

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: P912189

Luminaire Tested: DFN2DIP-SQ4F0-070D160US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912189
REPORT IS A COMBINATION OF REPORTS P901725 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

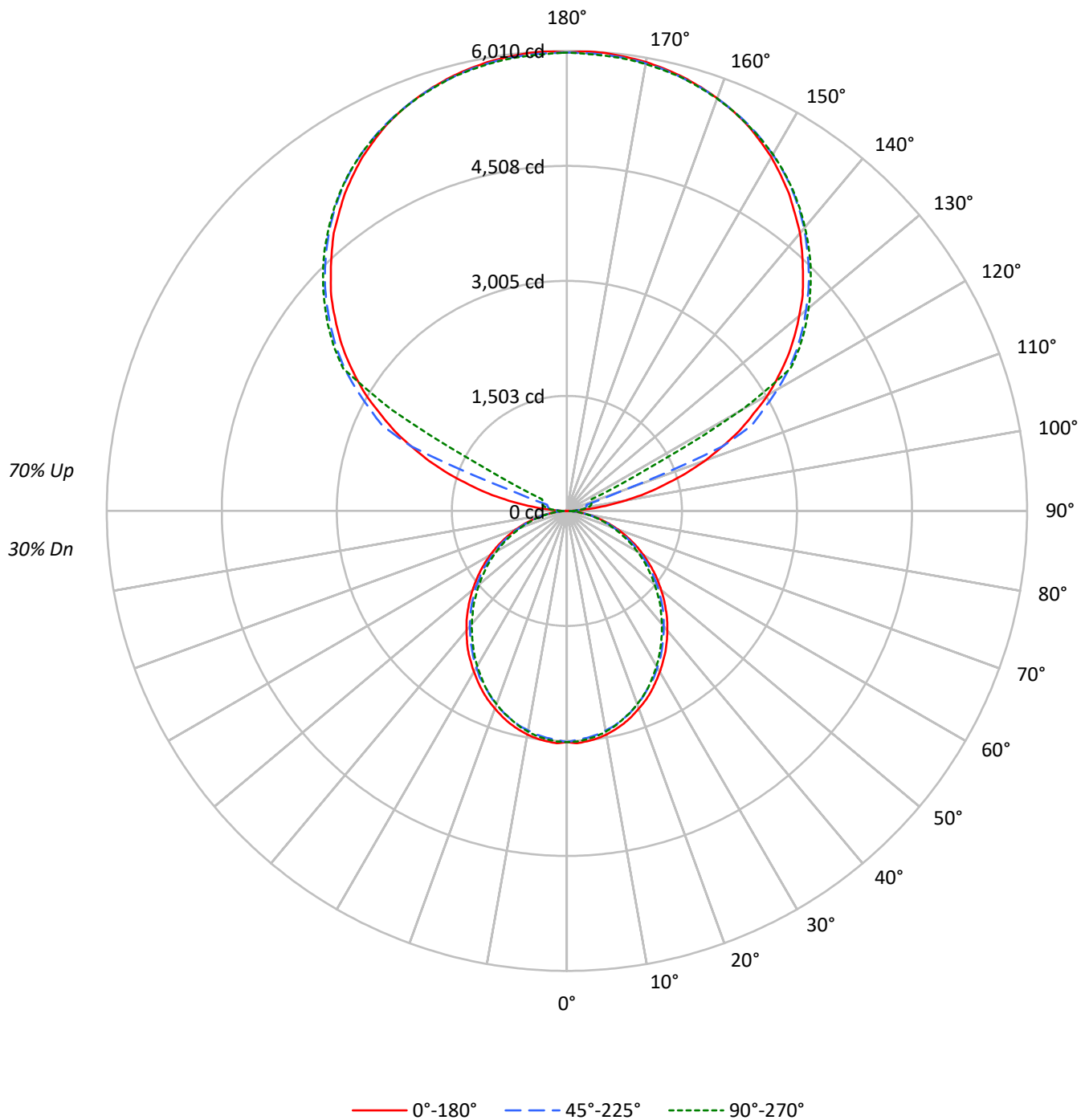
Lumens per Lamp: N/A
Luminaire Lumens: 25252.0 lumens
Efficiency: N/A
Efficacy: 137.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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					0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	102	102	102	102		92	92	92	92		72	72	72		55	55	55		38	38	38
1	93	89	85	82		84	80	77	74		63	61	59		48	47	45		34	33	32
2	85	78	72	67		76	70	65	61		56	52	49		42	40	38		30	28	27
3	78	68	61	56		69	62	56	51		49	45	41		37	34	32		26	25	23
4	71	60	53	47		63	55	48	43		43	39	35		33	30	27		23	21	20
5	65	54	46	40		58	49	42	37		39	34	30		30	26	24		21	19	17
6	60	48	40	35		53	43	37	32		35	30	26		27	23	21		19	17	15
7	55	43	36	30		49	39	32	28		31	26	23		24	21	18		17	15	13
8	51	39	32	27		46	36	29	24		29	24	20		22	19	16		16	14	12
9	47	36	28	23		43	32	26	22		26	21	18		20	17	14		15	12	11
10	44	33	26	21		40	30	23	19		24	19	16		19	15	13		14	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2119	2119	2119
5°	2123	2090	2105
10°	2106	2063	2077
15°	2075	2029	2033
20°	2033	1982	1988
25°	1991	1926	1936
30°	1939	1874	1869
35°	1890	1813	1799
40°	1829	1751	1732
45°	1768	1688	1664
50°	1702	1623	1585
55°	1632	1548	1512
60°	1553	1458	1429
65°	1468	1365	1331
70°	1359	1252	1225
75°	1207	1117	1129
80°	1026	945	943
85°	742	647	634

