

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: P926904

Luminaire Tested: DFN2DIP-HX4F0-040D120US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926904
REPORT IS A COMBINATION OF REPORTS P900963 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D120US830-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

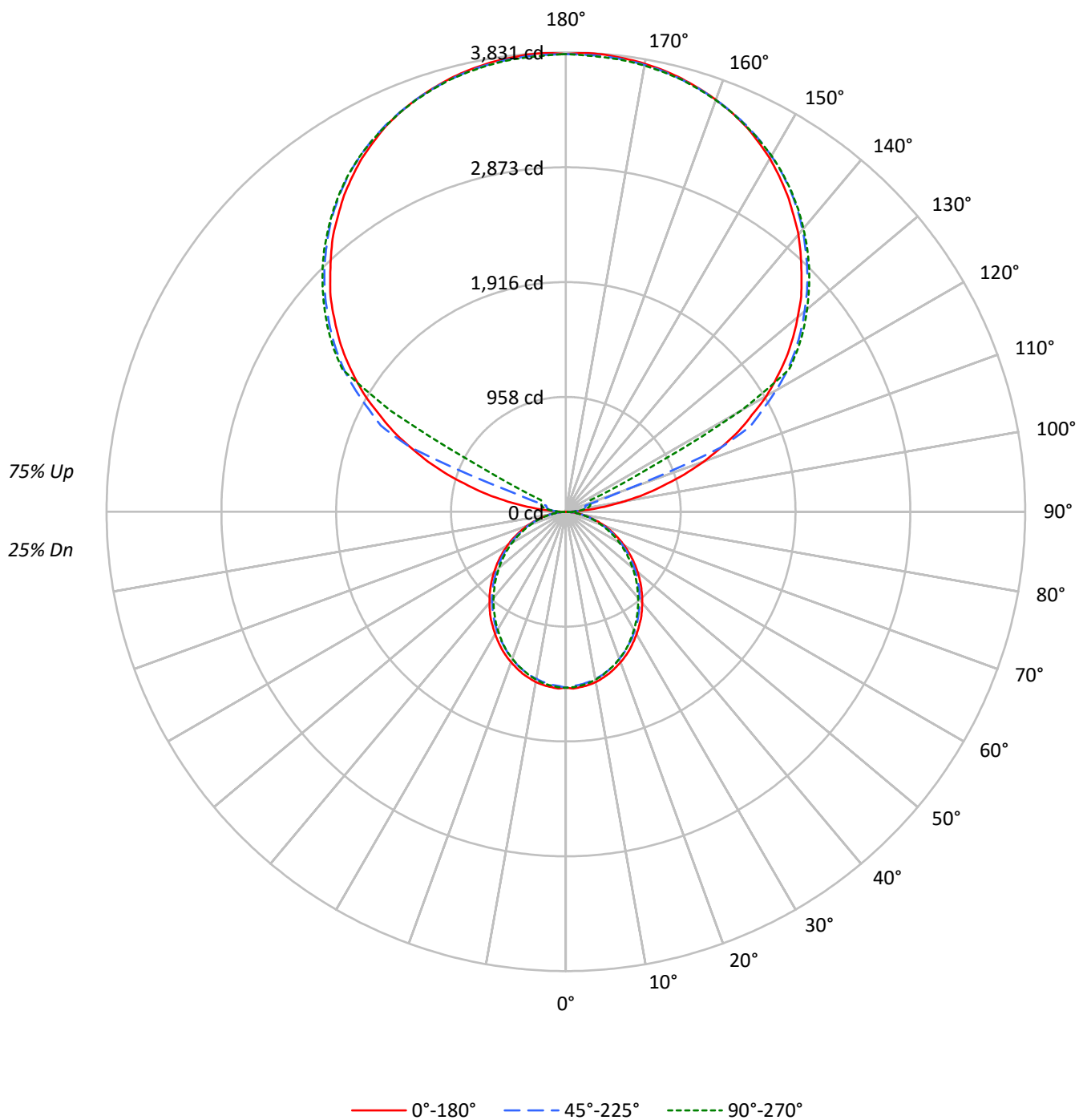
Lumens per Lamp: N/A
Luminaire Lumens: 14929.2 lumens
Efficiency: N/A
Efficacy: 115.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 129.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1091	1091	1091
5°	1093	1076	1083
10°	1084	1061	1068
15°	1068	1044	1045
20°	1046	1020	1022
25°	1025	991	995
30°	998	964	960
35°	973	932	924
40°	942	900	889
45°	911	868	854
50°	877	834	813
55°	841	795	775
60°	801	749	732
65°	757	701	681
70°	701	643	626
75°	624	573	576
80°	531	484	479
85°	385	329	319

