

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: P912118

Luminaire Tested: DFN2DIP-SQ3F0-120D120US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912118
REPORT IS A COMBINATION OF REPORTS P900022 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D120US850-RLLFLL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

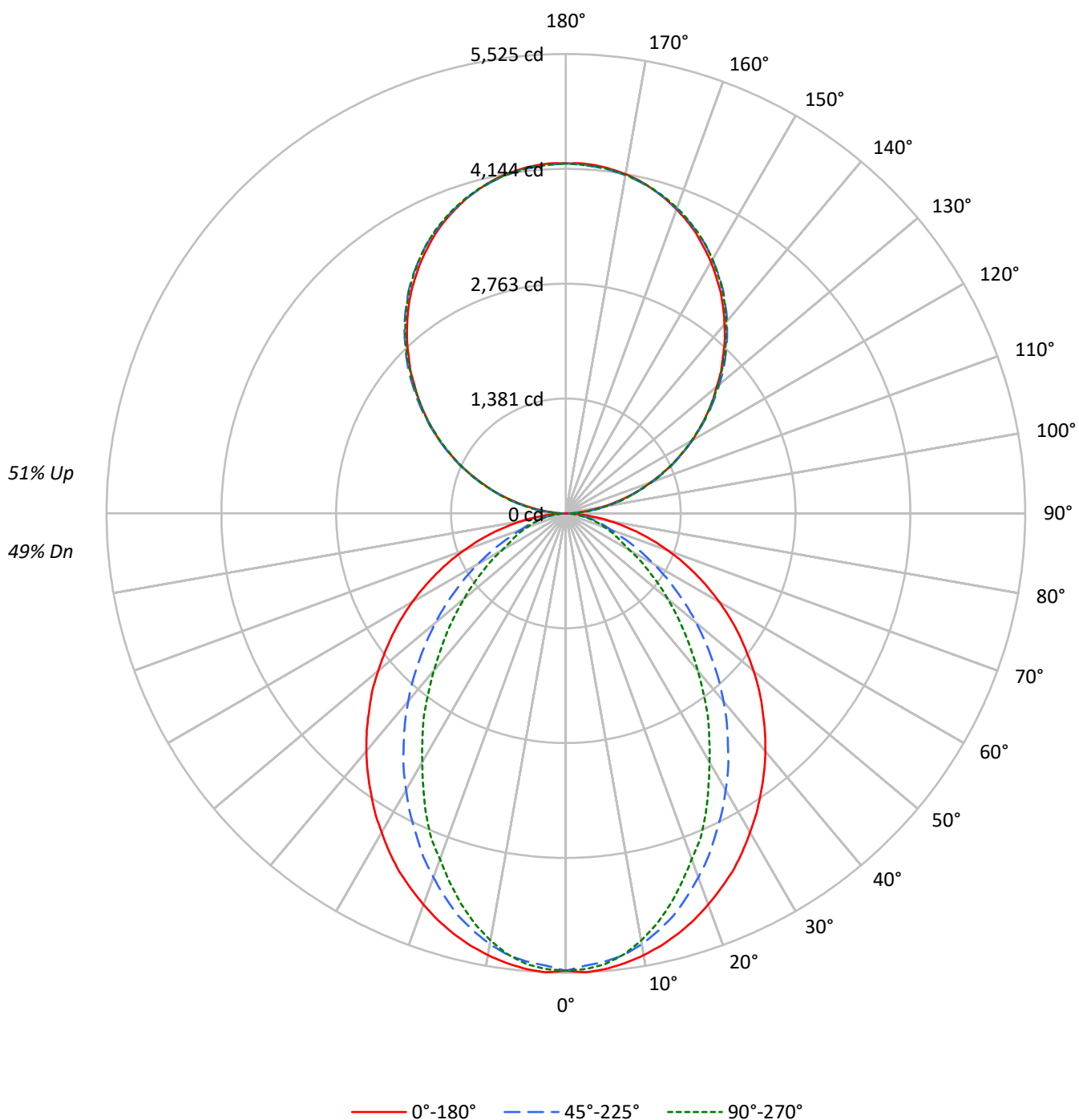
Lumens per Lamp: N/A
Luminaire Lumens: 23089.3 lumens
Efficiency: N/A
Efficacy: 105.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 219.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	107	107	107	107	99	99	99	99	83	83	83		68	68	68		55
1	98	94	90	87	90	87	84	81	73	71	69		61	59	58		50
2	90	83	77	72	82	76	71	67	65	61	58		54	51	49		44
3	82	73	66	60	75	68	61	57	58	53	49		48	45	42		40
4	75	65	57	51	69	60	54	48	51	46	42		43	40	36		36
5	69	58	50	44	64	54	47	42	46	41	37		39	35	32		32
6	64	52	44	39	59	49	42	37	42	36	32		35	31	28		30
7	59	47	40	34	55	44	37	32	38	33	29		32	28	25		27
8	55	43	36	30	51	40	33	29	35	29	26		30	26	23		25
9	51	39	32	27	47	37	30	26	32	27	23		27	23	20		23
10	48	36	29	24	44	34	28	23	30	24	21		25	21	19		22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6302	6302	6302
5°	6308	6198	6240
10°	6242	6072	6035
15°	6152	5867	5719
20°	6034	5587	5332
25°	5914	5273	4959
30°	5753	4952	4486
35°	5596	4607	4070
40°	5435	4250	3594
45°	5249	3855	3163
50°	5056	3457	2742
55°	4855	3032	2338
60°	4621	2587	1922
65°	4352	2137	1728
70°	4025	1716	1560
75°	3614	1504	1415
80°	3020	1248	1220
85°	2048	813	905

