

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: P927061

Luminaire Tested: DFN2DIP-HX4F0-090D060US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927061
REPORT IS A COMBINATION OF REPORTS P899346 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D060US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

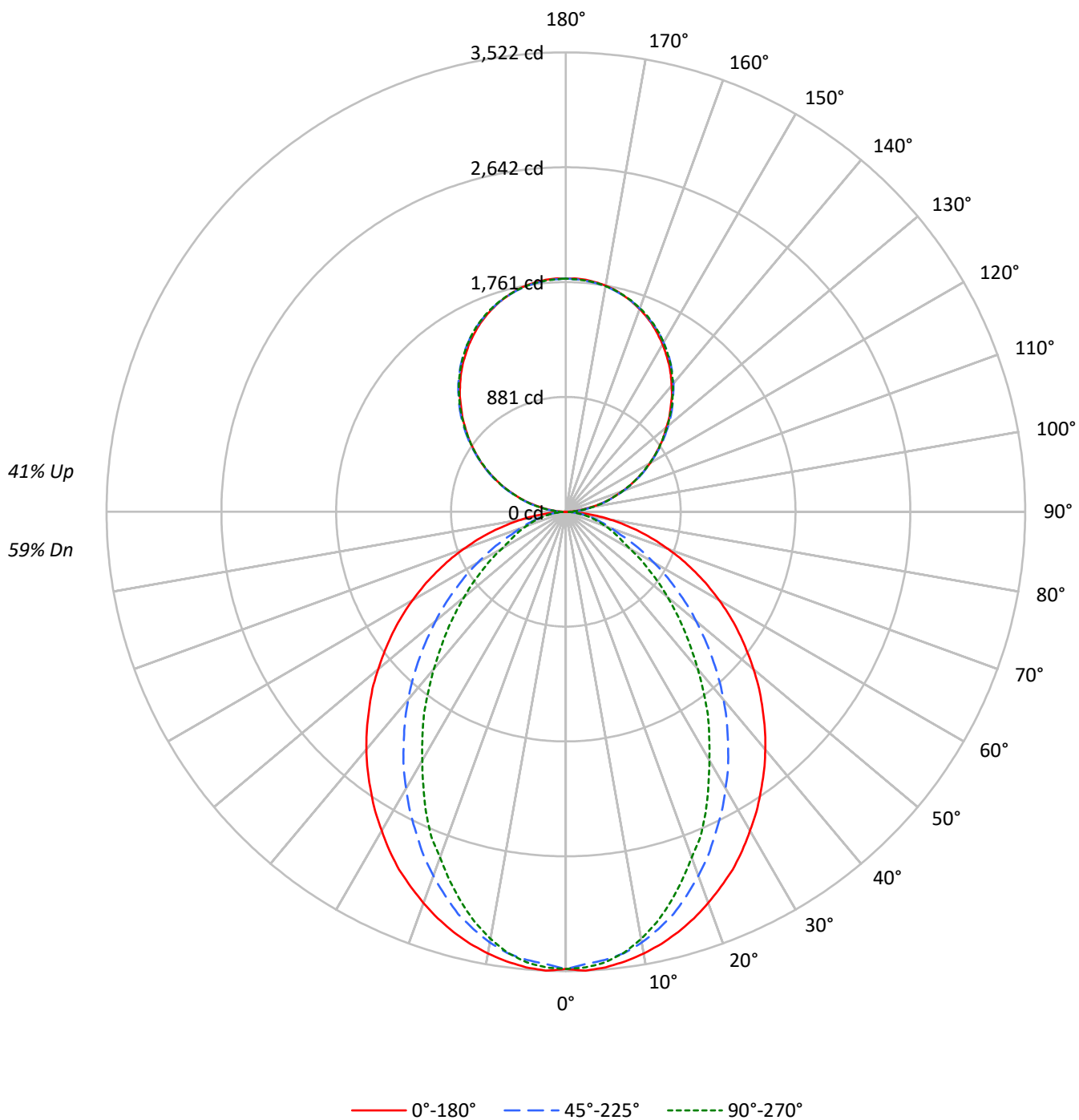
Lumens per Lamp: N/A
Luminaire Lumens: 12214.8 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 132.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88		76	76	76		64
1	100	96	92	89	94	90	87	84	78	76	74		68	66	64		58
2	92	85	79	74	86	79	74	70	69	65	62		60	57	55		52
3	84	75	68	62	78	70	64	59	62	57	53		54	50	47		46
4	77	67	59	53	72	63	56	51	55	50	46		48	44	41		42
5	71	60	52	46	66	56	49	44	50	44	40		44	39	36		38
6	66	54	46	40	61	51	44	39	45	39	35		40	35	32		35
7	61	49	41	36	57	46	39	34	41	35	31		36	32	28		32
8	57	45	37	32	53	42	35	30	38	32	28		33	29	25		29
9	53	41	34	29	50	39	32	27	35	29	25		31	26	23		27
10	50	38	31	26	47	36	29	25	32	27	23		29	24	21		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2607	2607	2607
5°	2611	2566	2582
10°	2586	2516	2498
15°	2550	2433	2368
20°	2503	2318	2209
25°	2455	2190	2055
30°	2391	2059	1860
35°	2328	1917	1689
40°	2263	1771	1492
45°	2188	1608	1314
50°	2111	1444	1140
55°	2031	1269	973
60°	1937	1086	801
65°	1830	899	721
70°	1700	726	653
75°	1537	640	594
80°	1300	538	516
85°	909	360	388

