

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: P926953

Luminaire Tested: DFN2DIP-HX4F0-060D060US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926953
REPORT IS A COMBINATION OF REPORTS P899340 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D060US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

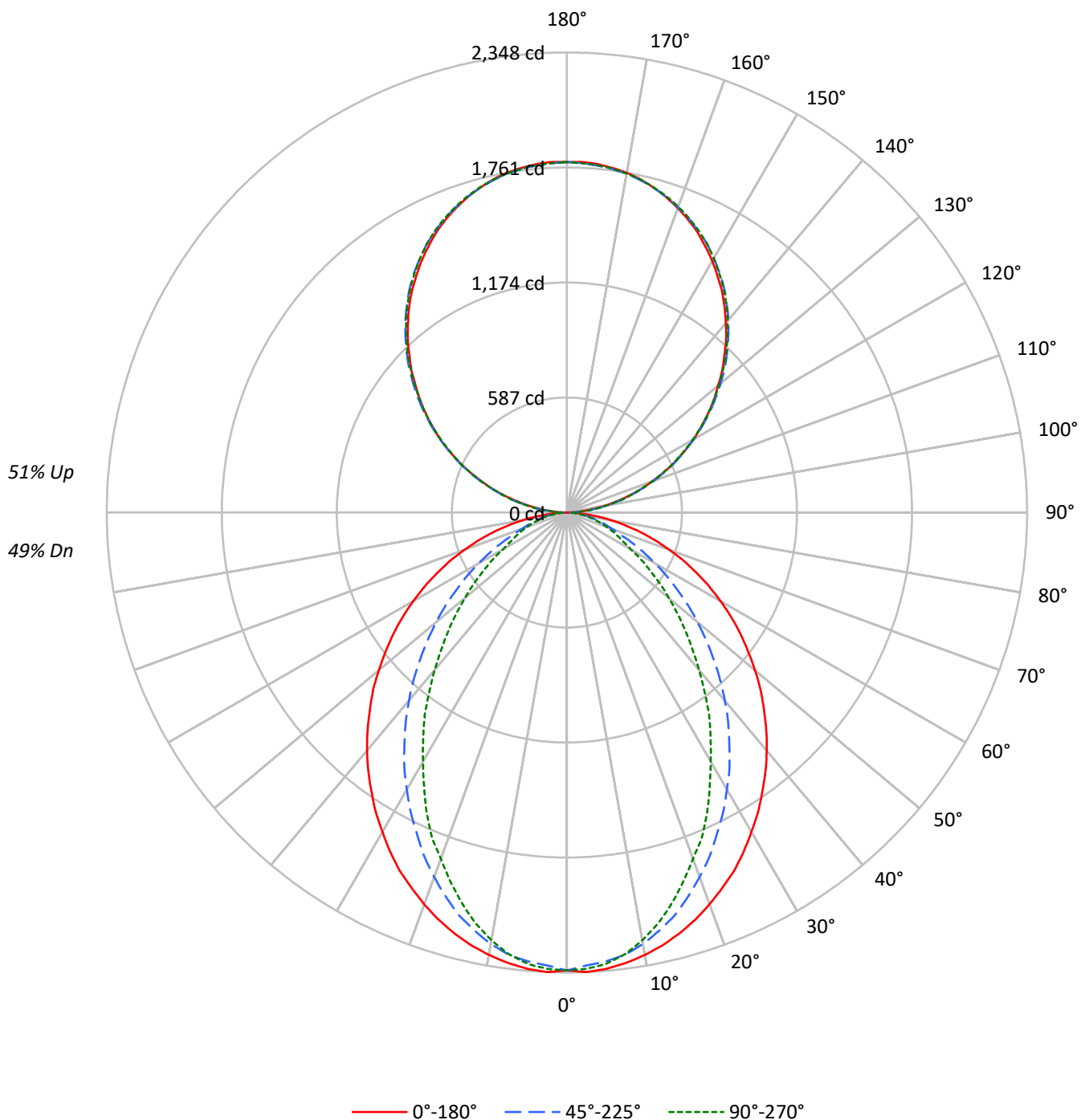
Lumens per Lamp: N/A
Luminaire Lumens: 9811.5 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 98.2
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1738	1738	1738
5°	1741	1710	1721
10°	1724	1677	1665
15°	1700	1622	1579
20°	1669	1546	1473
25°	1637	1460	1370
30°	1594	1372	1240
35°	1552	1278	1126
40°	1509	1180	995
45°	1459	1072	876
50°	1407	963	760
55°	1354	846	648
60°	1292	724	534
65°	1220	600	481
70°	1133	484	435
75°	1025	427	396
80°	866	358	344
85°	606	241	259

