

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: P910906

Luminaire Tested: DFN2DIP-HX4F0-060D040US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910906
REPORT IS A COMBINATION OF REPORTS P899303 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D040US850-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

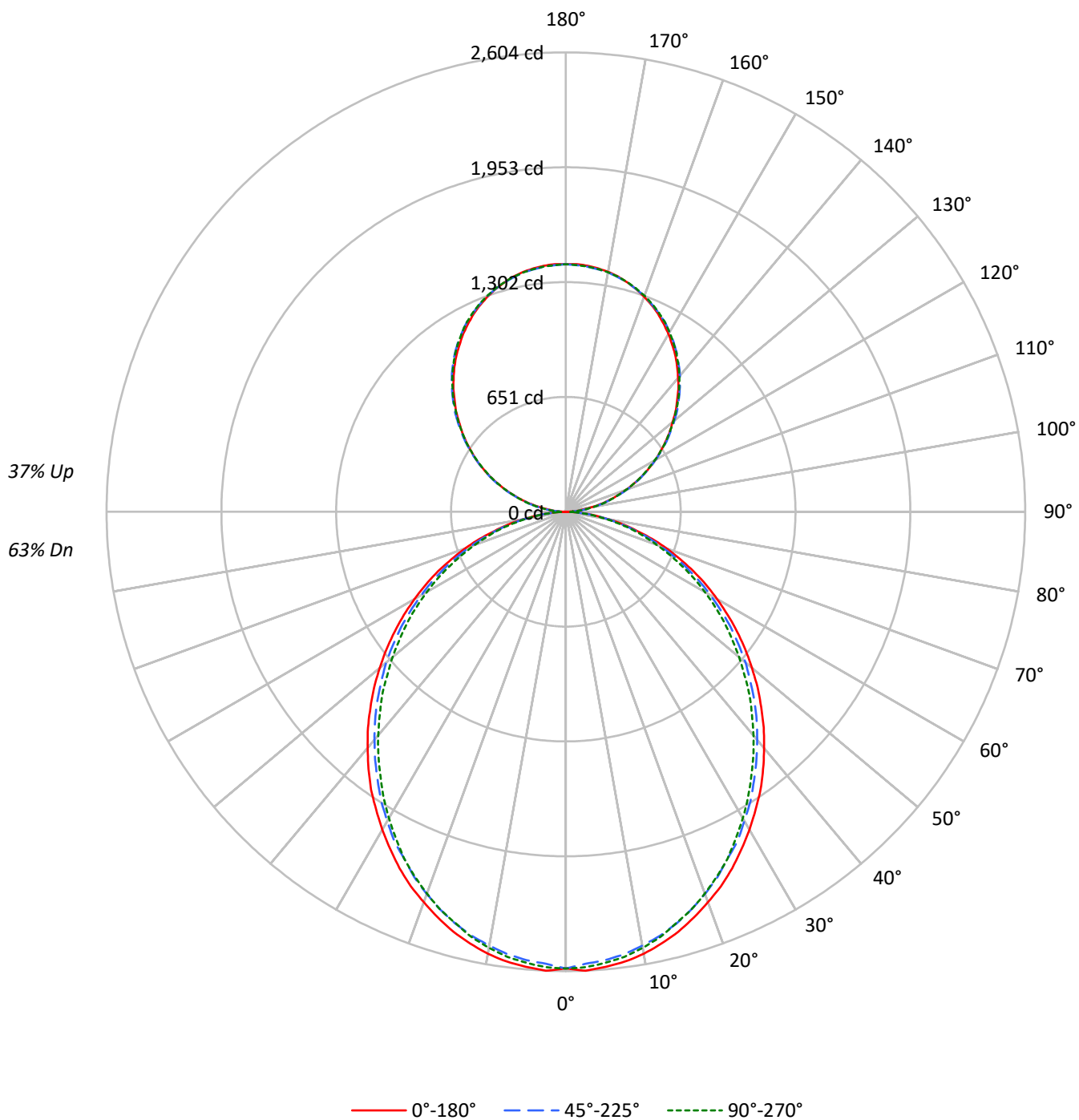
Lumens per Lamp: N/A
Luminaire Lumens: 10513.2 lumens
Efficiency: N/A
Efficacy: 135.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1925	1925	1925
5°	1928	1898	1911
10°	1913	1873	1885
15°	1885	1843	1845
20°	1847	1800	1804
25°	1809	1749	1756
30°	1762	1701	1695
35°	1718	1645	1631
40°	1662	1589	1570
45°	1608	1532	1507
50°	1547	1473	1435
55°	1485	1404	1368
60°	1414	1322	1292
65°	1336	1237	1202
70°	1238	1134	1105
75°	1101	1011	1016
80°	937	853	845
85°	679	581	562

