

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: P910983

Luminaire Tested: DFN2DIP-HX4F0-100D060US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910983
REPORT IS A COMBINATION OF REPORTS P899348 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D060US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

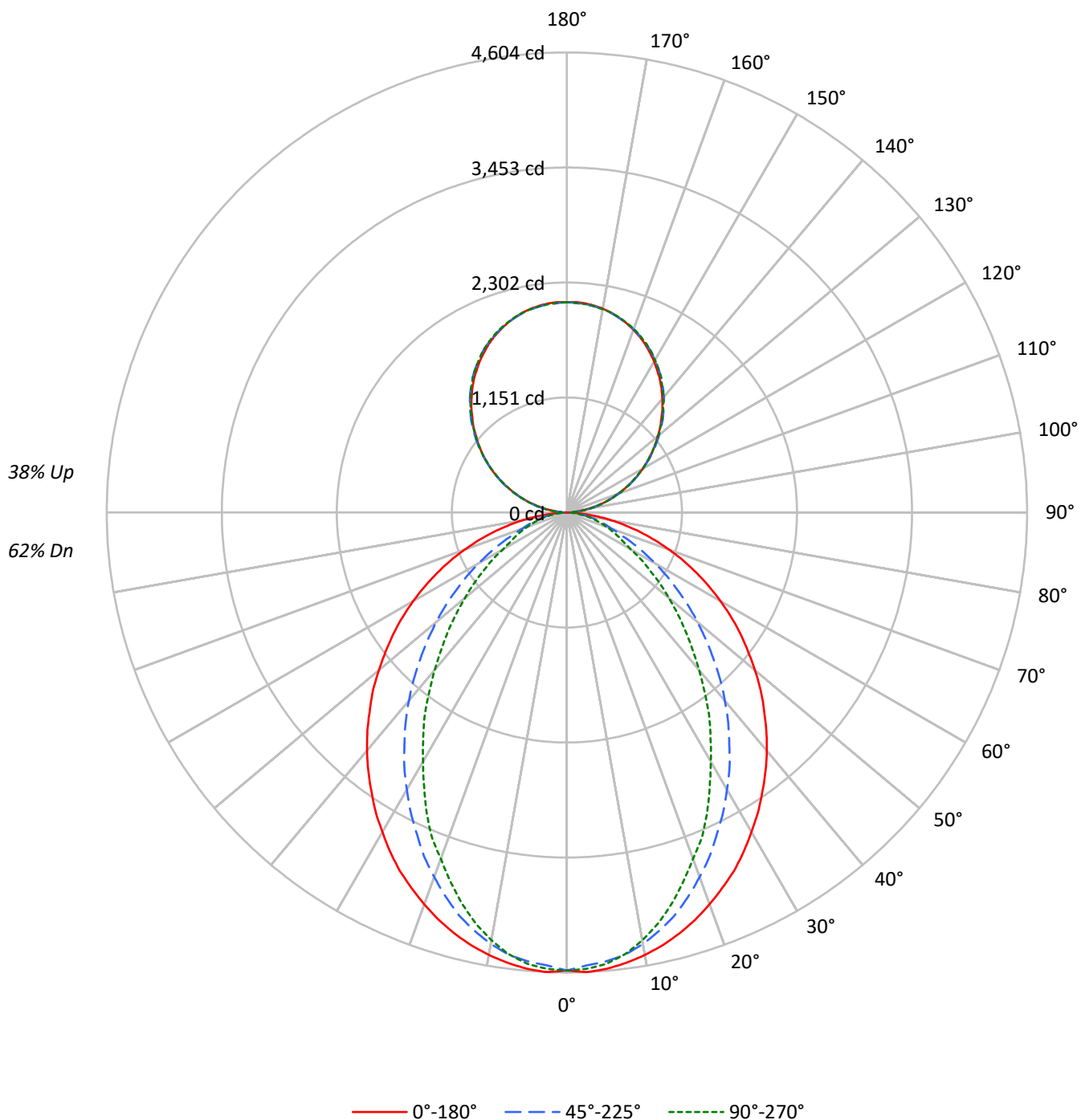
Lumens per Lamp: N/A
Luminaire Lumens: 15315.3 lumens
Efficiency: N/A
Efficacy: 114.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 133.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910983

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US850-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P910983

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US850-RLLFLL

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	78	78	78	67	67	67
1	101	97	93	90	94	91	88	85	80	77	75	69	68	66	60	59	58
2	92	85	79	74	86	80	75	70	71	67	63	62	59	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	60	54	73	63	57	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	41	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	62	49	42	36	58	47	40	35	42	36	32	37	33	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	30	26	30	27	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	22	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3408	3408	3408
5°	3414	3354	3376
10°	3380	3289	3266
15°	3334	3180	3096
20°	3273	3031	2888
25°	3210	2863	2687
30°	3126	2691	2432
35°	3043	2506	2208
40°	2959	2315	1951
45°	2861	2103	1718
50°	2760	1888	1490
55°	2655	1659	1272
60°	2533	1420	1047
65°	2393	1176	942
70°	2222	949	853
75°	2009	837	777
80°	1699	703	674
85°	1188	471	508