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1459 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.0	2.2
10°-20°	601.3	6.1
20°-30°	844.2	8.6
30°-40°	920.3	9.4
40°-50°	845.8	8.6
50°-60°	664.3	6.8
60°-70°	432.4	4.4
70°-80°	222.6	2.3
80°-90°	61.9	0.6
90°-100°	110.7	1.1
100°-110°	351.6	3.6
110°-120°	601.7	6.1
120°-130°	791.4	8.1
130°-140°	888.3	9.1
140°-150°	871.1	8.9
150°-160°	730.7	7.4
160°-170°	484.6	4.9
170°-180°	169.4	1.7
0°-30°	1664.6	17.0
0°-40°	2584.9	26.3
0°-60°	4095.0	41.7
0°-90°	4811.8	49.0
90°-120°	1064.0	10.8
90°-150°	3614.9	36.8
90°-180°	5000.0	51.0
0°-180°	9811.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2337	2337	2337	2337	2337	
5°	2337	2327	2299	2318	2312	222
15°	2223	2200	2128	2088	2066	626
25°	2018	1950	1810	1724	1692	928
35°	1739	1631	1445	1311	1265	1088
45°	1421	1280	1058	907	856	1098
55°	1081	916	687	561	520	966
65°	730	558	368	296	290	724
75°	389	241	169	154	152	412
85°	91	46	40	40	40	104
90°	2	19	53	50	51	10
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	612	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1581	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1788	1779	170
180°	1788	1788	1788	1788	1788	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.2	2337.2	2337.2	2337.2	2337.2
2.5°	2347.8	2337.2	2313.8	2335.1	2330.9
5°	2337.2	2326.7	2299.0	2318.2	2311.9
7.5°	2318.2	2305.5	2275.9	2284.2	2273.7
10°	2292.7	2277.9	2235.8	2229.3	2216.7
12.5°	2261.2	2242.0	2184.8	2172.3	2148.9
15°	2223.0	2199.6	2127.8	2087.6	2066.5
17.5°	2178.6	2144.7	2055.8	2009.3	1975.5
20°	2127.8	2085.4	1979.7	1926.9	1880.3
22.5°	2072.8	2024.1	1901.4	1829.6	1797.9
25°	2017.9	1950.1	1810.5	1723.9	1692.1
27.5°	1952.4	1880.3	1725.9	1626.5	1577.8
30°	1882.5	1802.0	1632.8	1525.1	1467.8
32.5°	1814.8	1717.4	1544.2	1417.1	1364.2
35°	1738.7	1630.8	1444.8	1311.4	1264.7
37.5°	1664.6	1548.2	1351.6	1205.6	1152.8
40°	1586.3	1459.6	1254.2	1104.0	1049.1
42.5°	1506.0	1370.7	1157.0	1000.4	947.7
45°	1421.4	1279.5	1057.7	907.3	856.5
47.5°	1341.1	1190.9	962.5	812.2	765.7
50°	1252.2	1102.1	869.4	723.3	679.1
52.5°	1165.3	1006.7	780.5	640.9	600.7
55°	1080.8	915.8	687.4	560.6	520.4
57.5°	994.1	824.9	605.0	486.5	452.6
60°	905.3	736.1	518.2	410.5	376.5
62.5°	818.7	649.5	444.1	342.7	325.8
65°	729.8	558.3	368.0	296.2	289.7
67.5°	645.1	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.6
72.5°	471.7	315.1	205.1	188.3	184.0
75°	389.2	241.0	169.2	154.4	152.4
77.5°	306.8	171.3	133.3	124.8	120.5
80°	230.4	122.7	101.4	93.1	93.1
82.5°	160.7	82.6	69.7	65.5	65.5
85°	90.9	46.5	40.2	40.2	40.2
87.5°	33.9	16.9	16.9	14.8	14.8
90°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.0	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.1	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.8	540.2	535.9	532.7
115°	603.9	612.5	609.8	608.2	603.9
117.5°	674.5	686.4	678.8	674.5	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.4	817.9	813.7	810.4
125°	878.3	891.8	887.5	882.7	881.0
127.5°	944.7	961.4	955.4	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.2
132.5°	1076.2	1091.3	1092.4	1084.8	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.0
137.5°	1202.9	1216.4	1219.1	1218.0	1211.6
140°	1261.7	1275.2	1282.7	1282.7	1276.8
142.5°	1322.0	1335.5	1339.9	1341.5	1335.5
145°	1379.3	1390.0	1398.7	1400.3	1394.3
147.5°	1430.4	1443.9	1450.4	1453.1	1447.1
150°	1483.3	1492.4	1498.4	1503.2	1498.4
152.5°	1530.1	1539.4	1546.9	1552.9	1546.9
155°	1577.1	1581.4	1586.2	1593.9	1589.0
157.5°	1617.5	1620.8	1623.5	1634.3	1626.8
160°	1653.7	1656.9	1658.5	1667.7	1661.3
162.5°	1687.1	1687.1	1688.7	1699.0	1691.4
165°	1715.6	1714.0	1714.0	1724.9	1717.3
167.5°	1741.6	1736.7	1736.7	1747.5	1739.9
170°	1761.0	1756.6	1755.0	1765.8	1756.6
172.5°	1774.4	1770.1	1768.5	1779.3	1770.1
175°	1785.2	1780.9	1777.6	1788.5	1779.3
177.5°	1791.1	1786.9	1783.6	1792.7	1783.6
180°	1788.5	1788.5	1788.5	1788.5	1788.5

