

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: P911624

Luminaire Tested: DFN2DIP-PN4F0-120D060US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911624
REPORT IS A COMBINATION OF REPORTS P899661 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D060US850-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

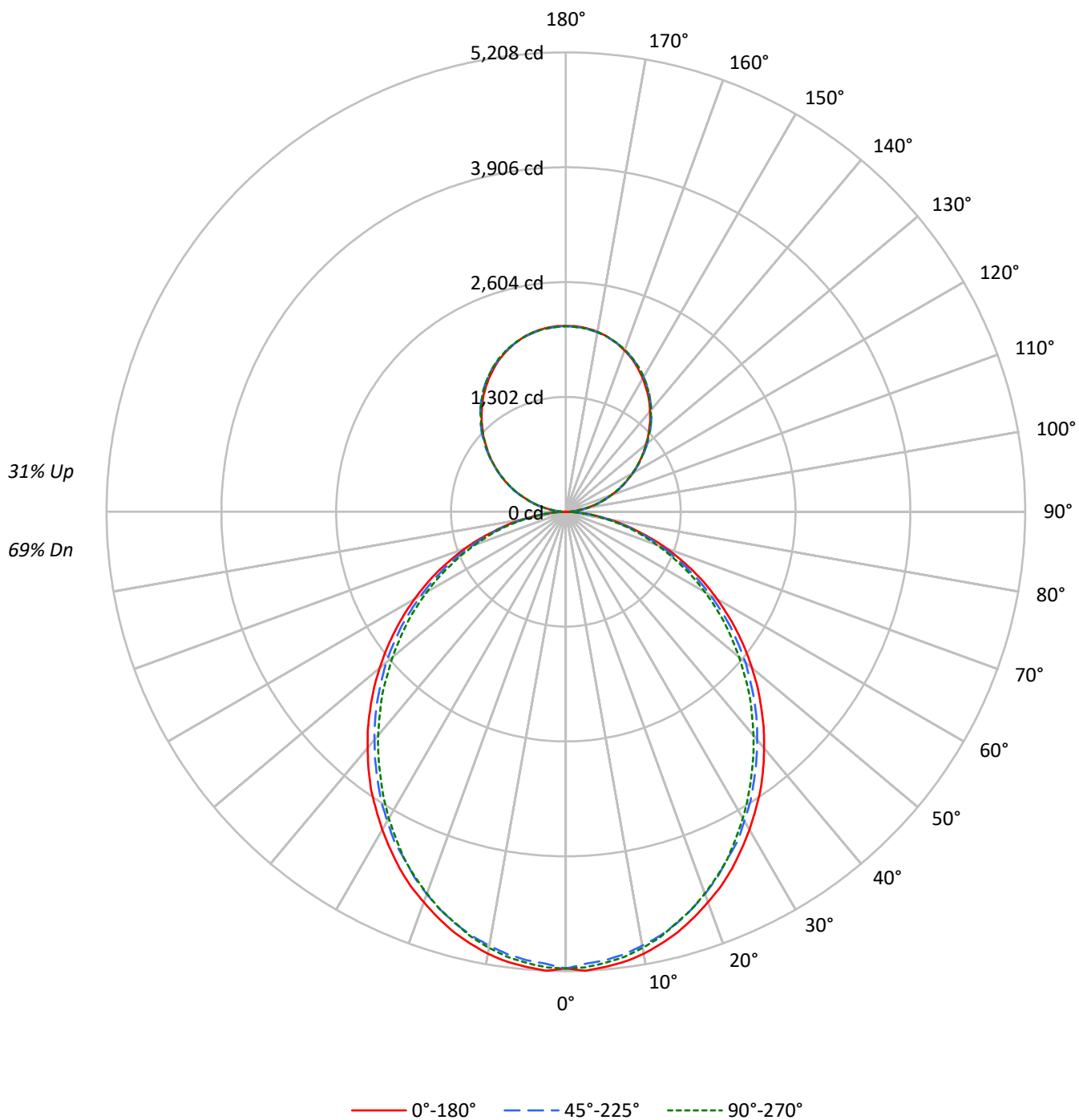
Lumens per Lamp: N/A
Luminaire Lumens: 19063.7 lumens
Efficiency: N/A
Efficacy: 111.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 171.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3780	3780	3780
5°	3786	3728	3753
10°	3755	3678	3703
15°	3700	3618	3624
20°	3625	3534	3544
25°	3551	3434	3450
30°	3458	3341	3331
35°	3370	3231	3206
40°	3262	3120	3086
45°	3153	3009	2964
50°	3035	2892	2822
55°	2911	2757	2692
60°	2771	2597	2543
65°	2619	2431	2367
70°	2424	2229	2179
75°	2154	1987	2005
80°	1831	1679	1672
85°	1324	1146	1118

