

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: P907534

Luminaire Tested: DFN2DIP-TR4F0-110D070US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907534
REPORT IS A COMBINATION OF REPORTS P900437 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US835-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

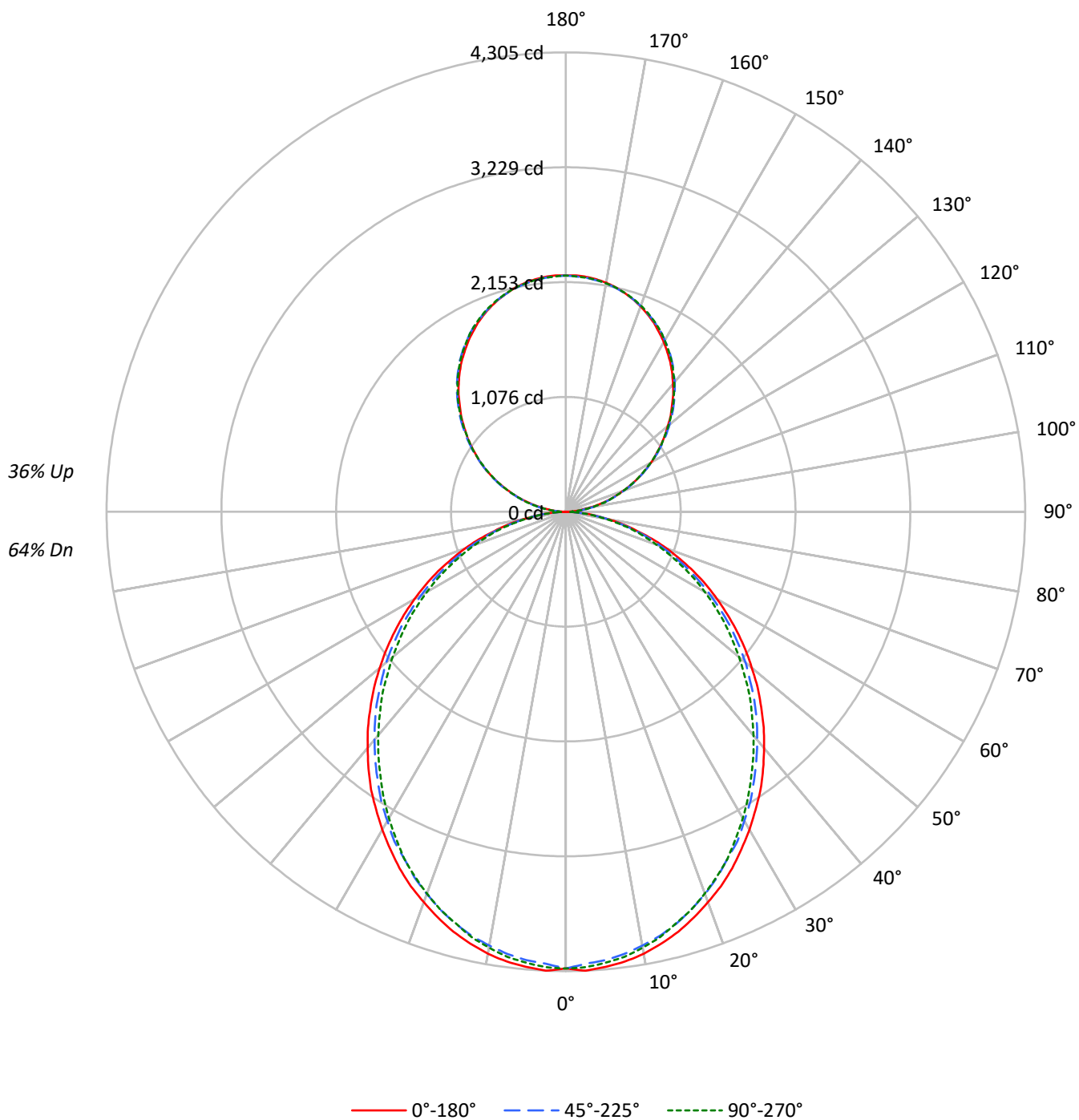
Lumens per Lamp: N/A
Luminaire Lumens: 17085.0 lumens
Efficiency: N/A
Efficacy: 103.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 164.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	110	110	110	110	104	104	104	104	91	91	91		79	79	79		69	69	69	64
1	101	96	92	89	95	91	87	84	80	77	75		70	68	66		61	59	58	54
2	92	84	78	73	86	79	74	69	70	66	62		61	58	55		54	51	49	45
3	84	74	67	61	78	70	63	58	62	57	52		54	50	47		47	44	42	38
4	77	66	58	51	72	62	55	49	55	49	45		48	44	40		42	39	36	33
5	71	59	50	44	66	55	48	42	49	43	39		44	39	35		38	34	31	28
6	65	53	44	38	61	50	42	37	44	38	34		39	34	31		35	31	28	25
7	60	48	39	34	56	45	38	32	40	34	30		36	31	27		32	28	25	22
8	56	43	35	30	52	41	34	29	37	31	27		33	28	24		29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24		30	25	22		27	23	20	18
10	49	36	29	24	46	35	28	23	31	26	22		28	23	20		25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3400	3400	3400
5°	3406	3353	3375
10°	3378	3308	3330
15°	3329	3253	3258
20°	3261	3178	3185
25°	3195	3087	3100
30°	3111	3003	2993
35°	3032	2903	2879
40°	2934	2803	2771
45°	2837	2703	2660
50°	2731	2597	2532
55°	2619	2475	2414
60°	2493	2330	2278
65°	2356	2180	2119
70°	2181	1997	1947
75°	1939	1778	1789
80°	1648	1499	1486
85°	1192	1017	985

