

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: P906138

Luminaire Tested: DFN2DIP-PN4F0-110D070US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906138
REPORT IS A COMBINATION OF REPORTS P899678 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D070US835-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

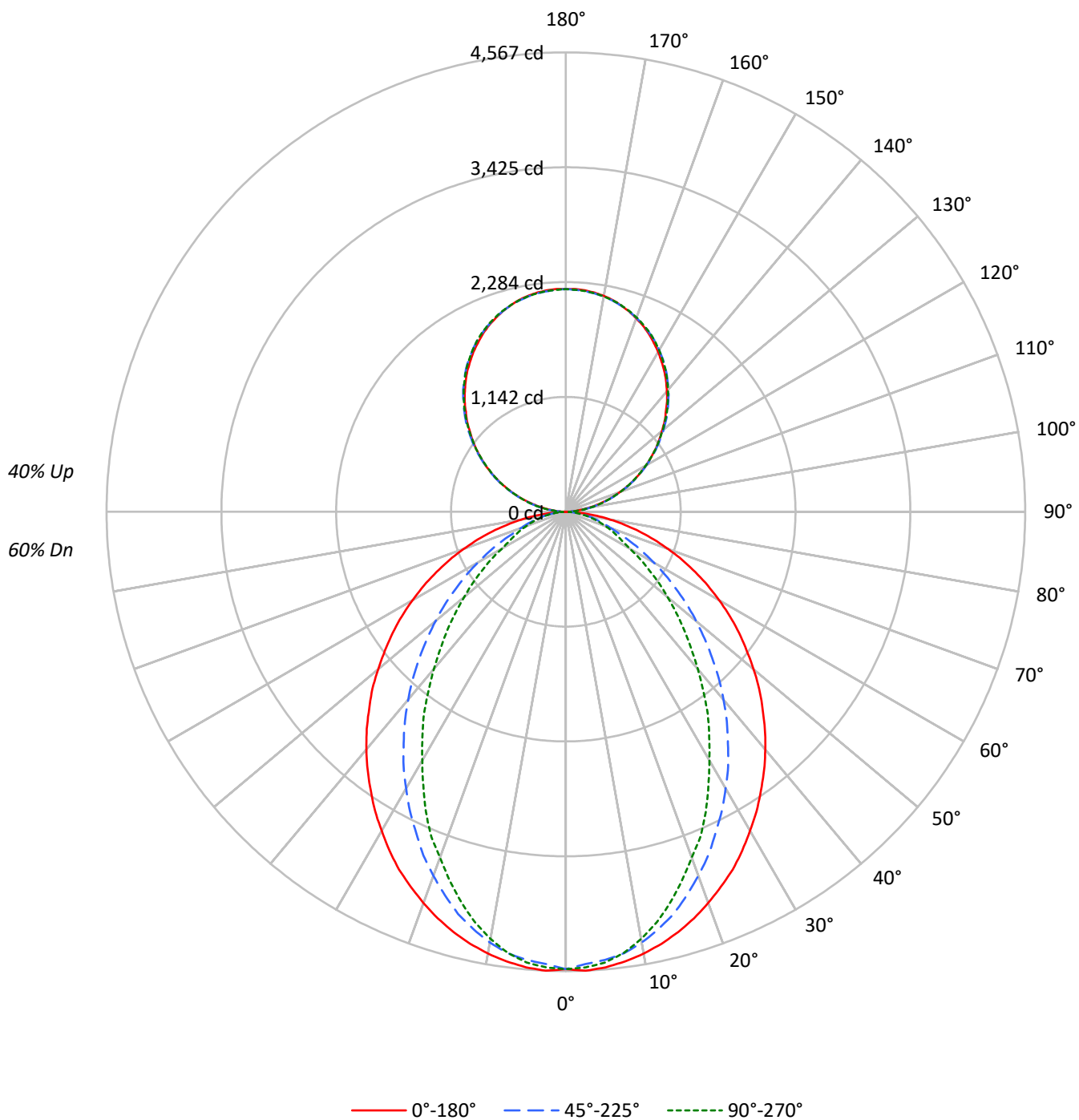
Lumens per Lamp: N/A
Luminaire Lumens: 15545.0 lumens
Efficiency: N/A
Efficacy: 93.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 166.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	101	96	93	89	94	90	87	84	79	77	74	68	67	65	59	58	56
2	92	85	79	74	86	80	74	70	70	66	63	61	58	55	52	50	48
3	84	75	68	62	79	71	64	59	62	57	53	54	51	47	47	44	42
4	78	67	59	53	72	63	56	51	56	50	46	49	45	41	42	39	37
5	71	60	52	46	67	57	49	44	50	44	40	44	40	36	38	35	32
6	66	54	46	40	62	51	44	39	45	40	35	40	36	32	35	32	29
7	61	49	41	36	57	46	39	34	41	36	31	37	32	29	32	29	26
8	57	45	37	32	53	42	36	31	38	32	28	34	29	26	30	26	23
9	53	41	34	29	50	39	32	28	35	29	25	31	27	23	28	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3319	3319	3319
5°	3324	3266	3287
10°	3291	3203	3181
15°	3246	3097	3016
20°	3186	2952	2814
25°	3124	2789	2618
30°	3042	2621	2370
35°	2961	2441	2152
40°	2879	2255	1902
45°	2784	2048	1675
50°	2685	1840	1454
55°	2582	1616	1241
60°	2462	1383	1022
65°	2325	1146	921
70°	2159	925	834
75°	1950	816	760
80°	1647	686	662
85°	1148	460	501