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3153 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	487.4	2.6
10°-20°	1371.3	7.2
20°-30°	2015.2	10.6
30°-40°	2340.6	12.3
40°-50°	2337.7	12.3
50°-60°	2038.4	10.7
60°-70°	1506.8	7.9
70°-80°	852.5	4.5
80°-90°	231.0	1.2
90°-100°	130.2	0.7
100°-110°	413.7	2.2
110°-120°	708.0	3.7
120°-130°	931.2	4.9
130°-140°	1045.3	5.5
140°-150°	1025.0	5.4
150°-160°	859.8	4.5
160°-170°	570.2	3.0
170°-180°	199.3	1.0
0°-30°	3873.9	20.3
0°-40°	6214.5	32.6
0°-60°	10590.5	55.6
0°-90°	13180.9	69.1
90°-120°	1252.0	6.6
90°-150°	4253.5	22.3
90°-180°	5883.0	30.9
0°-180°	19063.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5178	5178	5178	5178	5178	
5°	5178	5159	5104	5143	5134	492
15°	4929	4900	4835	4855	4830	1388
25°	4461	4422	4337	4347	4337	2053
35°	3849	3799	3720	3690	3665	2404
45°	3132	3097	3022	2968	2948	2417
55°	2370	2340	2280	2221	2196	2119
65°	1599	1568	1519	1474	1449	1581
75°	836	827	801	772	782	893
85°	204	199	194	179	174	227
90°	2	23	62	58	60	18
95°	93	110	114	114	110	103
105°	382	387	391	394	394	403
115°	710	721	718	716	710	703
125°	1034	1049	1044	1039	1037	924
135°	1337	1356	1360	1358	1353	1033
145°	1623	1636	1646	1648	1641	1014
155°	1856	1861	1866	1875	1870	854
165°	2019	2017	2017	2030	2021	569
175°	2101	2096	2092	2104	2094	200
180°	2104	2104	2104	2104	2104	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5178.3	5178.3	5178.3	5178.3	5178.3
2.5°	5208.3	5183.5	5128.6	5178.3	5168.7
5°	5178.3	5158.6	5103.7	5143.3	5133.8
7.5°	5143.3	5113.7	5058.8	5099.0	5089.0
10°	5089.0	5054.0	4994.4	5034.0	5019.2
12.5°	5013.9	4984.3	4924.6	4949.5	4939.4
15°	4929.4	4899.8	4834.8	4854.9	4830.0
17.5°	4824.8	4795.2	4730.2	4755.1	4730.2
20°	4710.1	4680.5	4610.9	4625.6	4606.1
22.5°	4596.0	4551.1	4486.1	4486.1	4476.1
25°	4461.3	4421.7	4337.2	4346.7	4337.2
27.5°	4311.8	4277.0	4212.5	4197.7	4172.9
30°	4162.9	4122.7	4048.2	4033.4	4013.4
32.5°	4003.3	3973.8	3893.9	3863.9	3843.8
35°	3849.0	3799.4	3719.6	3689.5	3664.7
37.5°	3674.7	3629.9	3550.0	3515.2	3490.4
40°	3495.7	3455.5	3375.7	3331.3	3311.3
42.5°	3321.3	3281.2	3201.9	3151.8	3122.2
45°	3132.1	3097.3	3022.2	2967.9	2947.8
47.5°	2947.8	2912.9	2833.2	2778.3	2748.7
50°	2753.4	2728.6	2658.8	2589.1	2564.2
52.5°	2564.2	2529.4	2465.0	2410.0	2375.1
55°	2370.4	2340.3	2280.5	2220.9	2196.0
57.5°	2176.0	2151.1	2086.1	2026.5	2006.4
60°	1981.6	1962.0	1892.3	1837.4	1822.5
62.5°	1792.5	1757.5	1708.0	1658.3	1638.2
65°	1598.6	1568.5	1518.8	1473.9	1449.1
67.5°	1399.4	1374.1	1329.7	1294.9	1274.8
70°	1215.0	1194.9	1150.0	1115.2	1095.7
72.5°	1025.9	1005.9	981.0	946.2	931.3
75°	836.3	826.8	801.4	771.9	781.8
77.5°	667.2	647.1	637.1	622.3	607.5
80°	498.2	492.8	482.9	468.1	458.0
82.5°	338.6	338.6	333.9	313.8	313.8
85°	203.9	199.2	194.4	179.1	174.3
87.5°	89.8	79.7	69.8	54.9	49.7
90°	1.9	22.8	62.2	58.3	60.2
92.5°	39.4	53.3	55.2	57.1	57.1
95°	92.6	110.3	113.6	113.6	110.3
97.5°	154.2	170.7	177.7	177.7	177.7
100°	225.2	239.8	244.9	244.9	243.0
102.5°	300.1	310.9	317.8	319.7	317.8
105°	381.9	387.0	390.8	394.0	394.0
107.5°	463.1	470.8	470.8	472.0	463.1
110°	541.9	551.9	551.9	551.9	546.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	626.8	637.6	635.7	630.6	626.8
115°	710.5	720.7	717.5	715.6	710.5
117.5°	793.7	807.7	798.7	793.7	788.6
120°	877.4	891.4	877.4	877.4	871.7
122.5°	953.5	971.3	962.4	957.4	953.5
125°	1033.5	1049.3	1044.2	1038.6	1036.7
127.5°	1111.6	1131.2	1124.2	1116.7	1111.6
130°	1184.5	1207.4	1204.2	1200.4	1193.4
132.5°	1266.4	1284.1	1285.3	1276.5	1271.4
135°	1336.8	1356.4	1360.2	1358.3	1353.2
137.5°	1415.4	1431.3	1434.5	1433.2	1425.6
140°	1484.6	1500.5	1509.3	1509.3	1502.4
142.5°	1555.6	1571.5	1576.6	1578.4	1571.5
145°	1622.9	1635.6	1645.8	1647.6	1640.7
147.5°	1683.1	1699.0	1706.6	1709.7	1702.8
150°	1745.3	1756.1	1763.1	1768.7	1763.1
152.5°	1800.5	1811.3	1820.2	1827.2	1820.2
155°	1855.7	1860.8	1866.4	1875.4	1869.7
157.5°	1903.3	1907.1	1910.3	1923.0	1914.1
160°	1945.9	1949.6	1951.5	1962.3	1954.7
162.5°	1985.1	1985.1	1987.0	1999.1	1990.2
165°	2018.7	2016.8	2016.8	2029.6	2020.7
167.5°	2049.2	2043.6	2043.6	2056.2	2047.3
170°	2072.1	2067.0	2065.1	2077.7	2067.0
172.5°	2087.9	2082.8	2080.9	2093.6	2082.8
175°	2100.6	2095.6	2091.7	2104.4	2093.6
177.5°	2107.5	2102.6	2098.7	2109.4	2098.7
180°	2104.4	2104.4	2104.4	2104.4	2104.4