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3210 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	1.1
10°-20°	799.9	3.2
20°-30°	1175.6	4.7
30°-40°	1365.3	5.4
40°-50°	1363.6	5.4
50°-60°	1189.1	4.7
60°-70°	879.0	3.5
70°-80°	497.3	2.0
80°-90°	141.8	0.6
90°-100°	197.5	0.8
100°-110°	736.1	2.9
110°-120°	1952.3	7.7
120°-130°	3238.0	12.8
130°-140°	3439.5	13.6
140°-150°	3196.6	12.7
150°-160°	2570.0	10.2
160°-170°	1656.0	6.6
170°-180°	570.0	2.3
0°-30°	2259.8	8.9
0°-40°	3625.1	14.4
0°-60°	6177.8	24.5
0°-90°	7695.9	30.5
90°-120°	2885.9	11.4
90°-150°	12760.0	50.5
90°-180°	17556.0	69.5
0°-180°	25252.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3021	3021	3021	3021	3021	
5°	3021	3009	2977	3000	2995	287
15°	2876	2858	2820	2832	2818	810
25°	2602	2579	2530	2536	2530	1198
35°	2245	2216	2170	2152	2138	1402
45°	1827	1807	1763	1731	1720	1410
55°	1383	1365	1330	1296	1281	1236
65°	933	915	886	860	845	922
75°	488	482	467	450	456	521
85°	119	116	114	104	102	133
90°	4	52	86	109	117	23
95°	282	138	169	191	186	333
105°	1317	1448	264	312	329	1407
115°	2492	2565	2674	667	356	2453
125°	3523	3579	3662	3692	3705	3142
135°	4359	4429	4467	4511	4502	3367
145°	5057	5052	5126	5156	5135	3163
155°	5568	5529	5581	5607	5573	2566
165°	5867	5841	5854	5884	5854	1658
175°	6001	5971	5980	6010	5967	571
180°	5988	5988	5988	5988	5988	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3020.6	3020.6	3020.6	3020.6	3020.6
2.5°	3038.2	3023.7	2991.6	3020.6	3015.0
5°	3020.6	3009.3	2977.2	3000.3	2994.7
7.5°	3000.3	2983.0	2950.9	2974.4	2968.6
10°	2968.6	2948.2	2913.3	2936.5	2927.9
12.5°	2924.8	2907.6	2872.8	2887.2	2881.3
15°	2875.5	2858.2	2820.3	2832.1	2817.5
17.5°	2814.4	2797.2	2759.3	2773.8	2759.3
20°	2747.5	2730.4	2689.7	2698.3	2686.9
22.5°	2681.0	2654.8	2616.9	2616.9	2611.0
25°	2602.5	2579.3	2530.1	2535.6	2530.1
27.5°	2515.2	2494.9	2457.3	2448.7	2434.1
30°	2428.4	2404.9	2361.5	2352.9	2341.1
32.5°	2335.2	2318.0	2271.5	2253.9	2242.2
35°	2245.3	2216.3	2169.8	2152.2	2137.7
37.5°	2143.6	2117.4	2070.8	2050.5	2036.0
40°	2039.1	2015.7	1969.1	1943.3	1931.5
42.5°	1937.4	1914.0	1867.8	1838.5	1821.2
45°	1827.1	1806.8	1763.0	1731.3	1719.5
47.5°	1719.5	1699.2	1652.6	1620.6	1603.4
50°	1606.2	1591.6	1550.9	1510.3	1495.8
52.5°	1495.8	1475.5	1437.9	1405.9	1385.5
55°	1382.7	1365.2	1330.4	1295.5	1281.0
57.5°	1269.4	1254.8	1216.9	1182.1	1170.4
60°	1155.9	1144.5	1103.9	1071.8	1063.2
62.5°	1045.6	1025.3	996.3	967.4	955.6
65°	932.6	914.9	886.0	859.8	845.3
67.5°	816.3	801.6	775.6	755.3	743.6
70°	708.8	697.1	670.8	650.5	639.1
72.5°	598.4	586.8	572.2	551.9	543.3
75°	487.8	482.3	467.4	450.3	456.1
77.5°	389.3	377.5	371.6	363.0	354.4
80°	290.6	287.6	281.7	273.0	267.2
82.5°	197.5	197.5	194.7	183.1	183.1
85°	119.0	116.2	113.5	104.5	101.7
87.5°	52.3	46.6	40.7	32.1	28.9
90°	4.1	52.0	86.4	108.6	116.8
92.5°	108.6	91.0	103.9	112.7	116.8
95°	281.5	138.4	168.8	190.9	186.3
97.5°	506.8	151.8	220.7	234.1	238.2
100°	767.2	173.4	247.0	281.5	290.2
102.5°	1052.8	1044.6	255.7	303.1	316.4
105°	1317.3	1447.5	264.5	311.9	329.3
107.5°	1624.9	1733.0	273.3	320.6	338.0
110°	1919.8	2010.4	758.4	325.2	342.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2197.2	2274.9	2201.3	333.5	346.8
115°	2491.5	2565.0	2673.6	667.4	355.5
117.5°	2747.2	2833.6	2907.8	2287.8	1152.6
120°	3033.3	3098.1	3176.3	3228.3	2643.3
122.5°	3275.7	3345.1	3432.0	3457.8	3462.4
125°	3522.6	3579.2	3661.6	3692.0	3704.8
127.5°	3748.0	3808.7	3874.1	3917.3	3921.4
130°	3960.6	4030.0	4077.3	4125.1	4121.0
132.5°	4177.2	4233.7	4281.1	4320.2	4316.1
135°	4359.3	4428.8	4467.4	4511.1	4502.3
137.5°	4549.7	4601.7	4645.4	4688.6	4675.8
140°	4736.0	4770.9	4818.3	4857.4	4835.8
142.5°	4892.4	4922.7	4978.9	5013.3	4991.7
145°	5057.0	5052.4	5126.0	5156.3	5134.8
147.5°	5199.5	5186.7	5260.3	5281.9	5264.9
150°	5338.5	5308.1	5377.7	5403.4	5381.8
152.5°	5455.3	5420.8	5485.7	5512.0	5481.6
155°	5568.0	5529.4	5581.4	5607.1	5572.6
157.5°	5659.1	5624.6	5663.7	5694.0	5659.1
160°	5737.3	5711.0	5737.3	5763.0	5732.6
162.5°	5806.3	5780.6	5802.1	5832.5	5793.4
165°	5866.9	5841.2	5854.1	5884.5	5854.1
167.5°	5914.9	5888.6	5902.0	5932.3	5893.2
170°	5953.9	5927.7	5936.4	5966.8	5927.7
172.5°	5979.6	5953.9	5962.6	5993.0	5953.9
175°	6001.2	5970.9	5979.6	6010.0	5966.8
177.5°	6010.0	5979.6	5984.3	6014.7	5975.5
180°	5988.4	5988.4	5988.4	5988.4	5988.4

