

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: P903304

Luminaire Tested: DFN2DIP-PN4F0-080D080US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903304
REPORT IS A COMBINATION OF REPORTS P899689 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D080US830-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

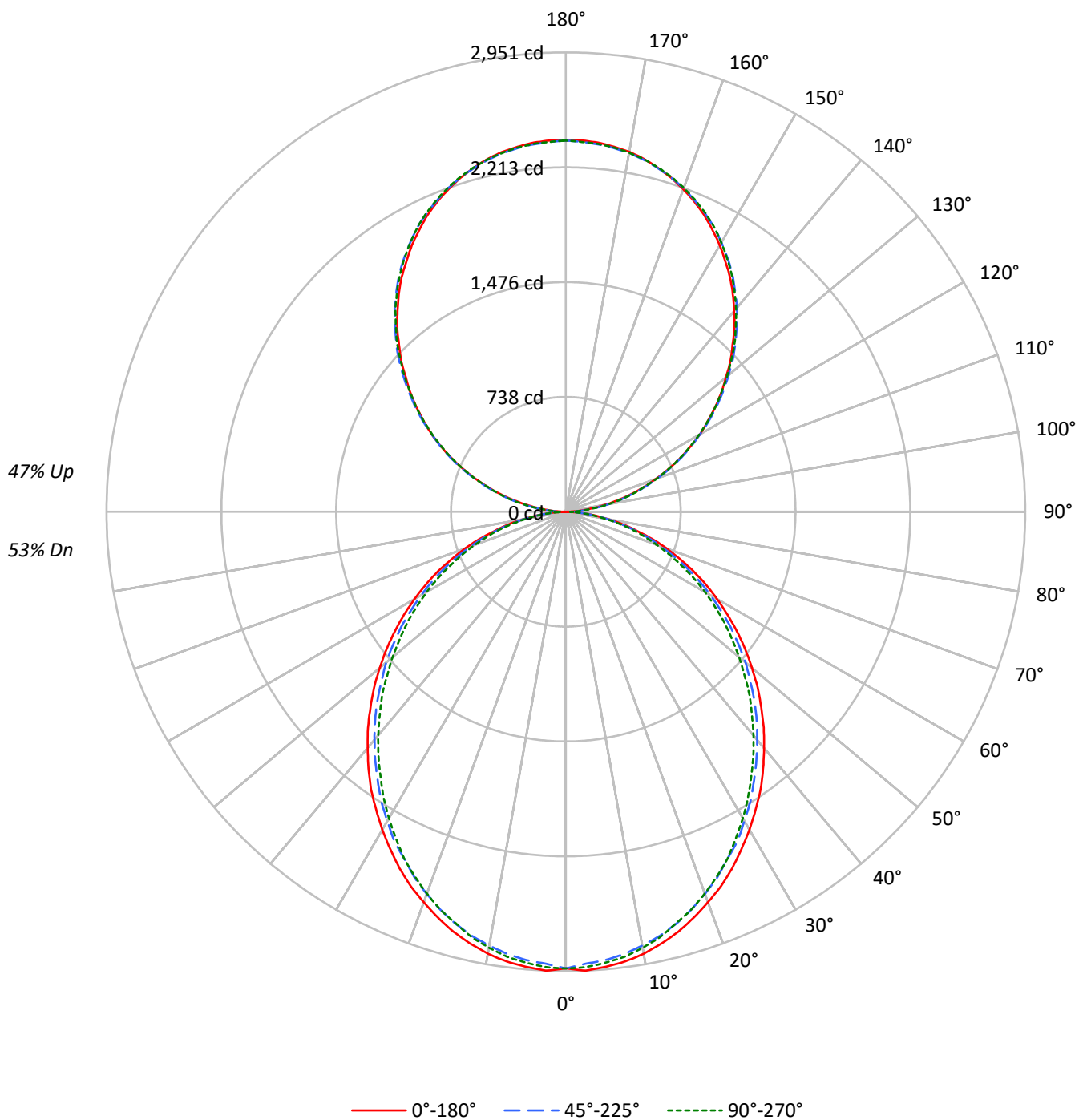
Lumens per Lamp: N/A
Luminaire Lumens: 14138.1 lumens
Efficiency: N/A
Efficacy: 104.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2142	2142	2142
5°	2145	2112	2127
10°	2128	2084	2098
15°	2096	2050	2054
20°	2054	2003	2008
25°	2012	1946	1955
30°	1959	1893	1888
35°	1909	1831	1816
40°	1848	1768	1749
45°	1787	1705	1679
50°	1720	1639	1599
55°	1649	1562	1525
60°	1570	1471	1441
65°	1484	1377	1341
70°	1373	1263	1234
75°	1221	1126	1136
80°	1037	951	947
85°	750	649	634