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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	8.98	9.80	9.95	10.78	12.07	4.95	5.77	5.92	6.75	8.04
	3H	10.65	11.39	11.64	12.38	13.69	6.14	6.87	7.12	7.86	9.17
	4H	11.26	11.96	12.26	12.95	14.27	6.59	7.29	7.59	8.28	9.60
	6H	11.68	12.32	12.69	13.32	14.65	6.91	7.55	7.92	8.55	9.88
	8H	11.81	12.42	12.82	13.44	14.76	7.00	7.61	8.02	8.63	9.95
	12H	11.87	12.45	12.89	13.46	14.81	7.05	7.63	8.07	8.64	9.99
4H	2H	8.99	9.69	10.00	10.68	12.00	5.54	6.24	6.55	7.23	8.55
	3H	10.82	11.40	11.83	12.42	13.76	6.90	7.47	7.91	8.50	9.83
	4H	11.52	12.04	12.53	13.06	14.41	7.44	7.97	8.46	8.99	10.34
	6H	12.03	12.49	13.06	13.52	14.88	7.87	8.32	8.90	9.36	10.71
	8H	12.21	12.63	13.24	13.66	15.03	8.00	8.42	9.03	9.45	10.82
	12H	12.30	12.68	13.35	13.73	15.10	8.06	8.44	9.11	9.49	10.86
8H	4H	11.48	11.91	12.51	12.94	14.30	7.72	8.15	8.76	9.18	10.55
	6H	12.05	12.40	13.10	13.47	14.84	8.25	8.59	9.30	9.67	11.03
	8H	12.27	12.58	13.33	13.63	15.02	8.44	8.74	9.50	9.80	11.19
	12H	12.41	12.68	13.47	13.73	15.16	8.56	8.83	9.62	9.88	11.31
12H	4H	11.44	11.82	12.48	12.86	14.24	7.73	8.11	8.78	9.16	10.53
	6H	12.03	12.33	13.09	13.39	14.78	8.29	8.60	9.36	9.66	11.04
	8H	12.25	12.52	13.31	13.57	15.00	8.51	8.78	9.57	9.83	11.26