

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: P923282

Luminaire Tested: DFN2DIP-SQ4F0-120D160US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923282
REPORT IS A COMBINATION OF REPORTS P900216 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

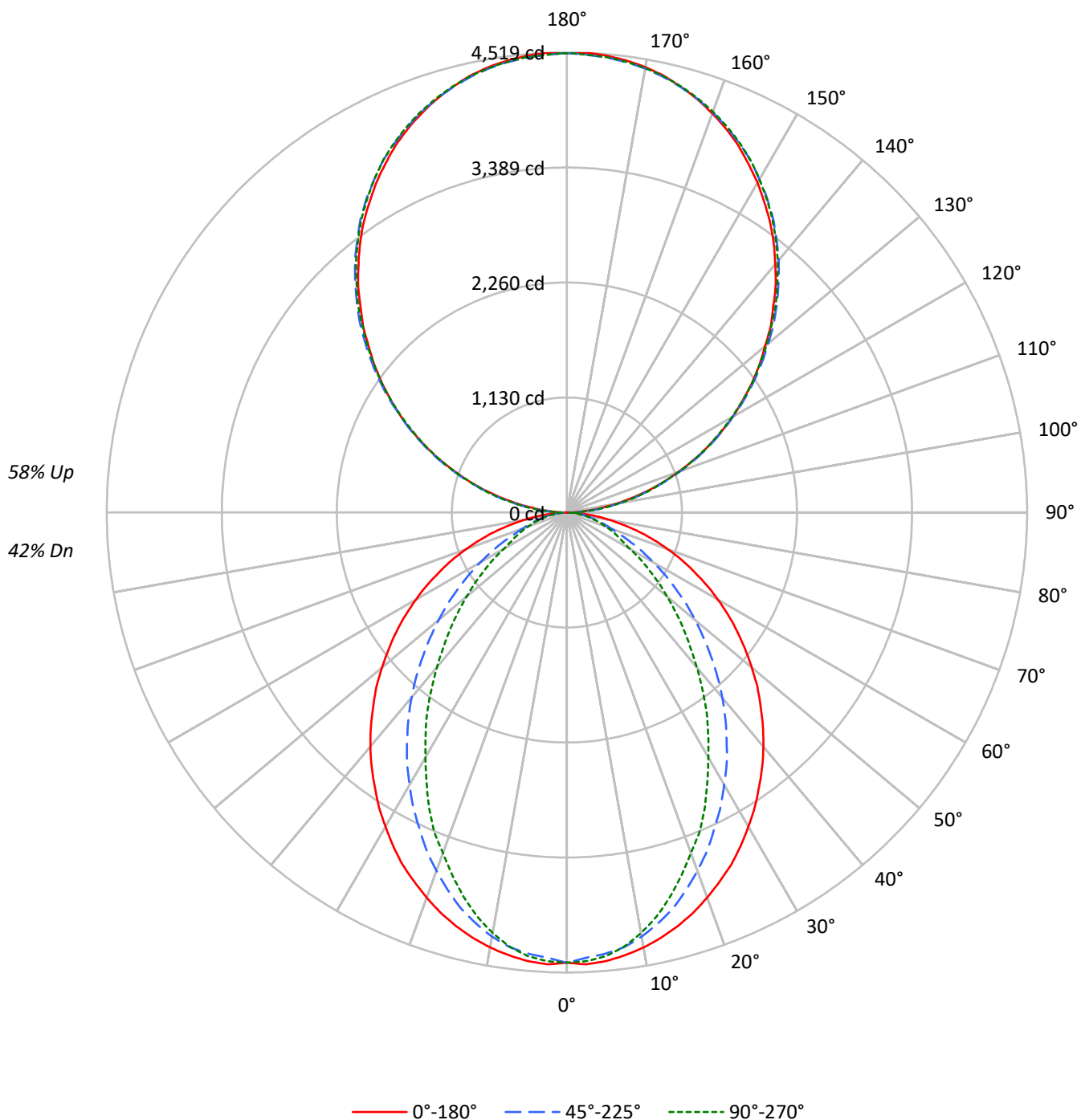
Lumens per Lamp: N/A
Luminaire Lumens: 21722.9 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 239.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36
3	81	72	65	59	73	66	60	55	55	50	47	44	41	39	35	33	31
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	40	34	30	33	29	26	26	23	21
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	34	29	49	39	32	28	33	28	24	27	23	21	22	19	17
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	20	18	16
10	47	35	28	24	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3103	3103	3103
5°	3108	3055	3074
10°	3077	2995	2975
15°	3035	2897	2821
20°	2979	2761	2632
25°	2921	2608	2450
30°	2844	2452	2218
35°	2769	2284	2014
40°	2692	2110	1780
45°	2602	1917	1568
50°	2510	1722	1361
55°	2414	1513	1162
60°	2302	1295	958
65°	2174	1073	863
70°	2018	866	782
75°	1823	765	714
80°	1539	644	622
85°	1072	433	474