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1867 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	2.0
10°-20°	777.0	5.5
20°-30°	1141.8	8.1
30°-40°	1326.2	9.4
40°-50°	1324.5	9.4
50°-60°	1155.0	8.2
60°-70°	853.8	6.0
70°-80°	483.0	3.4
80°-90°	134.3	0.9
90°-100°	147.6	1.0
100°-110°	468.9	3.3
110°-120°	802.4	5.7
120°-130°	1055.3	7.5
130°-140°	1184.5	8.4
140°-150°	1161.5	8.2
150°-160°	974.4	6.9
160°-170°	646.2	4.6
170°-180°	225.9	1.6
0°-30°	2195.0	15.5
0°-40°	3521.1	24.9
0°-60°	6000.6	42.4
0°-90°	7471.7	52.8
90°-120°	1418.8	10.0
90°-150°	4820.1	34.1
90°-180°	6666.0	47.1
0°-180°	14138.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	279
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2458	2463	2458	1163
35°	2181	2153	2108	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	896
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	2	26	70	66	68	14
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.9	2933.9	2933.9	2933.9	2933.9
2.5°	2951.0	2937.0	2905.9	2933.9	2928.6
5°	2933.9	2922.9	2891.8	2914.2	2908.9
7.5°	2914.2	2897.5	2866.4	2889.1	2883.4
10°	2883.4	2863.6	2829.8	2852.2	2843.9
12.5°	2840.9	2824.1	2790.3	2804.3	2798.7
15°	2793.0	2776.3	2739.4	2750.8	2736.8
17.5°	2733.7	2717.0	2680.1	2694.3	2680.1
20°	2668.8	2652.0	2612.5	2620.9	2609.8
22.5°	2604.2	2578.7	2541.8	2541.8	2536.2
25°	2527.8	2505.4	2457.5	2462.9	2457.5
27.5°	2443.1	2423.4	2386.8	2378.4	2364.4
30°	2358.7	2335.9	2293.8	2285.4	2274.0
32.5°	2268.3	2251.5	2206.3	2189.2	2177.9
35°	2180.9	2152.8	2107.5	2090.5	2076.4
37.5°	2082.1	2056.6	2011.5	1991.7	1977.6
40°	1980.7	1957.8	1912.7	1887.5	1876.1
42.5°	1881.9	1859.1	1814.2	1785.7	1769.1
45°	1774.7	1754.9	1712.4	1681.6	1670.3
47.5°	1670.3	1650.5	1605.2	1574.1	1557.4
50°	1560.1	1546.1	1506.5	1467.0	1452.9
52.5°	1452.9	1433.1	1396.7	1365.6	1345.8
55°	1343.0	1326.0	1292.2	1258.4	1244.3
57.5°	1232.9	1218.9	1182.0	1148.2	1136.8
60°	1122.8	1111.7	1072.1	1041.0	1032.6
62.5°	1015.6	995.9	967.7	939.6	928.2
65°	905.8	888.7	860.5	835.1	821.0
67.5°	792.9	778.5	753.4	733.7	722.3
70°	688.4	677.0	651.7	631.9	620.8
72.5°	581.3	570.0	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.1	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7

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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	10.18	11.07	11.12	12.02	13.25	9.74	10.63	10.68	11.58	12.81
	3H	11.85	12.64	12.79	13.60	14.86	11.36	12.16	12.31	13.12	14.37
	4H	12.44	13.19	13.40	14.16	15.42	11.95	12.71	12.91	13.67	14.93
	6H	12.84	13.54	13.81	14.51	15.78	12.35	13.05	13.32	14.01	15.29
	8H	12.95	13.61	13.93	14.60	15.87	12.46	13.12	13.43	14.10	15.38
	12H	13.00	13.63	13.98	14.61	15.91	12.50	13.13	13.48	14.11	15.41
4H	2H	10.65	11.40	11.61	12.36	13.63	10.30	11.05	11.26	12.01	13.28
	3H	12.52	13.15	13.49	14.14	15.42	12.12	12.75	13.09	13.74	15.02
	4H	13.24	13.81	14.22	14.80	16.10	12.82	13.39	13.80	14.38	15.68
	6H	13.76	14.25	14.75	15.26	16.56	13.33	13.83	14.33	14.84	16.14
	8H	13.91	14.37	14.90	15.37	16.69	13.48	13.94	14.48	14.95	16.26
	12H	13.98	14.40	15.00	15.42	16.74	13.54	13.96	14.56	14.98	16.30
8H	4H	13.44	13.90	14.43	14.90	16.22	13.06	13.53	14.06	14.53	15.84
	6H	14.07	14.45	15.09	15.50	16.81	13.70	14.08	14.72	15.12	16.43
	8H	14.29	14.63	15.32	15.66	16.99	13.91	14.25	14.94	15.28	16.61
	12H	14.43	14.73	15.46	15.75	17.13	14.03	14.32	15.06	15.35	16.72
12H	4H	13.42	13.84	14.44	14.86	16.18	13.06	13.48	14.08	14.50	15.82
	6H	14.10	14.44	15.13	15.47	16.80	13.74	14.08	14.77	15.11	16.44
	8H	14.35	14.64	15.38	15.67	17.04	13.98	14.27	15.01	15.30	16.67