

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: P927089

Luminaire Tested: DFN2DIP-HX4F0-100D040US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927089
REPORT IS A COMBINATION OF REPORTS P899312 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D040US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

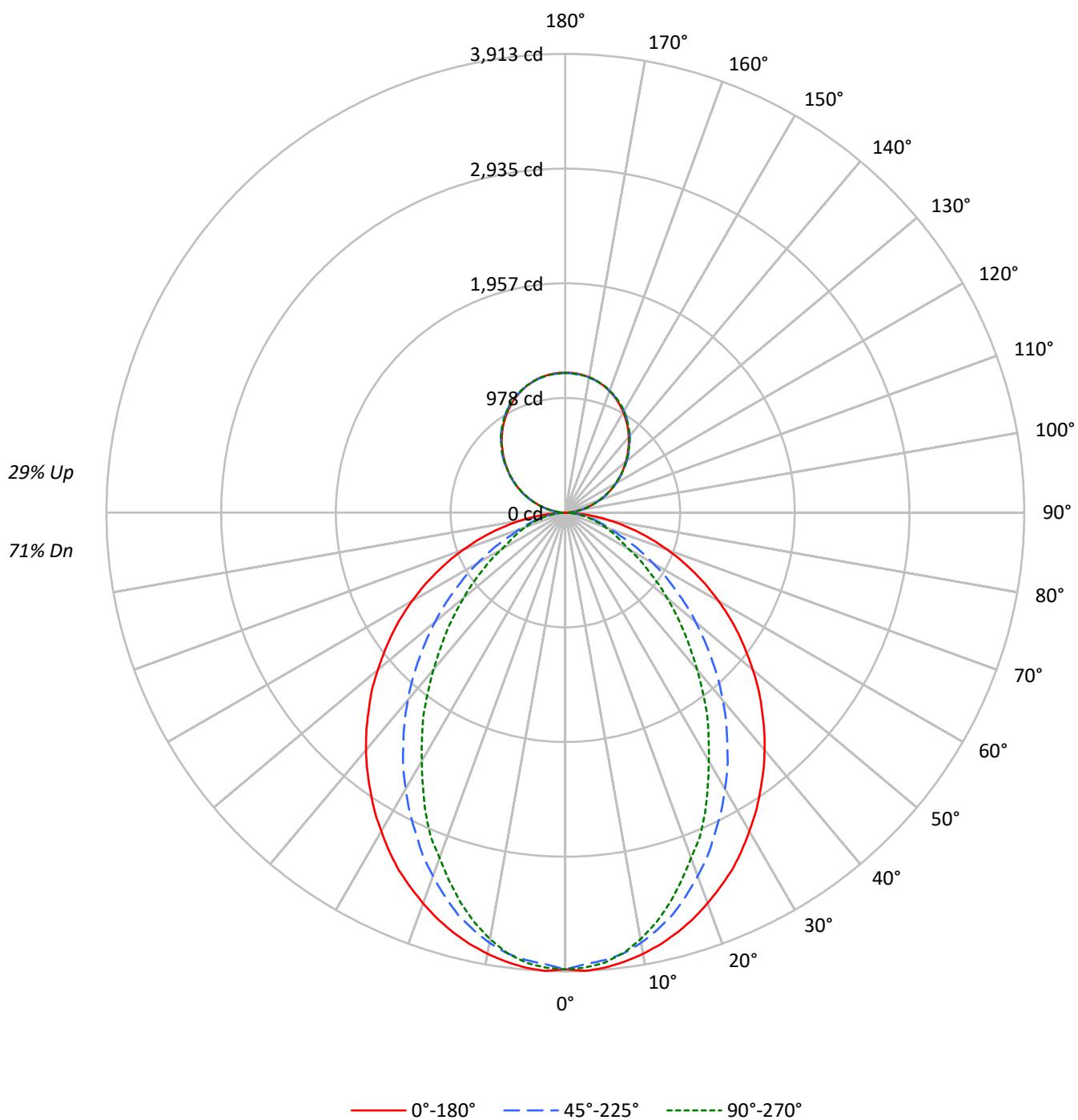
Lumens per Lamp: N/A
Luminaire Lumens: 11347.7 lumens
Efficiency: N/A
Efficacy: 87.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 129.5
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