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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	7.75	8.45	8.85	9.56	11.08	7.30	8.01	8.41	9.11	10.64
	3H	9.40	10.03	10.52	11.15	12.69	8.91	9.54	10.02	10.66	12.20
	4H	9.98	10.59	11.11	11.70	13.25	9.49	10.09	10.61	11.20	12.75
	6H	10.38	10.93	11.51	12.05	13.61	9.88	10.43	11.01	11.55	13.11
	8H	10.48	11.01	11.62	12.14	13.69	9.98	10.51	11.12	11.64	13.19
	12H	10.52	11.03	11.67	12.15	13.73	10.01	10.52	11.16	11.64	13.22
4H	2H	8.19	8.79	9.32	9.90	11.45	7.83	8.44	8.97	9.55	11.10
	3H	10.04	10.55	11.18	11.69	13.25	9.64	10.14	10.78	11.28	12.84
	4H	10.76	11.22	11.90	12.35	13.93	10.33	10.80	11.48	11.92	13.50
	6H	11.27	11.66	12.42	12.82	14.39	10.83	11.23	11.98	12.38	13.95
	8H	11.42	11.79	12.56	12.93	14.52	10.98	11.35	12.13	12.49	14.08
	12H	11.48	11.82	12.65	12.97	14.57	11.03	11.37	12.20	12.52	14.12
8H	4H	10.94	11.31	12.09	12.45	14.04	10.56	10.93	11.71	12.08	13.66
	6H	11.57	11.88	12.74	13.06	14.65	11.19	11.49	12.36	12.68	14.26
	8H	11.79	12.06	12.97	13.22	14.83	11.40	11.67	12.57	12.83	14.43
	12H	11.92	12.15	13.10	13.32	14.95	11.51	11.74	12.69	12.90	14.54
12H	4H	10.92	11.25	12.08	12.41	14.00	10.55	10.89	11.72	12.04	13.63
	6H	11.60	11.87	12.77	13.03	14.63	11.23	11.49	12.40	12.66	14.26
	8H	11.84	12.07	13.02	13.23	14.87	11.46	11.69	12.64	12.85	14.49