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2784 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	426.1	2.7
10°-20°	1169.7	7.5
20°-30°	1642.2	10.6
30°-40°	1790.1	11.5
40°-50°	1645.3	10.6
50°-60°	1292.1	8.3
60°-70°	841.1	5.4
70°-80°	432.9	2.8
80°-90°	116.8	0.8
90°-100°	137.0	0.9
100°-110°	435.3	2.8
110°-120°	744.9	4.8
120°-130°	979.6	6.3
130°-140°	1099.6	7.1
140°-150°	1078.3	6.9
150°-160°	904.5	5.8
160°-170°	599.9	3.9
170°-180°	209.7	1.3
0°-30°	3238.0	20.8
0°-40°	5028.1	32.3
0°-60°	7965.5	51.2
0°-90°	9356.3	60.2
90°-120°	1317.2	8.5
90°-150°	4474.7	28.8
90°-180°	6189.0	39.8
0°-180°	15545.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4546	4546	4546	4546	4546	
5°	4546	4526	4472	4509	4497	431
15°	4324	4279	4139	4061	4020	1218
25°	3925	3793	3522	3353	3291	1805
35°	3382	3172	2810	2551	2460	2117
45°	2765	2489	2057	1765	1666	2135
55°	2102	1781	1337	1090	1012	1879
65°	1420	1086	716	576	564	1407
75°	757	469	329	300	296	801
85°	177	90	78	78	78	203
90°	2	24	65	61	63	15
95°	97	116	120	120	116	108
105°	402	407	411	414	414	424
115°	748	758	755	753	748	739
125°	1087	1104	1099	1093	1091	972
135°	1406	1427	1431	1429	1424	1087
145°	1707	1721	1731	1733	1726	1067
155°	1952	1958	1964	1973	1967	899
165°	2124	2122	2122	2135	2126	599
175°	2210	2204	2200	2214	2202	210
180°	2214	2214	2214	2214	2214	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4546.3	4546.3	4546.3	4546.3	4546.3
2.5°	4566.8	4546.3	4500.9	4542.4	4534.1
5°	4546.3	4525.8	4472.1	4509.2	4497.0
7.5°	4509.2	4484.7	4427.1	4443.3	4422.7
10°	4459.9	4431.0	4349.0	4336.3	4311.9
12.5°	4398.3	4361.2	4249.9	4225.4	4180.0
15°	4324.1	4278.7	4139.0	4060.9	4019.8
17.5°	4237.7	4171.8	3998.9	3908.5	3842.6
20°	4139.0	4056.5	3850.9	3748.3	3657.5
22.5°	4032.1	3937.3	3698.6	3558.9	3497.3
25°	3925.1	3793.3	3521.8	3353.3	3291.3
27.5°	3797.7	3657.5	3357.2	3163.8	3069.1
30°	3661.9	3505.2	3176.1	2966.5	2855.2
32.5°	3530.1	3340.6	3003.6	2756.6	2653.6
35°	3382.1	3172.1	2810.3	2551.0	2460.2
37.5°	3238.1	3011.5	2629.1	2344.9	2242.4
40°	3085.7	2839.1	2439.7	2147.6	2040.7
42.5°	2929.4	2666.2	2250.7	1946.0	1843.4
45°	2764.9	2489.0	2057.3	1764.8	1666.2
47.5°	2608.6	2316.6	1872.2	1579.7	1489.4
50°	2435.7	2143.7	1691.1	1406.9	1320.9
52.5°	2266.8	1958.2	1518.2	1246.7	1168.5
55°	2102.2	1781.4	1337.0	1090.4	1012.3
57.5°	1933.8	1604.6	1176.8	946.4	880.4
60°	1760.9	1431.8	1007.9	798.4	732.5
62.5°	1592.4	1263.3	863.9	666.6	633.8
65°	1419.5	1086.0	715.9	576.2	563.5
67.5°	1255.0	921.5	576.2	505.9	493.7
70°	1082.1	761.3	477.1	436.1	419.5
72.5°	917.5	612.9	399.0	366.2	357.9
75°	756.9	468.8	329.1	300.3	296.4
77.5°	596.7	333.1	259.3	242.7	234.4
80°	448.3	238.8	197.3	181.2	181.2
82.5°	312.5	160.6	135.8	127.5	127.5
85°	176.8	90.4	78.1	78.1	78.1
87.5°	65.9	32.7	32.7	28.8	28.8
90°	2.0	24.0	65.4	61.4	63.4
92.5°	41.4	56.1	58.1	60.1	60.1
95°	97.4	116.1	119.5	119.5	116.1
97.5°	162.2	179.5	186.9	186.9	186.9
100°	236.9	252.3	257.6	257.6	255.6
102.5°	315.7	327.0	334.4	336.4	334.4
105°	401.8	407.1	411.1	414.5	414.5
107.5°	487.2	495.2	495.2	496.6	487.2
110°	570.0	580.7	580.7	580.7	575.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	659.4	670.8	668.8	663.4	659.4
115°	747.5	758.2	754.9	752.9	747.5
117.5°	834.9	849.6	840.3	834.9	829.6
120°	923.0	937.7	923.0	923.0	917.0
122.5°	1003.1	1021.8	1012.5	1007.1	1003.1
125°	1087.2	1103.9	1098.6	1092.6	1090.6
127.5°	1169.3	1190.0	1182.7	1174.7	1169.3
130°	1246.1	1270.1	1266.8	1262.8	1255.4
132.5°	1332.2	1350.9	1352.2	1342.9	1337.5
135°	1406.3	1426.9	1431.0	1428.9	1423.6
137.5°	1489.0	1505.7	1509.0	1507.7	1499.7
140°	1561.8	1578.5	1587.8	1587.8	1580.5
142.5°	1636.5	1653.2	1658.5	1660.5	1653.2
145°	1707.3	1720.6	1731.3	1733.3	1726.0
147.5°	1770.7	1787.4	1795.4	1798.7	1791.4
150°	1836.1	1847.4	1854.8	1860.8	1854.8
152.5°	1894.1	1905.5	1914.8	1922.2	1914.8
155°	1952.2	1957.5	1963.6	1972.9	1966.9
157.5°	2002.3	2006.3	2009.6	2023.0	2013.6
160°	2047.0	2051.0	2053.0	2064.3	2056.3
162.5°	2088.4	2088.4	2090.4	2103.0	2093.7
165°	2123.7	2121.7	2121.7	2135.1	2125.7
167.5°	2155.8	2149.8	2149.8	2163.1	2153.8
170°	2179.8	2174.5	2172.5	2185.8	2174.5
172.5°	2196.5	2191.1	2189.1	2202.5	2191.1
175°	2209.8	2204.5	2200.5	2213.8	2202.5
177.5°	2217.2	2211.8	2207.8	2219.2	2207.8
180°	2213.8	2213.8	2213.8	2213.8	2213.8