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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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	75	75	75
1	103	99	95	92	97	94	90	88	84	82	79	76	74	72	67	66	65
2	94	87	81	76	89	83	78	73	75	71	67	67	64	61	60	58	56
3	87	77	70	64	82	74	67	62	67	61	57	60	56	53	54	51	48
4	80	69	61	55	75	66	59	53	60	54	49	54	49	46	49	45	42
5	74	62	54	48	69	59	52	46	54	48	43	49	44	40	44	40	37
6	68	56	48	42	64	54	46	41	49	43	38	44	39	36	40	36	33
7	63	51	43	37	60	49	41	36	45	38	34	41	36	32	37	33	30
8	59	47	39	33	56	45	37	32	41	35	31	37	32	29	34	30	27
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	28	24
10	52	39	32	27	49	38	31	27	35	29	25	32	27	24	30	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2896	2896	2896
5°	2901	2851	2869
10°	2873	2795	2776
15°	2834	2703	2631
20°	2781	2576	2454
25°	2728	2433	2284
30°	2656	2287	2067
35°	2586	2130	1876
40°	2515	1968	1658
45°	2432	1787	1460
50°	2346	1605	1267
55°	2256	1410	1081
60°	2153	1206	890
65°	2033	999	801
70°	1889	806	725
75°	1707	711	660
80°	1444	598	573
85°	1010	400	431

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2432 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.1	3.2
10°-20°	1002.2	8.8
20°-30°	1407.1	12.4
30°-40°	1533.8	13.5
40°-50°	1409.7	12.4
50°-60°	1107.1	9.8
60°-70°	720.6	6.4
70°-80°	370.9	3.3
80°-90°	98.1	0.9
90°-100°	73.8	0.7
100°-110°	234.4	2.1
110°-120°	401.2	3.5
120°-130°	527.6	4.6
130°-140°	592.2	5.2
140°-150°	580.7	5.1
150°-160°	487.2	4.3
160°-170°	323.1	2.8
170°-180°	112.9	1.0
0°-30°	2774.3	24.4
0°-40°	4308.1	38.0
0°-60°	6825.0	60.1
0°-90°	8014.6	70.6
90°-120°	709.4	6.3
90°-150°	2409.9	21.2
90°-180°	3333.0	29.4
0°-180°	11347.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3895	3895	3895	3895	3895	
5°	3895	3878	3832	3864	3853	369
15°	3705	3666	3546	3479	3444	1044
25°	3363	3250	3018	2873	2820	1547
35°	2898	2718	2408	2186	2108	1814
45°	2369	2133	1763	1512	1428	1829
55°	1801	1526	1146	934	867	1610
65°	1216	930	613	494	483	1206
75°	648	402	282	257	254	686
85°	152	77	67	67	67	174
90°	1	13	35	33	34	11
95°	52	63	64	64	63	58
105°	216	219	221	223	223	228
115°	402	408	406	406	402	398
125°	586	594	592	588	587	523
135°	757	768	771	770	767	585
145°	920	927	932	934	930	575
155°	1051	1054	1058	1063	1059	484
165°	1144	1143	1143	1150	1145	323
175°	1190	1187	1185	1192	1186	113
180°	1192	1192	1192	1192	1192	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3895.4	3895.4	3895.4	3895.4	3895.4
2.5°	3912.9	3895.4	3856.4	3892.0	3884.9
5°	3895.4	3877.7	3831.7	3863.6	3853.0
7.5°	3863.6	3842.6	3793.2	3807.0	3789.5
10°	3821.3	3796.6	3726.3	3715.4	3694.5
12.5°	3768.6	3736.7	3641.3	3620.4	3581.5
15°	3705.0	3666.0	3546.3	3479.4	3444.3
17.5°	3630.9	3574.4	3426.4	3348.9	3292.4
20°	3546.3	3475.7	3299.5	3211.7	3133.8
22.5°	3454.7	3373.6	3169.0	3049.4	2996.6
25°	3363.1	3250.2	3017.5	2873.1	2820.1
27.5°	3253.9	3133.8	2876.5	2710.8	2629.7
30°	3137.6	3003.3	2721.3	2541.8	2446.4
32.5°	3024.7	2862.3	2573.6	2361.9	2273.6
35°	2897.8	2718.0	2407.9	2185.8	2107.9
37.5°	2774.4	2580.3	2252.7	2009.2	1921.3
40°	2643.9	2432.6	2090.4	1840.1	1748.5
42.5°	2510.0	2284.4	1928.4	1667.4	1579.4
45°	2369.0	2132.6	1762.8	1512.1	1427.6
47.5°	2235.1	1984.9	1604.1	1353.5	1276.1
50°	2087.0	1836.7	1448.9	1205.5	1131.8
52.5°	1942.2	1677.8	1300.8	1068.1	1001.2
55°	1801.2	1526.4	1145.6	934.3	867.3
57.5°	1656.9	1374.8	1008.4	810.8	754.4
60°	1508.8	1226.8	863.6	684.1	627.6
62.5°	1364.4	1082.4	740.1	571.2	543.1
65°	1216.3	930.5	613.4	493.7	482.8
67.5°	1075.3	789.5	493.7	433.5	423.0
70°	927.1	652.3	408.8	373.6	359.5
72.5°	786.1	525.1	341.8	313.8	306.7
75°	648.5	401.7	282.0	257.3	253.9
77.5°	511.3	285.4	222.1	207.9	200.8
80°	384.1	204.6	169.1	155.2	155.2
82.5°	267.8	137.6	116.3	109.2	109.2
85°	151.5	77.4	66.9	66.9	66.9
87.5°	56.5	28.1	28.1	24.7	24.7
90°	1.0	12.9	35.2	33.1	34.1
92.5°	22.2	30.2	31.3	32.3	32.3
95°	52.5	62.6	64.4	64.4	62.6
97.5°	87.4	96.7	100.7	100.7	100.7
100°	127.6	135.9	138.7	138.7	137.7
102.5°	170.0	176.2	180.1	181.1	180.1
105°	216.4	219.2	221.4	223.2	223.2
107.5°	262.4	266.7	266.7	267.4	262.4
110°	307.0	312.7	312.7	312.7	309.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	355.1	361.3	360.1	357.3	355.1
115°	402.5	408.4	406.5	405.5	402.5
117.5°	449.7	457.6	452.6	449.7	446.8
120°	497.2	505.0	497.2	497.2	493.9
122.5°	540.2	550.3	545.3	542.4	540.2
125°	585.6	594.5	591.7	588.4	587.4
127.5°	629.8	640.9	636.9	632.6	629.8
130°	671.1	684.1	682.3	680.1	676.1
132.5°	717.4	727.5	728.3	723.2	720.4
135°	757.4	768.5	770.7	769.6	766.7
137.5°	802.0	810.9	812.7	812.0	807.7
140°	841.1	850.1	855.1	855.1	851.2
142.5°	881.4	890.4	893.2	894.3	890.4
145°	919.5	926.7	932.4	933.5	929.6
147.5°	953.6	962.6	966.9	968.7	964.7
150°	988.9	995.0	999.0	1002.2	999.0
152.5°	1020.2	1026.2	1031.3	1035.2	1031.3
155°	1051.4	1054.3	1057.5	1062.6	1059.3
157.5°	1078.4	1080.5	1082.3	1089.5	1084.4
160°	1102.4	1104.6	1105.6	1111.8	1107.4
162.5°	1124.7	1124.7	1125.8	1132.6	1127.6
165°	1143.8	1142.7	1142.7	1149.8	1144.9
167.5°	1161.1	1157.8	1157.8	1165.0	1159.9
170°	1174.0	1171.1	1170.0	1177.2	1171.1
172.5°	1182.9	1180.1	1179.0	1186.2	1180.1
175°	1190.2	1187.3	1185.1	1192.3	1186.2
177.5°	1194.1	1191.2	1189.1	1195.2	1189.1
180°	1192.3	1192.3	1192.3	1192.3	1192.3