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2837 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.8	2.4
10°-20°	1133.5	6.6
20°-30°	1665.7	9.7
30°-40°	1934.7	11.3
40°-50°	1932.3	11.3
50°-60°	1684.9	9.9
60°-70°	1245.5	7.3
70°-80°	704.7	4.1
80°-90°	192.3	1.1
90°-100°	137.0	0.8
100°-110°	435.3	2.5
110°-120°	744.9	4.4
120°-130°	979.6	5.7
130°-140°	1099.6	6.4
140°-150°	1078.3	6.3
150°-160°	904.5	5.3
160°-170°	599.9	3.5
170°-180°	209.7	1.2
0°-30°	3202.1	18.7
0°-40°	5136.7	30.1
0°-60°	8753.8	51.2
0°-90°	10896.3	63.8
90°-120°	1317.2	7.7
90°-150°	4474.7	26.2
90°-180°	6189.0	36.2
0°-180°	17085.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4280	4280	4280	4280	4280	
5°	4280	4264	4219	4251	4244	406
15°	4074	4050	3996	4013	3992	1148
25°	3688	3655	3585	3593	3585	1697
35°	3182	3140	3074	3050	3029	1987
45°	2589	2560	2498	2453	2437	1998
55°	1959	1934	1885	1836	1815	1752
65°	1321	1296	1255	1218	1198	1306
75°	691	683	662	638	646	738
85°	169	165	161	148	144	188
90°	2	24	65	61	63	16
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°	4280.2	4280.2	4280.2	4280.2	4280.2
2.5°	4305.0	4284.5	4239.1	4280.2	4272.3
5°	4280.2	4264.0	4218.6	4251.3	4243.5
7.5°	4251.3	4226.9	4181.5	4214.7	4206.4
10°	4206.4	4177.5	4128.2	4160.9	4148.7
12.5°	4144.4	4119.9	4070.6	4091.1	4082.8
15°	4074.5	4050.0	3996.3	4012.9	3992.4
17.5°	3988.0	3963.6	3909.9	3930.4	3909.9
20°	3893.3	3868.8	3811.2	3823.4	3807.3
22.5°	3799.0	3761.8	3708.1	3708.1	3699.8
25°	3687.6	3654.9	3585.0	3592.9	3585.0
27.5°	3564.0	3535.2	3481.9	3469.7	3449.2
30°	3440.9	3407.7	3346.1	3333.9	3317.3
32.5°	3309.0	3284.6	3218.6	3193.7	3177.1
35°	3181.5	3140.5	3074.5	3049.6	3029.1
37.5°	3037.4	3000.3	2934.4	2905.5	2885.0
40°	2889.4	2856.2	2790.3	2753.6	2737.0
42.5°	2745.3	2712.1	2646.6	2605.1	2580.7
45°	2589.0	2560.1	2498.1	2453.2	2436.6
47.5°	2436.6	2407.8	2341.8	2296.4	2271.9
50°	2275.9	2255.4	2197.7	2140.1	2119.6