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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	12.22	13.14	13.09	14.03	15.15	8.19	9.11	9.06	10.00	11.12
	3H	13.91	14.73	14.79	15.63	16.78	9.38	10.21	10.27	11.10	12.25
	4H	14.52	15.30	15.42	16.20	17.36	9.84	10.62	10.74	11.52	12.68
	6H	14.95	15.67	15.86	16.58	17.75	10.16	10.88	11.08	11.79	12.96
	8H	15.08	15.76	16.00	16.69	17.86	10.26	10.94	11.18	11.87	13.04
	12H	15.15	15.80	16.07	16.72	17.91	10.31	10.95	11.23	11.87	13.07
4H	2H	12.25	13.03	13.16	13.93	15.09	8.80	9.57	9.70	10.48	11.63
	3H	14.09	14.74	15.01	15.67	16.84	10.15	10.80	11.07	11.74	12.91
	4H	14.79	15.38	15.72	16.31	17.51	10.71	11.29	11.63	12.23	13.42
	6H	15.31	15.82	16.25	16.77	17.97	11.13	11.64	12.07	12.59	13.79
	8H	15.49	15.96	16.43	16.91	18.12	11.26	11.74	12.21	12.68	13.90
	12H	15.59	16.02	16.55	16.98	18.20	11.33	11.76	12.29	12.72	13.94
8H	4H	14.76	15.24	15.71	16.19	17.40	11.00	11.47	11.94	12.42	13.63
	6H	15.34	15.73	16.30	16.72	17.93	11.52	11.91	12.49	12.90	14.11
	8H	15.56	15.90	16.53	16.88	18.11	11.71	12.06	12.69	13.04	14.26
	12H	15.70	16.00	16.68	16.98	18.25	11.83	12.14	12.81	13.11	14.39
12H	4H	14.72	15.15	15.68	16.11	17.33	11.00	11.43	11.97	12.40	13.61
	6H	15.31	15.66	16.29	16.64	17.87	11.57	11.91	12.55	12.89	14.12
	8H	15.54	15.84	16.52	16.82	18.09	11.78	12.09	12.76	13.06	14.34