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 5249 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	515.5	2.2
10°-20°	1415.1	6.1
20°-30°	1986.8	8.6
30°-40°	2165.7	9.4
40°-50°	1990.5	8.6
50°-60°	1563.2	6.8
60°-70°	1017.5	4.4
70°-80°	523.8	2.3
80°-90°	145.7	0.6
90°-100°	260.4	1.1
100°-110°	827.5	3.6
110°-120°	1416.1	6.1
120°-130°	1862.4	8.1
130°-140°	2090.5	9.1
140°-150°	2050.0	8.9
150°-160°	1719.6	7.4
160°-170°	1140.4	4.9
170°-180°	398.6	1.7
0°-30°	3917.3	17.0
0°-40°	6083.0	26.3
0°-60°	9636.8	41.7
0°-90°	11323.7	49.0
90°-120°	2504.0	10.8
90°-150°	8506.9	36.8
90°-180°	11766.0	51.0
0°-180°	23089.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5500	5500	5500	5500	5500	
5°	5500	5475	5410	5455	5440	522
15°	5231	5176	5008	4913	4863	1474
25°	4749	4589	4261	4057	3982	2184
35°	4092	3838	3400	3086	2976	2561
45°	3345	3011	2489	2135	2016	2583
55°	2543	2155	1618	1319	1225	2273
65°	1717	1314	866	697	682	1703
75°	916	567	398	363	358	969
85°	214	109	94	94	94	246
90°	4	46	124	117	120	23
95°	185	221	227	227	221	206
105°	764	774	782	788	788	806
115°	1421	1442	1435	1431	1421	1406
125°	2067	2099	2089	2077	2073	1847
135°	2674	2713	2720	2717	2706	2066
145°	3246	3271	3291	3295	3281	2028
155°	3711	3722	3733	3751	3739	1708
165°	4038	4034	4034	4059	4041	1139
175°	4201	4191	4184	4209	4187	399
180°	4209	4209	4209	4209	4209	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5500.2	5500.2	5500.2	5500.2	5500.2
2.5°	5525.0	5500.2	5445.3	5495.4	5485.3
5°	5500.2	5475.4	5410.4	5455.3	5440.5
7.5°	5455.3	5425.7	5356.0	5375.5	5350.7
10°	5395.6	5360.8	5261.4	5246.1	5216.6
12.5°	5321.1	5276.3	5141.5	5112.0	5057.2
15°	5231.4	5176.5	5007.5	4912.9	4863.3
17.5°	5126.8	5047.1	4837.9	4728.7	4648.9
20°	5007.5	4907.7	4658.9	4534.8	4424.9
22.5°	4878.0	4763.5	4474.6	4305.6	4231.2
25°	4748.7	4589.2	4260.7	4056.8	3981.9
27.5°	4594.5	4424.9	4061.6	3827.7	3713.0
30°	4430.2	4240.7	3842.5	3588.9	3454.3
32.5°	4270.8	4041.5	3633.9	3335.0	3210.3
35°	4091.8	3837.7	3399.9	3086.2	2976.3
37.5°	3917.4	3643.4	3180.7	2836.9	2712.8
40°	3733.1	3434.8	2951.6	2598.3	2468.9
42.5°	3544.0	3225.6	2722.9	2354.3	2230.2
45°	3345.0	3011.3	2488.9	2135.2	2015.7
47.5°	3155.9	2802.7	2265.0	1911.3	1801.9
50°	2946.8	2593.5	2045.9	1702.1	1598.1
52.5°	2742.4	2369.0	1836.7	1508.2	1413.8
55°	2543.4	2155.2	1617.6	1319.2	1224.7
57.5°	2339.4	1941.3	1423.7	1144.9	1065.2
60°	2130.4	1732.1	1219.3	965.9	886.2
62.5°	1926.6	1528.3	1045.1	806.5	766.8
65°	1717.4	1313.9	866.1	697.1	681.8
67.5°	1518.3	1114.8	697.1	612.1	597.3
70°	1309.2	921.0	577.2	527.6	507.5
72.5°	1110.1	741.5	482.6	443.0	433.1
75°	915.7	567.1	398.2	363.3	358.5
77.5°	722.0	402.9	313.7	293.7	283.6
80°	542.4	288.9	238.7	219.1	219.1
82.5°	378.2	194.3	164.2	154.2	154.2
85°	213.9	109.3	94.5	94.5	94.5
87.5°	79.7	39.6	39.6	34.8	34.8
90°	3.8	45.7	124.3	116.8	120.5
92.5°	78.6	106.6	110.3	114.2	114.2
95°	185.2	220.8	227.1	227.1	220.8
97.5°	308.3	341.4	355.3	355.3	355.3
100°	450.5	479.6	489.7	489.7	486.0
102.5°	600.2	621.7	635.7	639.6	635.7
105°	763.9	774.0	781.6	787.9	787.9
107.5°	926.2	941.5	941.5	944.0	926.2
110°	1083.6	1103.9	1103.9	1103.9	1093.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1253.6	1275.2	1271.4	1261.3	1253.6
115°	1421.1	1441.5	1435.0	1431.3	1421.1
117.5°	1587.3	1615.3	1597.5	1587.3	1577.2
120°	1754.9	1782.7	1754.9	1754.9	1743.5
122.5°	1907.1	1942.6	1924.9	1914.7	1907.1
125°	2067.0	2098.7	2088.6	2077.2	2073.3
127.5°	2223.1	2262.4	2248.4	2233.2	2223.1
130°	2368.9	2414.6	2408.3	2400.7	2386.7
132.5°	2532.6	2568.2	2570.7	2552.9	2542.8
135°	2673.5	2712.8	2720.5	2716.6	2706.5
137.5°	2830.8	2862.6	2868.9	2866.3	2851.1
140°	2969.1	3000.8	3018.6	3018.6	3004.6
142.5°	3111.3	3143.0	3153.1	3156.9	3143.0
145°	3245.7	3271.1	3291.4	3295.3	3281.3
147.5°	3366.3	3398.0	3413.3	3419.6	3405.6
150°	3490.7	3512.2	3526.2	3537.6	3526.2
152.5°	3601.0	3622.5	3640.4	3654.4	3640.4
155°	3711.4	3721.6	3733.0	3750.7	3739.3
157.5°	3806.6	3814.2	3820.5	3845.9	3828.2
160°	3891.6	3899.2	3903.0	3924.6	3909.3
162.5°	3970.2	3970.2	3974.1	3998.2	3980.4
165°	4037.5	4033.8	4033.8	4059.1	4041.3
167.5°	4098.4	4087.0	4087.0	4112.4	4094.6
170°	4144.1	4133.9	4130.1	4155.5	4133.9
172.5°	4175.8	4165.6	4161.9	4187.3	4165.6
175°	4201.2	4191.0	4183.5	4208.8	4187.3
177.5°	4215.2	4205.0	4197.3	4219.0	4197.3
180°	4208.8	4208.8	4208.8	4208.8	4208.8