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1608 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	2.3
10°-20°	685.6	6.5
20°-30°	1007.6	9.6
30°-40°	1170.3	11.1
40°-50°	1168.8	11.1
50°-60°	1019.2	9.7
60°-70°	753.4	7.2
70°-80°	426.3	4.1
80°-90°	116.5	1.1
90°-100°	86.8	0.8
100°-110°	275.8	2.6
110°-120°	472.0	4.5
120°-130°	620.8	5.9
130°-140°	696.8	6.6
140°-150°	683.3	6.5
150°-160°	573.2	5.5
160°-170°	380.1	3.6
170°-180°	132.9	1.3
0°-30°	1937.0	18.4
0°-40°	3107.2	29.6
0°-60°	5295.3	50.4
0°-90°	6591.4	62.7
90°-120°	834.7	7.9
90°-150°	2835.6	27.0
90°-180°	3922.0	37.3
0°-180°	10513.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	1	15	42	39	40	10
95°	62	74	76	76	74	69
105°	255	258	260	263	263	269
115°	474	480	478	477	474	469
125°	689	700	696	692	691	616
135°	891	904	907	906	902	689
145°	1082	1090	1097	1098	1094	676
155°	1237	1240	1244	1250	1246	569
165°	1346	1345	1345	1353	1347	380
175°	1400	1397	1394	1403	1396	133
180°	1403	1403	1403	1403	1403	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	1.2	15.2	41.5	38.9	40.1
92.5°	26.2	35.5	36.8	38.0	38.0
95°	61.8	73.6	75.7	75.7	73.6
97.5°	102.8	113.8	118.4	118.4	118.4
100°	150.2	159.9	163.2	163.2	162.0
102.5°	200.1	207.3	211.9	213.1	211.9
105°	254.6	258.0	260.5	262.6	262.6
107.5°	308.7	313.8	313.8	314.6	308.7
110°	361.2	368.0	368.0	368.0	364.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	417.9	425.1	423.7	420.4	417.9
115°	473.7	480.5	478.3	477.1	473.7
117.5°	529.1	538.4	532.5	529.1	525.8
120°	585.0	594.2	585.0	585.0	581.1
122.5°	635.7	647.5	641.7	638.2	635.7
125°	689.0	699.6	696.2	692.3	691.1
127.5°	741.0	754.1	749.5	744.4	741.0
130°	789.6	804.9	802.8	800.3	795.6
132.5°	844.2	856.0	856.9	850.9	847.6
135°	891.2	904.3	906.8	905.5	902.2
137.5°	943.6	954.2	956.3	955.4	950.4
140°	989.7	1000.3	1006.2	1006.2	1001.5
142.5°	1037.1	1047.7	1051.0	1052.3	1047.7
145°	1081.9	1090.4	1097.1	1098.5	1093.8
147.5°	1122.1	1132.6	1137.7	1139.8	1135.2
150°	1163.6	1170.8	1175.4	1179.2	1175.4
152.5°	1200.4	1207.5	1213.5	1218.1	1213.5
155°	1237.1	1240.5	1244.3	1250.3	1246.4
157.5°	1268.9	1271.4	1273.5	1282.0	1276.0
160°	1297.2	1299.7	1301.0	1308.2	1303.1
162.5°	1323.4	1323.4	1324.7	1332.7	1326.8
165°	1345.9	1344.6	1344.6	1353.0	1347.1
167.5°	1366.2	1362.3	1362.3	1370.8	1364.8
170°	1381.4	1377.9	1376.7	1385.1	1377.9
172.5°	1391.9	1388.6	1387.2	1395.8	1388.6
175°	1400.4	1397.0	1394.5	1402.9	1395.8
177.5°	1405.1	1401.7	1399.1	1406.3	1399.1
180°	1402.9	1402.9	1402.9	1402.9	1402.9

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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	10.64	11.63	11.48	12.49	13.57	10.21	11.20	11.05	12.06	13.14
	3H	12.31	13.20	13.17	14.07	15.18	11.84	12.73	12.69	13.60	14.70
	4H	12.91	13.75	13.78	14.62	15.74	12.43	13.27	13.30	14.15	15.27
	6H	13.31	14.09	14.20	14.97	16.10	12.84	13.61	13.72	14.50	15.63
	8H	13.42	14.16	14.31	15.06	16.19	12.95	13.69	13.84	14.59	15.72
	12H	13.48	14.18	14.37	15.08	16.23	13.00	13.70	13.89	14.59	15.75
4H	2H	11.12	11.96	11.99	12.84	13.95	10.78	11.61	11.65	12.49	13.61
	3H	13.00	13.70	13.88	14.61	15.74	12.61	13.31	13.49	14.22	15.35
	4H	13.72	14.36	14.62	15.26	16.42	13.31	13.95	14.21	14.86	16.01
	6H	14.24	14.79	15.15	15.72	16.88	13.83	14.38	14.74	15.32	16.47
	8H	14.40	14.91	15.31	15.84	17.01	13.98	14.50	14.90	15.42	16.60
	12H	14.48	14.94	15.41	15.88	17.06	14.05	14.52	14.99	15.46	16.64
8H	4H	13.93	14.44	14.84	15.37	16.54	13.57	14.08	14.48	15.01	16.18
	6H	14.56	14.99	15.51	15.96	17.13	14.20	14.63	15.14	15.60	16.77
	8H	14.79	15.17	15.74	16.12	17.31	14.42	14.80	15.37	15.75	16.94
	12H	14.93	15.26	15.88	16.21	17.45	14.54	14.87	15.49	15.82	17.06
12H	4H	13.92	14.38	14.85	15.33	16.50	13.57	14.03	14.50	14.97	16.15
	6H	14.60	14.97	15.55	15.93	17.12	14.24	14.62	15.19	15.58	16.77
	8H	14.85	15.18	15.80	16.13	17.37	14.49	14.82	15.44	15.77	17.01

END OF REPORT