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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	12.58	13.62	13.35	14.40	15.34	8.56	9.59	9.32	10.37	11.32
	3H	14.28	15.20	15.06	15.99	16.97	9.76	10.69	10.54	11.48	12.45
	4H	14.90	15.77	15.69	16.57	17.55	10.22	11.09	11.02	11.89	12.88
	6H	15.33	16.13	16.14	16.94	17.94	10.56	11.36	11.36	12.17	13.17
	8H	15.46	16.22	16.28	17.05	18.05	10.65	11.42	11.47	12.24	13.24
	12H	15.53	16.26	16.35	17.08	18.10	10.70	11.43	11.53	12.25	13.28
4H	2H	12.63	13.50	13.43	14.30	15.28	9.18	10.05	9.98	10.85	11.84
	3H	14.48	15.20	15.29	16.03	17.04	10.55	11.27	11.36	12.10	13.11
	4H	15.18	15.83	16.00	16.67	17.70	11.10	11.76	11.93	12.59	13.63
	6H	15.70	16.27	16.55	17.13	18.16	11.54	12.10	12.38	12.96	14.00
	8H	15.88	16.41	16.73	17.26	18.31	11.67	12.20	12.52	13.05	14.10
	12H	15.99	16.46	16.85	17.34	18.39	11.75	12.22	12.61	13.09	14.15
8H	4H	15.16	15.69	16.00	16.54	17.59	11.40	11.93	12.25	12.78	13.83
	6H	15.73	16.17	16.61	17.07	18.12	11.93	12.36	12.80	13.26	14.31
	8H	15.95	16.34	16.84	17.23	18.30	12.12	12.51	13.01	13.40	14.47
	12H	16.10	16.44	16.99	17.32	18.44	12.25	12.59	13.14	13.47	14.59
12H	4H	15.12	15.60	15.98	16.47	17.52	11.41	11.89	12.28	12.76	13.82
	6H	15.71	16.10	16.59	16.99	18.05	11.98	12.37	12.86	13.26	14.32
	8H	15.94	16.28	16.83	17.16	18.28	12.20	12.54	13.08	13.42	14.54