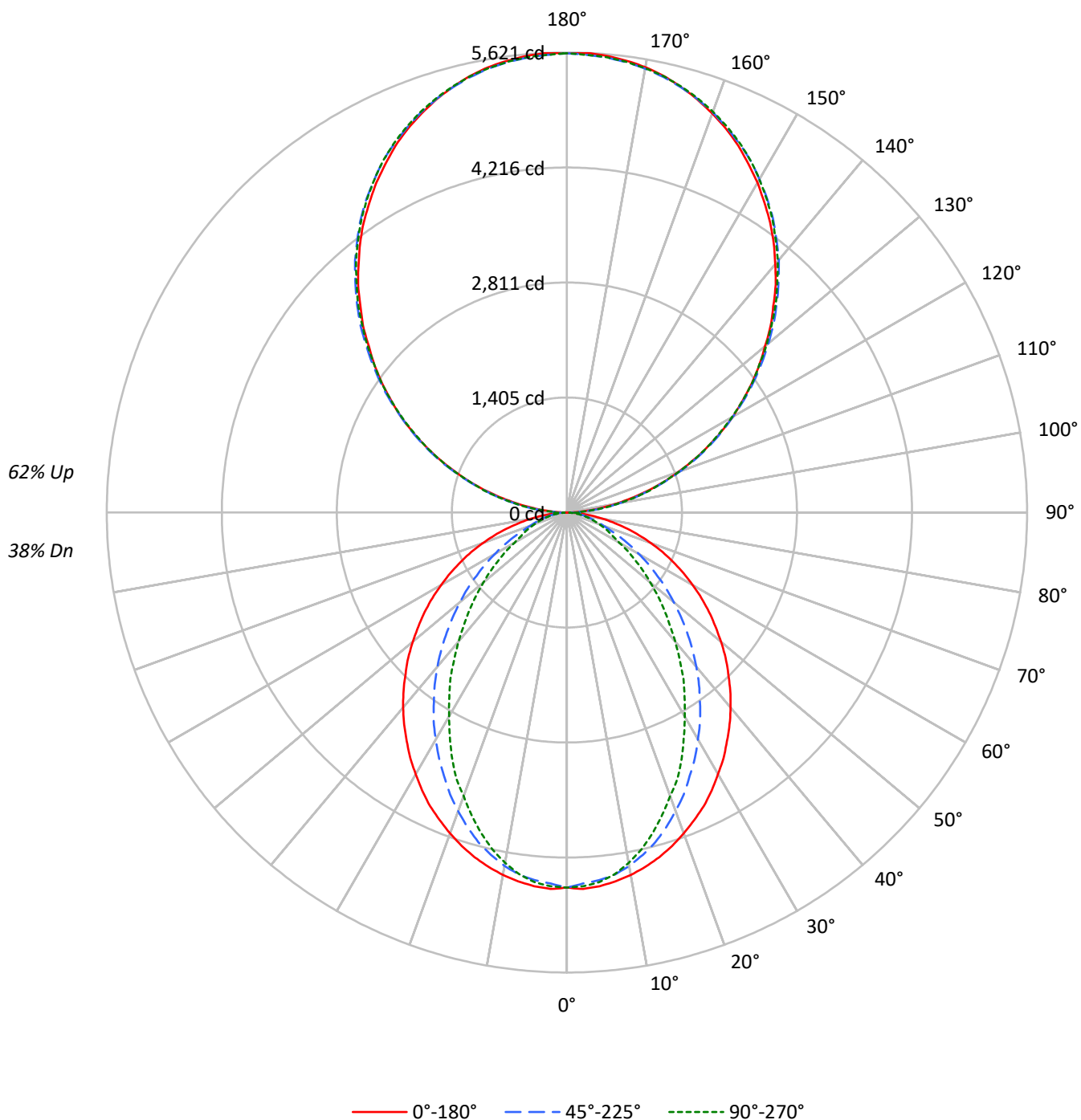
Lumens per Lamp: N/A
Luminaire Lumens: 25131.0 lumens
Efficiency: N/A
Efficacy: 117.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 214.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	104	104	104	104	95	95	95	95	76	76	76	60	60	60	45	45	45
1	95	91	88	84	86	83	80	77	67	65	63	53	52	50	40	39	38
2	87	80	74	69	79	73	68	64	59	56	53	47	45	43	36	34	33
3	80	71	64	58	72	64	58	54	53	48	45	42	39	37	32	30	28
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25
5	67	56	48	42	61	51	44	39	42	37	33	34	30	28	26	24	22
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14
10	46	35	28	23	42	32	26	21	27	22	19	22	18	16	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3216	3216	3216
5°	3221	3166	3186
10°	3189	3104	3084
15°	3145	3002	2924
20°	3087	2861	2728
25°	3028	2703	2539
30°	2948	2541	2298
35°	2869	2367	2087
40°	2790	2187	1845
45°	2697	1987	1625
50°	2602	1784	1411
55°	2502	1568	1204
60°	2386	1342	992
65°	2253	1112	894
70°	2091	898	811
75°	1889	793	740
80°	1595	667	645
85°	1111	448	490

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 4416 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	1.7
10°-20°	1179.3	4.7
20°-30°	1655.6	6.6
30°-40°	1804.7	7.2
40°-50°	1658.8	6.6
50°-60°	1302.7	5.2
60°-70°	847.9	3.4
70°-80°	436.5	1.7
80°-90°	127.4	0.5
90°-100°	347.3	1.4
100°-110°	1103.4	4.4
110°-120°	1888.3	7.5
120°-130°	2483.4	9.9
130°-140°	2787.5	11.1
140°-150°	2733.5	10.9
150°-160°	2293.0	9.1
160°-170°	1520.7	6.1
170°-180°	531.5	2.1
0°-30°	3264.5	13.0
0°-40°	5069.2	20.2
0°-60°	8030.6	32.0
0°-90°	9442.4	37.6
90°-120°	3339.0	13.3
90°-150°	11343.4	45.1
90°-180°	15689.0	62.4
0°-180°	25131.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	5	61	166	156	161	25
95°	247	294	303	303	294	275
105°	1018	1032	1042	1051	1051	1075
115°	1895	1922	1914	1908	1895	1874
125°	2756	2798	2785	2770	2765	2463
135°	3565	3617	3628	3622	3609	2756
145°	4328	4362	4389	4394	4375	2704
155°	4949	4962	4978	5001	4986	2278
165°	5384	5379	5379	5412	5389	1519
175°	5602	5588	5578	5612	5583	532
180°	5612	5612	5612	5612	5612	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
90°	5.1	60.9	165.8	155.7	160.7
92.5°	104.9	142.2	147.2	152.3	152.3
95°	247.0	294.4	302.9	302.9	294.4
97.5°	411.1	455.1	473.8	473.8	473.8
100°	600.6	639.6	653.1	653.1	648.0
102.5°	800.3	829.1	847.6	852.7	847.6
105°	1018.5	1032.0	1042.2	1050.7	1050.7
107.5°	1235.1	1255.4	1255.4	1258.8	1235.1