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2188 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	2.7
10°-20°	902.0	7.4
20°-30°	1266.4	10.4
30°-40°	1380.4	11.3
40°-50°	1268.7	10.4
50°-60°	996.4	8.2
60°-70°	648.6	5.3
70°-80°	333.9	2.7
80°-90°	90.3	0.7
90°-100°	110.7	0.9
100°-110°	351.6	2.9
110°-120°	601.7	4.9
120°-130°	791.4	6.5
130°-140°	888.3	7.3
140°-150°	871.1	7.1
150°-160°	730.7	6.0
160°-170°	484.6	4.0
170°-180°	169.4	1.4
0°-30°	2496.9	20.4
0°-40°	3877.3	31.7
0°-60°	6142.5	50.3
0°-90°	7215.2	59.1
90°-120°	1064.0	8.7
90°-150°	3614.9	29.6
90°-180°	5000.0	40.9
0°-180°	12214.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3334	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1919	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	2	19	53	50	51	12
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°	3505.8	3505.8	3505.8	3505.8	3505.8
2.5°	3521.7	3505.8	3470.8	3502.8	3496.4
5°	3505.8	3490.0	3448.6	3477.2	3467.7
7.5°	3477.2	3458.3	3413.9	3426.4	3410.5
10°	3439.2	3416.9	3353.7	3343.9	3325.0
12.5°	3391.7	3363.1	3277.3	3258.4	3223.4
15°	3334.5	3299.5	3191.8	3131.5	3099.9
17.5°	3267.8	3217.0	3083.7	3014.0	2963.2
20°	3191.8	3128.2	2969.5	2890.5	2820.4
22.5°	3109.3	3036.3	2852.1	2744.4	2697.0
25°	3026.8	2925.1	2715.8	2585.8	2538.1
27.5°	2928.5	2820.4	2588.9	2439.8	2366.7
30°	2823.8	2703.0	2449.2	2287.6	2201.8
32.5°	2722.1	2576.0	2316.2	2125.7	2046.3
35°	2608.1	2446.2	2167.1	1967.2	1897.2
37.5°	2497.0	2322.3	2027.4	1808.3	1729.2
40°	2379.5	2189.3	1881.3	1656.2	1573.7
42.5°	2259.0	2056.1	1735.5	1500.6	1421.5
45°	2132.1	1919.4	1586.4	1360.9	1284.8
47.5°	2011.6	1786.4	1443.7	1218.2	1148.5
50°	1878.3	1653.1	1304.0	1084.9	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.1
55°	1621.1	1373.7	1031.0	840.9	780.6
57.5°	1491.2	1237.4	907.5	729.8	679.0
60°	1357.9	1104.0	777.3	615.6	564.8
62.5°	1228.0	974.2	666.2	514.0	488.8
65°	1094.6	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.5	472.6	307.6	282.4	276.1
75°	583.7	361.5	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.8	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
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	11.28	12.19	12.17	13.09	14.23	7.26	8.17	8.14	9.06	10.20
	3H	12.97	13.78	13.86	14.69	15.85	8.45	9.27	9.35	10.17	11.34
	4H	13.58	14.35	14.49	15.26	16.44	8.91	9.68	9.82	10.59	11.76
	6H	14.01	14.71	14.93	15.63	16.82	9.23	9.94	10.16	10.86	12.05
	8H	14.14	14.81	15.07	15.75	16.93	9.33	10.00	10.26	10.94	12.12
	12H	14.20	14.84	15.13	15.77	16.98	9.38	10.02	10.31	10.95	12.16
4H	2H	11.31	12.08	12.23	12.99	14.17	7.86	8.63	8.78	9.54	10.72
	3H	13.15	13.79	14.07	14.73	15.92	9.22	9.86	10.15	10.80	11.99
	4H	13.84	14.43	14.78	15.37	16.58	9.77	10.36	10.71	11.29	12.51
	6H	14.37	14.87	15.32	15.83	17.04	10.20	10.70	11.15	11.66	12.88
	8H	14.54	15.01	15.49	15.97	17.19	10.33	10.80	11.28	11.76	12.98
	12H	14.64	15.06	15.61	16.04	17.27	10.40	10.82	11.37	11.80	13.03
8H	4H	13.82	14.29	14.77	15.24	16.47	10.06	10.53	11.01	11.48	12.71
	6H	14.39	14.78	15.37	15.77	17.00	10.58	10.97	11.56	11.97	13.20
	8H	14.61	14.95	15.59	15.94	17.18	10.78	11.12	11.76	12.11	13.35
	12H	14.75	15.05	15.74	16.03	17.32	10.90	11.20	11.89	12.18	13.47
12H	4H	13.77	14.20	14.74	15.17	16.40	10.07	10.49	11.04	11.46	12.70
	6H	14.36	14.71	15.35	15.69	16.94	10.63	10.98	11.62	11.96	13.21
	8H	14.59	14.89	15.58	15.87	17.16	10.85	11.15	11.84	12.13	13.42