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3551 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.5	1.9
10°-20°	1137.8	5.2
20°-30°	1597.5	7.4
30°-40°	1741.4	8.0
40°-50°	1600.5	7.4
50°-60°	1256.9	5.8
60°-70°	818.2	3.8
70°-80°	421.2	1.9
80°-90°	120.3	0.6
90°-100°	279.2	1.3
100°-110°	887.2	4.1
110°-120°	1518.3	7.0
120°-130°	1996.8	9.2
130°-140°	2241.4	10.3
140°-150°	2197.9	10.1
150°-160°	1843.7	8.5
160°-170°	1222.7	5.6
170°-180°	427.4	2.0
0°-30°	3149.8	14.5
0°-40°	4891.2	22.5
0°-60°	7748.6	35.7
0°-90°	9108.3	41.9
90°-120°	2684.7	12.4
90°-150°	9120.8	42.0
90°-180°	12615.0	58.1
0°-180°	21722.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4422	4422	4422	4422	4422	
5°	4422	4403	4350	4386	4375	419
15°	4206	4162	4026	3950	3910	1185
25°	3818	3690	3426	3262	3202	1756
35°	3290	3086	2734	2482	2393	2059
45°	2690	2421	2001	1717	1621	2077
55°	2045	1733	1301	1061	985	1827
65°	1381	1056	696	560	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	197
90°	4	49	133	125	129	21
95°	199	237	244	244	237	221
105°	819	830	838	845	845	864
115°	1524	1545	1539	1534	1524	1507
125°	2216	2250	2239	2227	2223	1980
135°	2866	2909	2917	2913	2902	2216
145°	3480	3507	3529	3533	3518	2174
155°	3979	3990	4002	4021	4009	1832
165°	4329	4325	4325	4352	4333	1221
175°	4504	4494	4485	4513	4489	428
180°	4513	4513	4513	4513	4513	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4422.5	4422.5	4422.5	4422.5	4422.5
2.5°	4442.5	4422.5	4378.4	4418.7	4410.6
5°	4422.5	4402.6	4350.3	4386.4	4374.6
7.5°	4386.4	4362.6	4306.6	4322.3	4302.3
10°	4338.4	4310.4	4230.5	4218.2	4194.5
12.5°	4278.5	4242.5	4134.1	4110.4	4066.3
15°	4206.4	4162.2	4026.3	3950.3	3910.4
17.5°	4122.3	4058.2	3890.0	3802.2	3738.0
20°	4026.3	3946.1	3746.1	3646.3	3557.9
22.5°	3922.3	3830.2	3597.9	3462.0	3402.1
25°	3818.3	3690.0	3425.9	3262.0	3201.7
27.5°	3694.3	3557.9	3265.8	3077.7	2985.5
30°	3562.2	3409.8	3089.6	2885.8	2777.5
32.5°	3434.0	3249.7	2921.9	2681.6	2581.3
35°	3290.1	3085.8	2733.7	2481.5	2393.2
37.5°	3149.9	2929.5	2557.5	2281.1	2181.3
40°	3001.7	2761.8	2373.3	2089.2	1985.1
42.5°	2849.6	2593.6	2189.4	1893.0	1793.2
45°	2689.6	2421.3	2001.3	1716.8	1620.8
47.5°	2537.5	2253.5	1821.2	1536.8	1448.9
50°	2369.5	2085.4	1645.0	1368.6	1285.0
52.5°	2205.1	1904.9	1476.9	1212.7	1136.8
55°	2045.0	1732.9	1300.6	1060.7	984.7
57.5°	1881.1	1560.9	1144.8	920.6	856.5
60°	1713.0	1392.8	980.4	776.7	712.6
62.5°	1549.1	1228.9	840.3	648.5	616.5
65°	1380.9	1056.5	696.4	560.5	548.2
67.5°	1220.8	896.3	560.5	492.1	480.3
70°	1052.7	740.6	464.1	424.2	408.0
72.5°	892.6	596.2	388.1	356.2	348.2
75°	736.3	456.0	320.2	292.1	288.3
77.5°	580.5	324.0	252.3	236.1	228.0
80°	436.1	232.3	191.9	176.2	176.2
82.5°	304.1	156.2	132.1	123.9	123.9
85°	172.0	87.9	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
90°	4.1	49.0	133.3	125.2	129.2
92.5°	84.4	114.3	118.3	122.4	122.4
95°	198.6	236.7	243.5	243.5	236.7
97.5°	330.6	366.0	380.9	380.9	380.9
100°	483.0	514.2	525.1	525.1	521.0
102.5°	643.5	666.6	681.5	685.6	681.5
105°	818.9	829.8	838.0	844.8	844.8
107.5°	993.1	1009.4	1009.4	1012.2	993.1
110°	1161.8	1183.6	1183.6	1183.6	1172.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1344.1	1367.3	1363.2	1352.3	1344.1
115°	1523.7	1545.4	1538.6	1534.5	1523.7
117.5°	1701.9	1731.8	1712.8	1701.9	1691.0
120°	1881.5	1911.4	1881.5	1881.5	1869.2
122.5°	2044.7	2082.9	2063.8	2052.9	2044.7
125°	2216.2	2250.1	2239.3	2227.0	2222.9
127.5°	2383.5	2425.6	2410.6	2394.3	2383.5
130°	2539.9	2588.9	2582.1	2573.9	2558.9
132.5°	2715.4	2753.5	2756.2	2737.2	2726.3
135°	2866.4	2908.6	2916.8	2912.7	2901.8
137.5°	3035.1	3069.1	3076.0	3073.2	3056.9
140°	3183.4	3217.4	3236.5	3236.5	3221.5
142.5°	3335.8	3369.8	3380.7	3384.8	3369.8
145°	3480.0	3507.2	3528.9	3533.0	3518.1
147.5°	3609.2	3643.3	3659.6	3666.4	3651.4
150°	3742.5	3765.7	3780.7	3792.9	3780.7
152.5°	3860.9	3884.0	3903.1	3918.0	3903.1
155°	3979.3	3990.1	4002.4	4021.4	4009.2
157.5°	4081.3	4089.5	4096.2	4123.4	4104.5
160°	4172.4	4180.6	4184.7	4207.8	4191.5
162.5°	4256.8	4256.8	4260.9	4286.7	4267.6
165°	4328.9	4324.8	4324.8	4352.0	4333.0
167.5°	4394.2	4382.0	4382.0	4409.2	4390.1
170°	4443.1	4432.2	4428.2	4455.4	4432.2
172.5°	4477.2	4466.3	4462.2	4489.4	4466.3
175°	4504.4	4493.5	4485.3	4512.6	4489.4
177.5°	4519.4	4508.5	4500.3	4523.5	4500.3
180°	4512.6	4512.6	4512.6	4512.6	4512.6