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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	13.42	14.24	14.39	15.22	16.51	9.38	10.20	10.35	11.18	12.47
	3H	15.09	15.82	16.07	16.82	18.12	10.56	11.29	11.54	12.29	13.59
	4H	15.69	16.39	16.69	17.38	18.70	11.00	11.70	12.00	12.69	14.01
	6H	16.11	16.75	17.12	17.75	19.08	11.32	11.96	12.33	12.96	14.29
	8H	16.24	16.85	17.25	17.86	19.19	11.41	12.02	12.42	13.03	14.36
	12H	16.30	16.87	17.31	17.88	19.23	11.45	12.03	12.46	13.03	14.39
4H	2H	13.43	14.13	14.44	15.12	16.44	9.97	10.67	10.97	11.66	12.98
	3H	15.26	15.83	16.27	16.86	18.19	11.31	11.89	12.32	12.91	14.24
	4H	15.94	16.47	16.96	17.49	18.84	11.85	12.38	12.87	13.40	14.75
	6H	16.45	16.91	17.48	17.95	19.30	12.27	12.72	13.30	13.76	15.11
	8H	16.63	17.05	17.66	18.08	19.45	12.39	12.81	13.42	13.85	15.21
	12H	16.72	17.10	17.77	18.15	19.52	12.45	12.83	13.50	13.88	15.25
8H	4H	15.91	16.33	16.94	17.36	18.73	12.13	12.55	13.16	13.59	14.95
	6H	16.47	16.82	17.52	17.89	19.26	12.64	12.99	13.69	14.06	15.43
	8H	16.68	16.99	17.75	18.05	19.43	12.83	13.13	13.89	14.19	15.58
	12H	16.82	17.09	17.88	18.14	19.57	12.94	13.21	14.00	14.26	15.69
12H	4H	15.86	16.24	16.91	17.29	18.66	12.13	12.52	13.18	13.56	14.93
	6H	16.44	16.75	17.51	17.81	19.19	12.69	13.00	13.75	14.05	15.44
	8H	16.66	16.93	17.73	17.99	19.41	12.89	13.16	13.96	14.22	15.64