

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: P904806

Luminaire Tested: DFN2DIP-TR4F0-110D070US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904806
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-TR4F0-110D070US830-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

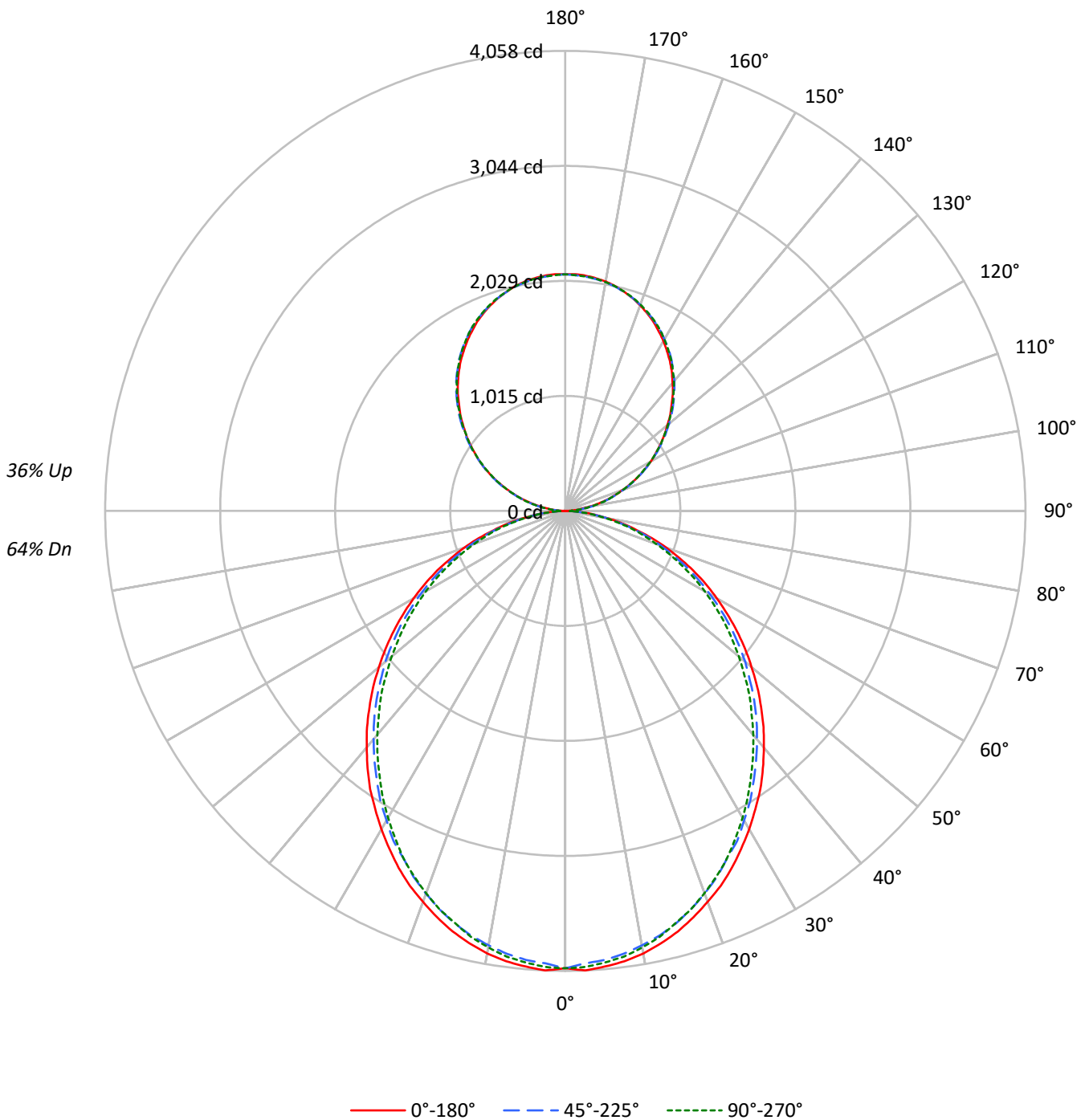
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16103.3 lumens
Efficiency: N/A
Efficacy: 97.7 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	50	30	10	0
RCR																					
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	69	69	69	64
1	101	96	92	89	95	91	87	84	80	77	75	70	68	66	61	59	58	61	59	58	54
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	54	51	49	54	51	49	45
3	84	74	67	61	78	70	63	58	62	57	52	54	50	47	47	44	42	47	44	42	38
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36	42	39	36	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	34	31	38	34	31	28
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28	35	31	28	25
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25	32	28	25	22
8	56	43	35	30	52	41	34	29	37	31	27	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20	27	23	20	18
10	49	36	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3205	3205	3205
5°	3210	3160	3182
10°	3184	3118	3138
15°	3137	3066	3071
20°	3074	2995	3002
25°	3011	2910	2922
30°	2932	2830	2821
35°	2858	2737	2713
40°	2766	2642	2611
45°	2674	2547	2507
50°	2574	2448	2386
55°	2469	2333	2275
60°	2350	2196	2147
65°	2221	2055	1997
70°	2056	1882	1836
75°	1827	1675	1686
80°	1553	1413	1401
85°	1124	959	928