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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	10.29	11.06	11.32	12.09	13.47	6.25	7.02	7.28	8.05	9.44
	3H	11.97	12.65	13.01	13.69	15.10	7.43	8.12	8.47	9.16	10.57
	4H	12.57	13.23	13.63	14.27	15.68	7.88	8.53	8.93	9.58	10.99
	6H	13.00	13.60	14.06	14.64	16.07	8.20	8.80	9.26	9.85	11.27
	8H	13.12	13.69	14.19	14.76	16.18	8.29	8.86	9.36	9.92	11.34
	12H	13.19	13.73	14.26	14.78	16.23	8.33	8.87	9.40	9.93	11.37
4H	2H	10.30	10.95	11.36	11.99	13.41	6.84	7.49	7.90	8.53	9.95
	3H	12.13	12.67	13.19	13.74	15.16	8.19	8.73	9.25	9.80	11.22
	4H	12.82	13.32	13.89	14.38	15.83	8.73	9.23	9.80	10.29	11.74
	6H	13.34	13.76	14.42	14.85	16.29	9.15	9.57	10.23	10.66	12.10
	8H	13.51	13.91	14.59	14.99	16.44	9.28	9.67	10.36	10.75	12.21
	12H	13.61	13.97	14.71	15.06	16.52	9.34	9.70	10.44	10.79	12.25
8H	4H	12.78	13.18	13.86	14.26	15.72	9.01	9.41	10.09	10.48	11.94
	6H	13.35	13.68	14.46	14.80	16.25	9.53	9.85	10.63	10.97	12.43
	8H	13.57	13.86	14.68	14.96	16.43	9.72	10.01	10.83	11.11	12.58
	12H	13.71	13.96	14.82	15.06	16.57	9.84	10.09	10.95	11.19	12.70
12H	4H	12.73	13.09	13.83	14.18	15.64	9.01	9.37	10.11	10.46	11.92
	6H	13.33	13.62	14.44	14.72	16.19	9.58	9.86	10.69	10.97	12.44
	8H	13.55	13.80	14.66	14.90	16.41	9.79	10.04	10.90	11.14	12.65

END OF REPORT