110°	1444.9	1472.0	1472.0	1472.0	1458.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1671.6	1700.4	1695.3	1681.8	1671.6
115°	1894.9	1922.0	1913.6	1908.5	1894.9
117.5°	2116.6	2153.8	2130.2	2116.6	2103.1
120°	2340.0	2377.1	2340.0	2340.0	2324.7
122.5°	2542.9	2590.4	2566.7	2553.1	2542.9
125°	2756.2	2798.5	2784.9	2769.7	2764.6
127.5°	2964.2	3016.7	2998.1	2977.8	2964.2
130°	3158.9	3219.8	3211.3	3201.1	3182.5
132.5°	3377.1	3424.5	3427.8	3404.2	3390.7
135°	3564.9	3617.3	3627.5	3622.4	3608.9
137.5°	3774.7	3817.0	3825.5	3822.1	3801.8
140°	3959.1	4001.4	4025.1	4025.1	4006.5
142.5°	4148.7	4190.9	4204.4	4209.5	4190.9
145°	4328.0	4361.8	4388.9	4394.0	4375.3
147.5°	4488.7	4531.0	4551.3	4559.8	4541.1
150°	4654.5	4683.3	4701.9	4717.1	4701.9
152.5°	4801.7	4830.5	4854.2	4872.7	4854.2
155°	4948.9	4962.4	4977.6	5001.4	4986.2
157.5°	5075.8	5086.0	5094.4	5128.2	5104.6
160°	5189.1	5199.3	5204.4	5233.1	5212.9
162.5°	5294.0	5294.0	5299.1	5331.3	5307.6
165°	5383.8	5378.6	5378.6	5412.5	5388.9
167.5°	5464.9	5449.7	5449.7	5483.6	5459.8
170°	5525.8	5512.3	5507.3	5541.1	5512.3
172.5°	5568.2	5554.6	5549.5	5583.4	5554.6
175°	5602.0	5588.5	5578.3	5612.2	5583.4
177.5°	5620.6	5607.1	5596.9	5625.7	5596.9
180°	5612.2	5612.2	5612.2	5612.2	5612.2

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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	9.93	10.67	11.00	11.73	13.17	5.89	6.63	6.96	7.69	9.13
	3H	11.61	12.27	12.68	13.34	14.80	7.08	7.73	8.15	8.81	10.26
	4H	12.21	12.84	13.30	13.91	15.38	7.52	8.15	8.60	9.22	10.68
	6H	12.64	13.21	13.73	14.29	15.76	7.84	8.41	8.93	9.49	10.97
	8H	12.76	13.31	13.86	14.40	15.87	7.93	8.47	9.02	9.57	11.04
	12H	12.82	13.34	13.92	14.43	15.92	7.97	8.49	9.07	9.57	11.07
4H	2H	9.94	10.56	11.03	11.64	13.10	6.48	7.10	7.57	8.18	9.64
	3H	11.76	12.28	12.86	13.38	14.86	7.82	8.34	8.92	9.44	10.92
	4H	12.46	12.93	13.56	14.02	15.52	8.37	8.84	9.47	9.93	11.43
	6H	12.97	13.38	14.08	14.49	15.98	8.78	9.19	9.89	10.30	11.80
	8H	13.15	13.53	14.26	14.63	16.14	8.91	9.29	10.02	10.40	11.90
	12H	13.24	13.59	14.37	14.70	16.22	8.97	9.32	10.10	10.43	11.95
8H	4H	12.42	12.80	13.53	13.90	15.41	8.64	9.02	9.75	10.13	11.64
	6H	12.99	13.30	14.12	14.45	15.95	9.16	9.47	10.29	10.62	12.13
	8H	13.20	13.48	14.34	14.61	16.13	9.35	9.63	10.49	10.75	12.28
	12H	13.34	13.58	14.48	14.71	16.27	9.47	9.71	10.61	10.83	12.39
12H	4H	12.37	12.71	13.49	13.83	15.34	8.64	8.99	9.77	10.11	11.62
	6H	12.96	13.24	14.10	14.36	15.89	9.21	9.49	10.35	10.61	12.14
	8H	13.18	13.42	14.32	14.55	16.11	9.42	9.66	10.56	10.78	12.34