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2674 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.4
10°-20°	1068.3	6.6
20°-30°	1570.0	9.7
30°-40°	1823.5	11.3
40°-50°	1821.2	11.3
50°-60°	1588.0	9.9
60°-70°	1173.9	7.3
70°-80°	664.2	4.1
80°-90°	181.2	1.1
90°-100°	129.1	0.8
100°-110°	410.3	2.5
110°-120°	702.1	4.4
120°-130°	923.3	5.7
130°-140°	1036.4	6.4
140°-150°	1016.3	6.3
150°-160°	852.6	5.3
160°-170°	565.4	3.5
170°-180°	197.6	1.2
0°-30°	3018.1	18.7
0°-40°	4841.6	30.1
0°-60°	8250.9	51.2
0°-90°	10270.2	63.8
90°-120°	1241.5	7.7
90°-150°	4217.6	26.2
90°-180°	5833.0	36.2
0°-180°	16103.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3767	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1873
45°	2440	2413	2355	2312	2297	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	696
85°	159	155	152	140	136	177
90°	2	23	62	58	60	15
95°	92	109	113	113	109	102
105°	379	384	388	391	391	400
115°	705	715	712	710	705	697
125°	1025	1040	1036	1030	1028	916
135°	1326	1345	1349	1347	1342	1025
145°	1609	1622	1632	1634	1627	1005
155°	1840	1845	1851	1860	1854	847
165°	2002	2000	2000	2012	2004	565
175°	2083	2078	2074	2087	2076	198
180°	2087	2087	2087	2087	2087	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.3	4034.3	4034.3	4034.3	4034.3
2.5°	4057.6	4038.3	3995.5	4034.3	4026.8
5°	4034.3	4019.0	3976.2	4007.0	3999.7
7.5°	4007.0	3984.0	3941.2	3972.5	3964.7
10°	3964.7	3937.5	3891.0	3921.8	3910.3
12.5°	3906.3	3883.2	3836.7	3856.0	3848.2
15°	3840.4	3817.3	3766.7	3782.3	3763.0
17.5°	3758.9	3735.9	3685.2	3704.6	3685.2
20°	3669.6	3646.5	3592.2	3603.7	3588.5
22.5°	3580.7	3545.7	3495.0	3495.0	3487.2
25°	3475.7	3444.9	3379.0	3386.5	3379.0
27.5°	3359.2	3332.1	3281.8	3270.3	3251.0
30°	3243.2	3211.9	3153.8	3142.3	3126.7
32.5°	3118.9	3095.9	3033.7	3010.2	2994.6
35°	2998.7	2960.1	2897.8	2874.4	2855.1
37.5°	2862.9	2827.9	2765.8	2738.6	2719.2
40°	2723.4	2692.1	2630.0	2595.4	2579.7
42.5°	2587.6	2556.3	2494.5	2455.4	2432.4
45°	2440.2	2413.0	2354.6	2312.2	2296.6
47.5°	2296.6	2269.5	2207.2	2164.5	2141.4
50°	2145.1	2125.8	2071.4	2017.1	1997.8
52.5°	1997.8	1970.6	1920.4	1877.5	1850.4
55°	1846.7	1823.3	1776.8	1730.2	1710.9
57.5°	1695.3	1675.9	1625.3	1578.8	1563.1
60°	1543.8	1528.6	1474.2	1431.4	1419.9
62.5°	1396.5	1369.3	1330.6	1291.9	1276.3
65°	1245.4	1221.9	1183.3	1148.3	1129.0
67.5°	1090.2	1070.5	1035.9	1008.8	993.2
70°	946.6	930.9	896.0	868.8	853.6
72.5°	799.3	783.6	764.3	737.2	725.6
75°	651.5	644.1	624.3	601.3	609.2
77.5°	519.8	504.2	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
90°	1.9	22.6	61.6	57.9	59.8
92.5°	39.0	52.9	54.8	56.6	56.6
95°	91.8	109.4	112.6	112.6	109.4
97.5°	152.9	169.2	176.2	176.2	176.2
100°	223.3	237.8	242.8	242.8	240.9
102.5°	297.6	308.2	315.2	317.1	315.2
105°	378.7	383.7	387.5	390.7	390.7
107.5°	459.2	466.7	466.7	468.1	459.2
110°	537.2	547.3	547.3	547.3	542.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	621.5	632.3	630.4	625.3	621.5
115°	704.6	714.6	711.5	709.6	704.6
117.5°	786.9	800.8	792.0	786.9	781.9
120°	870.0	883.8	870.0	870.0	864.3
122.5°	945.5	963.1	954.3	949.2	945.5
125°	1024.7	1040.5	1035.5	1029.8	1027.9
127.5°	1102.1	1121.6	1114.7	1107.2	1102.1
130°	1174.5	1197.1	1194.0	1190.2	1183.3
132.5°	1255.7	1273.3	1274.5	1265.7	1260.7
135°	1325.5	1344.9	1348.8	1346.8	1341.8
137.5°	1403.4	1419.2	1422.3	1421.1	1413.5
140°	1472.1	1487.8	1496.6	1496.6	1489.7
142.5°	1542.5	1558.2	1563.2	1565.1	1558.2
145°	1609.2	1621.7	1631.8	1633.7	1626.8
147.5°	1669.0	1684.7	1692.2	1695.4	1688.5
150°	1730.6	1741.3	1748.2	1753.9	1748.2
152.5°	1785.3	1796.0	1804.8	1811.8	1804.8
155°	1840.0	1845.0	1850.8	1859.5	1853.9
157.5°	1887.3	1891.0	1894.1	1906.8	1897.9
160°	1929.4	1933.2	1935.0	1945.7	1938.1
162.5°	1968.4	1968.4	1970.3	1982.2	1973.4
165°	2001.7	1999.8	1999.8	2012.4	2003.6
167.5°	2031.9	2026.3	2026.3	2038.8	2030.0
170°	2054.6	2049.6	2047.7	2060.2	2049.6
172.5°	2070.3	2065.2	2063.3	2075.9	2065.2
175°	2082.8	2077.8	2074.1	2086.6	2075.9
177.5°	2089.8	2084.7	2080.9	2091.7	2080.9
180°	2086.6	2086.6	2086.6	2086.6	2086.6



