

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: P909892

Luminaire Tested: DFN2DIP-TR3F0-050D090US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909892
REPORT IS A COMBINATION OF REPORTS P900359 AND P897195
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-050D090US840-FLLFLL
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

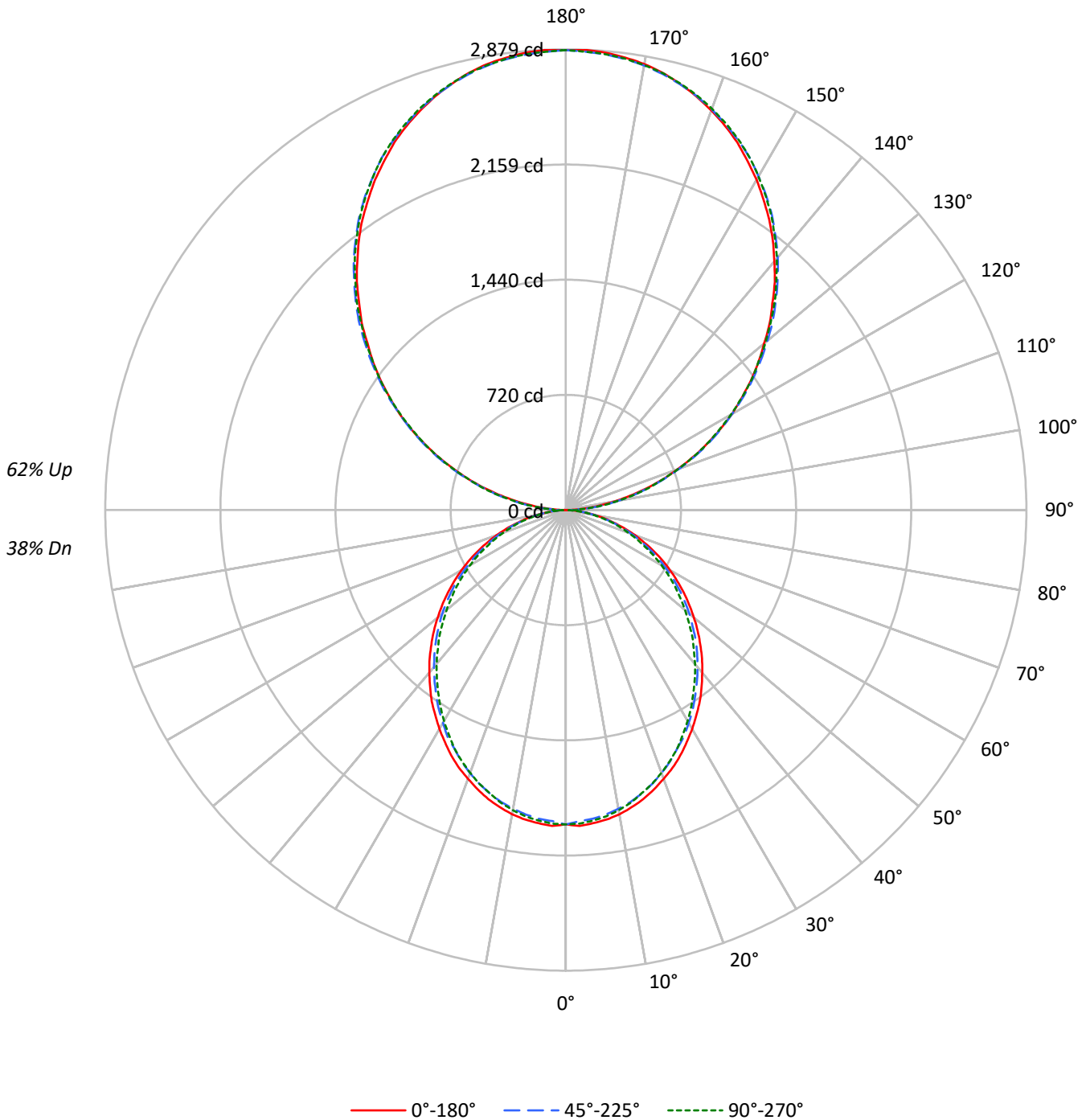
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13042.4 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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				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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	45	45	45	38				38
1	95	91	87	84	86	83	79	77	67	65	63	53	52	50	40	39	38	32				32
2	87	79	73	68	78	72	67	63	59	55	52	47	44	42	35	34	32	27				27
3	79	70	63	57	71	64	57	52	52	47	44	41	38	35	31	29	27	23				23
4	72	62	54	48	65	56	50	44	46	41	37	37	33	30	28	26	24	20				20
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21	17				17
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18	15				15
7	56	44	36	31	51	41	34	29	34	28	25	27	23	20	21	18	16	13				13
8	52	40	33	27	47	37	30	25	31	25	22	25	21	18	19	16	14	12				12
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13	11				11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	15	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2448	2448	2448
5°	2451	2412	2429
10°	2430	2378	2394
15°	2393	2336	2341
20°	2343	2280	2287
25°	2293	2213	2225
30°	2232	2150	2146
35°	2173	2077	2062
40°	2102	2002	1983
45°	2030	1928	1901
50°	1952	1850	1807
55°	1869	1759	1720
60°	1776	1651	1621
65°	1675	1540	1503
70°	1545	1404	1377
75°	1366	1241	1257
80°	1150	1032	1033
85°	813	679	667