52.5°	2119.6	2090.7	2037.5	1992.0	1963.2
55°	1959.3	1934.4	1885.1	1835.7	1815.2
57.5°	1798.6	1778.1	1724.4	1675.0	1658.4
60°	1637.9	1621.8	1564.1	1518.7	1506.5
62.5°	1481.6	1452.8	1411.7	1370.7	1354.1
65°	1321.3	1296.4	1255.4	1218.3	1197.8
67.5°	1156.7	1135.8	1099.1	1070.3	1053.7
70°	1004.3	987.7	950.6	921.8	905.6
72.5°	848.0	831.4	810.9	782.1	769.8
75°	691.2	683.4	662.4	638.0	646.3
77.5°	551.5	534.9	526.6	514.4	502.2
80°	411.8	407.4	399.1	386.9	378.6
82.5°	279.9	279.9	276.0	259.4	259.4
85°	168.6	164.6	160.7	148.0	144.1
87.5°	74.2	65.9	57.6	45.4	41.0
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	12.70	13.70	13.53	14.55	15.61	12.27	13.27	13.10	14.12	15.18
	3H	14.37	15.27	15.21	16.13	17.22	13.90	14.80	14.74	15.66	16.75
	4H	14.96	15.81	15.82	16.68	17.78	14.49	15.34	15.35	16.21	17.31
	6H	15.37	16.15	16.24	17.03	18.14	14.90	15.68	15.77	16.55	17.67
	8H	15.48	16.23	16.36	17.12	18.23	15.01	15.75	15.88	16.64	17.76
	12H	15.53	16.24	16.42	17.13	18.27	15.05	15.76	15.94	16.65	17.79
4H	2H	13.18	14.03	14.04	14.90	15.99	12.83	13.68	13.70	14.55	15.65
	3H	15.06	15.77	15.93	16.67	17.78	14.66	15.37	15.54	16.27	17.39
	4H	15.78	16.42	16.66	17.32	18.46	15.37	16.02	16.26	16.91	18.05
	6H	16.30	16.86	17.20	17.78	18.92	15.89	16.45	16.79	17.37	18.51
	8H	16.45	16.97	17.36	17.89	19.05	16.04	16.56	16.95	17.48	18.63
	12H	16.53	17.00	17.46	17.94	19.10	16.11	16.58	17.03	17.52	18.68
8H	4H	15.98	16.51	16.89	17.42	18.58	15.62	16.15	16.53	17.06	18.22
	6H	16.62	17.05	17.55	18.01	19.17	16.26	16.69	17.19	17.65	18.80
	8H	16.84	17.23	17.78	18.18	19.35	16.48	16.86	17.42	17.81	18.98
	12H	16.98	17.32	17.93	18.26	19.48	16.60	16.93	17.54	17.88	19.10
12H	4H	15.98	16.45	16.90	17.38	18.54	15.63	16.10	16.55	17.03	18.19
	6H	16.65	17.04	17.59	17.98	19.16	16.30	16.68	17.24	17.63	18.81
	8H	16.90	17.24	17.85	18.18	19.40	16.54	16.88	17.49	17.82	19.05

END OF REPORT