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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	13.50	14.57	14.27	15.36	16.33	13.06	14.13	13.83	14.92	15.89
	3H	15.18	16.14	15.97	16.94	17.94	14.70	15.65	15.48	16.46	17.46
	4H	15.78	16.68	16.58	17.49	18.50	15.29	16.19	16.10	17.01	18.02
	6H	16.19	17.02	17.01	17.85	18.87	15.70	16.53	16.52	17.35	18.38
	8H	16.30	17.10	17.13	17.94	18.96	15.81	16.60	16.64	17.44	18.47
	12H	16.36	17.12	17.19	17.95	19.00	15.86	16.62	16.69	17.45	18.50
4H	2H	13.99	14.89	14.79	15.70	16.71	13.64	14.54	14.44	15.35	16.36
	3H	15.87	16.63	16.69	17.48	18.50	15.47	16.23	16.29	17.07	18.10
	4H	16.60	17.29	17.43	18.13	19.19	16.18	16.87	17.02	17.71	18.77
	6H	17.13	17.72	17.98	18.59	19.65	16.70	17.30	17.55	18.17	19.23
	8H	17.28	17.84	18.14	18.71	19.78	16.86	17.41	17.71	18.28	19.35
	12H	17.37	17.87	18.24	18.75	19.83	16.93	17.43	17.80	18.31	19.39
8H	4H	16.81	17.37	17.67	18.23	19.30	16.44	17.00	17.29	17.86	18.93
	6H	17.46	17.92	18.34	18.82	19.89	17.08	17.54	17.96	18.45	19.52
	8H	17.68	18.09	18.57	18.99	20.08	17.30	17.70	18.19	18.61	19.69
	12H	17.82	18.18	18.72	19.08	20.22	17.42	17.78	18.32	18.67	19.82
12H	4H	16.81	17.31	17.68	18.19	19.27	16.45	16.95	17.32	17.83	18.91
	6H	17.49	17.90	18.38	18.80	19.89	17.12	17.53	18.01	18.43	19.52
	8H	17.74	18.10	18.64	18.99	20.14	17.37	17.73	18.26	18.62	19.76