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2805 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.4
10°-20°	520.3	4.0
20°-30°	764.6	5.9
30°-40°	888.1	6.8
40°-50°	887.0	6.8
50°-60°	773.4	5.9
60°-70°	571.7	4.4
70°-80°	323.5	2.5
80°-90°	93.5	0.7
90°-100°	177.9	1.4
100°-110°	565.2	4.3
110°-120°	967.2	7.4
120°-130°	1272.0	9.8
130°-140°	1427.7	10.9
140°-150°	1400.0	10.7
150°-160°	1174.4	9.0
160°-170°	778.9	6.0
170°-180°	272.2	2.1
0°-30°	1469.8	11.3
0°-40°	2357.9	18.1
0°-60°	4018.3	30.8
0°-90°	5007.0	38.4
90°-120°	1710.2	13.1
90°-150°	5809.9	44.5
90°-180°	8035.0	61.6
0°-180°	13042.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	3	31	85	80	82	13
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5



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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	9.15	9.92	10.20	10.97	12.40	8.72	9.49	9.77	10.54	11.97
	3H	10.79	11.48	11.85	12.54	13.99	10.33	11.01	11.39	12.08	13.52
	4H	11.37	12.02	12.44	13.09	14.54	10.90	11.55	11.97	12.62	14.07
	6H	11.76	12.36	12.84	13.43	14.89	11.29	11.89	12.37	12.96	14.42
	8H	11.86	12.43	12.94	13.51	14.97	11.39	11.96	12.47	13.04	14.50
	12H	11.90	12.44	12.99	13.52	15.00	11.42	11.97	12.51	13.05	14.53
4H	2H	9.60	10.25	10.67	11.31	12.77	9.25	9.90	10.33	10.97	12.42
	3H	11.44	11.99	12.53	13.08	14.54	11.05	11.60	12.14	12.69	14.16
	4H	12.15	12.64	13.24	13.73	15.21	11.74	12.24	12.84	13.33	14.81
	6H	12.65	13.07	13.75	14.18	15.66	12.24	12.67	13.34	13.78	15.26
	8H	12.79	13.19	13.89	14.29	15.78	12.38	12.78	13.48	13.88	15.38
	12H	12.85	13.21	13.97	14.33	15.83	12.44	12.80	13.55	13.91	15.41
8H	4H	12.33	12.73	13.43	13.83	15.33	11.97	12.37	13.07	13.47	14.97
	6H	12.95	13.28	14.07	14.42	15.91	12.59	12.92	13.71	14.06	15.55
	8H	13.16	13.45	14.29	14.57	16.08	12.80	13.09	13.92	14.21	15.72
	12H	13.28	13.54	14.41	14.65	16.20	12.90	13.16	14.03	14.28	15.83
12H	4H	12.31	12.67	13.43	13.78	15.29	11.96	12.32	13.08	13.44	14.94
	6H	12.97	13.26	14.10	14.39	15.90	12.63	12.92	13.75	14.04	15.55
	8H	13.20	13.46	14.34	14.58	16.13	12.85	13.11	13.98	14.22	15.78