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2861 cd/sqm

TEST NUMBER: P910983

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US850-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	2.8
10°-20°	1179.3	7.7
20°-30°	1655.6	10.8
30°-40°	1804.7	11.8
40°-50°	1658.8	10.8
50°-60°	1302.7	8.5
60°-70°	847.9	5.5
70°-80°	436.5	2.8
80°-90°	117.4	0.8
90°-100°	130.2	0.9
100°-110°	413.7	2.7
110°-120°	708.0	4.6
120°-130°	931.2	6.1
130°-140°	1045.3	6.8
140°-150°	1025.0	6.7
150°-160°	859.8	5.6
160°-170°	570.2	3.7
170°-180°	199.3	1.3
0°-30°	3264.5	21.3
0°-40°	5069.2	33.1
0°-60°	8030.6	52.4
0°-90°	9432.4	61.6
90°-120°	1252.0	8.2
90°-150°	4253.5	27.8
90°-180°	5883.0	38.4
0°-180°	15315.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	2	23	62	58	60	15
95°	93	110	114	114	110	103
105°	382	387	391	394	394	403
115°	710	721	718	716	710	703
125°	1034	1049	1044	1039	1037	924
135°	1337	1356	1360	1358	1353	1033
145°	1623	1636	1646	1648	1641	1014
155°	1856	1861	1866	1875	1870	854
165°	2019	2017	2017	2030	2021	569
175°	2101	2096	2092	2104	2094	200
180°	2104	2104	2104	2104	2104	

TEST NUMBER: P910983

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US850-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
90°	1.9	22.8	62.2	58.3	60.2
92.5°	39.4	53.3	55.2	57.1	57.1
95°	92.6	110.3	113.6	113.6	110.3
97.5°	154.2	170.7	177.7	177.7	177.7
100°	225.2	239.8	244.9	244.9	243.0
102.5°	300.1	310.9	317.8	319.7	317.8
105°	381.9	387.0	390.8	394.0	394.0
107.5°	463.1	470.8	470.8	472.0	463.1
110°	541.9	551.9	551.9	551.9	546.8

TEST NUMBER: P910983

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US850-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	626.8	637.6	635.7	630.6	626.8
115°	710.5	720.7	717.5	715.6	710.5
117.5°	793.7	807.7	798.7	793.7	788.6
120°	877.4	891.4	877.4	877.4	871.7
122.5°	953.5	971.3	962.4	957.4	953.5
125°	1033.5	1049.3	1044.2	1038.6	1036.7
127.5°	1111.6	1131.2	1124.2	1116.7	1111.6
130°	1184.5	1207.4	1204.2	1200.4	1193.4
132.5°	1266.4	1284.1	1285.3	1276.5	1271.4
135°	1336.8	1356.4	1360.2	1358.3	1353.2
137.5°	1415.4	1431.3	1434.5	1433.2	1425.6
140°	1484.6	1500.5	1509.3	1509.3	1502.4
142.5°	1555.6	1571.5	1576.6	1578.4	1571.5
145°	1622.9	1635.6	1645.8	1647.6	1640.7
147.5°	1683.1	1699.0	1706.6	1709.7	1702.8
150°	1745.3	1756.1	1763.1	1768.7	1763.1
152.5°	1800.5	1811.3	1820.2	1827.2	1820.2
155°	1855.7	1860.8	1866.4	1875.4	1869.7
157.5°	1903.3	1907.1	1910.3	1923.0	1914.1
160°	1945.9	1949.6	1951.5	1962.3	1954.7
162.5°	1985.1	1985.1	1987.0	1999.1	1990.2
165°	2018.7	2016.8	2016.8	2029.6	2020.7
167.5°	2049.2	2043.6	2043.6	2056.2	2047.3
170°	2072.1	2067.0	2065.1	2077.7	2067.0
172.5°	2087.9	2082.8	2080.9	2093.6	2082.8
175°	2100.6	2095.6	2091.7	2104.4	2093.6
177.5°	2107.5	2102.6	2098.7	2109.4	2098.7
180°	2104.4	2104.4	2104.4	2104.4	2104.4

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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	12.42	13.36	13.28	14.23	15.33	8.40	9.33	9.26	10.21	11.31
	3H	14.11	14.95	14.98	15.83	16.96	9.60	10.43	10.47	11.32	12.44
	4H	14.73	15.51	15.61	16.40	17.54	10.05	10.84	10.94	11.73	12.87
	6H	15.15	15.88	16.05	16.78	17.93	10.38	11.11	11.28	12.00	13.15
	8H	15.28	15.97	16.19	16.89	18.04	10.48	11.17	11.38	12.08	13.23
	12H	15.35	16.01	16.26	16.91	18.09	10.52	11.18	11.43	12.09	13.26
4H	2H	12.46	13.25	13.35	14.14	15.27	9.01	9.80	9.90	10.69	11.82
	3H	14.30	14.95	15.20	15.87	17.02	10.37	11.02	11.27	11.95	13.10
	4H	14.99	15.59	15.91	16.51	17.68	10.92	11.52	11.84	12.44	13.61
	6H	15.52	16.03	16.44	16.97	18.15	11.35	11.86	12.28	12.80	13.98
	8H	15.69	16.17	16.62	17.11	18.30	11.48	11.96	12.41	12.90	14.09
	12H	15.79	16.22	16.74	17.18	18.37	11.55	11.98	12.50	12.94	14.13
8H	4H	14.97	15.45	15.90	16.38	17.58	11.21	11.69	12.14	12.63	13.82
	6H	15.54	15.94	16.50	16.91	18.10	11.73	12.13	12.69	13.11	14.30
	8H	15.76	16.11	16.72	17.08	18.28	11.93	12.28	12.89	13.25	14.45
	12H	15.90	16.21	16.87	17.17	18.43	12.05	12.36	13.02	13.32	14.58
12H	4H	14.93	15.36	15.87	16.31	17.51	11.22	11.65	12.17	12.61	13.80
	6H	15.52	15.87	16.48	16.84	18.04	11.78	12.14	12.75	13.10	14.31
	8H	15.74	16.05	16.71	17.01	18.27	12.00	12.31	12.97	13.27	14.53