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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	12.49	13.50	13.32	14.35	15.41	12.06	13.06	12.89	13.92	14.98
	3H	14.17	15.06	15.01	15.92	17.01	13.69	14.59	14.53	15.45	16.54
	4H	14.76	15.61	15.62	16.48	17.57	14.29	15.13	15.14	16.00	17.10
	6H	15.17	15.95	16.04	16.82	17.94	14.69	15.47	15.56	16.35	17.46
	8H	15.27	16.02	16.15	16.91	18.02	14.80	15.55	15.68	16.44	17.55
	12H	15.33	16.04	16.21	16.93	18.06	14.85	15.56	15.73	16.44	17.58
4H	2H	12.97	13.82	13.84	14.69	15.79	12.63	13.48	13.49	14.35	15.44
	3H	14.85	15.56	15.73	16.46	17.57	14.46	15.17	15.33	16.07	17.18
	4H	15.57	16.22	16.46	17.11	18.25	15.17	15.81	16.05	16.71	17.85
	6H	16.09	16.65	17.00	17.57	18.72	15.69	16.24	16.59	17.16	18.31
	8H	16.25	16.77	17.15	17.68	18.84	15.84	16.36	16.74	17.27	18.43
	12H	16.33	16.80	17.25	17.73	18.89	15.91	16.38	16.83	17.31	18.47
8H	4H	15.78	16.30	16.68	17.22	18.37	15.42	15.94	16.32	16.86	18.01
	6H	16.42	16.85	17.35	17.81	18.96	16.05	16.49	16.98	17.44	18.60
	8H	16.64	17.02	17.58	17.97	19.14	16.27	16.65	17.21	17.60	18.77
	12H	16.78	17.11	17.72	18.05	19.28	16.39	16.73	17.34	17.67	18.89
12H	4H	15.77	16.24	16.70	17.18	18.34	15.42	15.89	16.34	16.82	17.99
	6H	16.45	16.83	17.39	17.78	18.95	16.10	16.48	17.04	17.43	18.60
	8H	16.70	17.03	17.64	17.97	19.20	16.34	16.68	17.28	17.62	18.84