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1961 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	0.9
10°-20°	388.5	2.6
20°-30°	570.9	3.8
30°-40°	663.1	4.4
40°-50°	662.2	4.4
50°-60°	577.4	3.9
60°-70°	426.9	2.9
70°-80°	241.5	1.6
80°-90°	70.5	0.5
90°-100°	125.9	0.8
100°-110°	469.2	3.1
110°-120°	1244.4	8.3
120°-130°	2063.9	13.8
130°-140°	2192.3	14.7
140°-150°	2037.5	13.6
150°-160°	1638.1	11.0
160°-170°	1055.6	7.1
170°-180°	363.3	2.4
0°-30°	1097.4	7.4
0°-40°	1760.5	11.8
0°-60°	3000.2	20.1
0°-90°	3739.0	25.0
90°-120°	1839.4	12.3
90°-150°	8133.2	54.5
90°-180°	11190.0	75.0
0°-180°	14929.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	3	33	55	69	74	14
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2281	2334	2353	2361	2003
135°	2779	2823	2848	2875	2870	2146
145°	3223	3220	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3731	3751	3731	1057
175°	3825	3806	3811	3831	3803	364
180°	3817	3817	3817	3817	3817	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1466.9	1466.9	1466.9	1466.9	1466.9
2.5°	1475.5	1468.4	1452.9	1466.9	1464.3
5°	1466.9	1461.3	1445.8	1457.0	1454.4
7.5°	1457.0	1448.6	1433.1	1444.5	1441.6
10°	1441.6	1431.8	1414.9	1426.1	1421.9
12.5°	1420.3	1412.0	1395.1	1402.2	1399.2
15°	1396.4	1388.0	1369.6	1375.3	1368.3
17.5°	1366.8	1358.4	1340.0	1347.0	1340.0
20°	1334.3	1325.9	1306.2	1310.4	1304.9
22.5°	1302.0	1289.2	1270.9	1270.9	1268.0
25°	1263.8	1252.6	1228.6	1231.4	1228.6
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1167.9	1146.8	1142.6	1136.9
32.5°	1134.1	1125.7	1103.1	1094.6	1088.9
35°	1090.4	1076.3	1053.7	1045.2	1038.2
37.5°	1041.0	1028.3	1005.6	995.8	988.8
40°	990.3	978.9	956.3	943.7	938.1
42.5°	940.9	929.5	907.1	892.8	884.4
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.6	787.1	778.7
50°	780.0	772.9	753.2	733.5	726.4
52.5°	726.4	716.6	698.3	682.7	672.9
55°	671.5	663.0	646.1	629.1	622.1
57.5°	616.4	609.4	590.9	574.1	568.4
60°	561.4	555.8	536.1	520.5	516.3
62.5°	507.8	497.9	483.9	469.7	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.5	325.8	315.9	310.4
72.5°	290.7	284.9	277.9	268.0	263.8
75°	236.9	234.2	227.0	218.7	221.5
77.5°	189.0	183.3	180.5	176.2	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	95.9	95.9	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.6	168.6	198.8	209.9
107.5°	1035.7	1104.6	174.2	204.3	215.5
110°	1223.6	1281.4	483.4	207.3	218.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1449.9	1403.1	212.5	221.0
115°	1588.0	1635.0	1704.1	425.4	226.7
117.5°	1751.1	1806.2	1853.4	1458.1	734.7
120°	1933.4	1974.7	2024.6	2057.8	1684.8
122.5°	2087.9	2132.2	2187.6	2204.0	2207.0
125°	2245.3	2281.4	2333.9	2353.2	2361.4
127.5°	2389.0	2427.7	2469.4	2496.9	2499.5
130°	2524.4	2568.7	2598.8	2629.4	2626.7
132.5°	2662.5	2698.6	2728.7	2753.7	2751.1
135°	2778.6	2822.9	2847.5	2875.4	2869.8
137.5°	2900.0	2933.1	2961.0	2988.5	2980.3
140°	3018.7	3041.0	3071.1	3096.1	3082.4
142.5°	3118.4	3137.8	3173.5	3195.5	3181.7
145°	3223.4	3220.4	3267.3	3286.7	3272.8
147.5°	3314.2	3306.0	3352.9	3366.7	3355.9
150°	3402.7	3383.4	3427.7	3444.1	3430.3
152.5°	3477.2	3455.2	3496.6	3513.3	3493.9
155°	3549.0	3524.4	3557.6	3574.0	3552.0
157.5°	3607.0	3585.1	3610.1	3629.4	3607.0
160°	3656.9	3640.2	3656.9	3673.3	3654.0
162.5°	3700.9	3684.5	3698.3	3717.6	3692.7
165°	3739.6	3723.2	3731.4	3750.8	3731.4
167.5°	3770.1	3753.3	3761.9	3781.2	3756.3
170°	3795.0	3778.3	3783.9	3803.2	3778.3
172.5°	3811.4	3795.0	3800.6	3820.0	3795.0
175°	3825.1	3805.8	3811.4	3830.8	3803.2
177.5°	3830.8	3811.4	3814.4	3833.7	3808.8
180°	3817.0	3817.0	3817.0	3817.0	3817.0

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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	4.63	5.31	5.78	6.44	8.03	4.20	4.87	5.35	6.01	7.60
	3H	6.28	6.88	7.43	8.03	9.63	5.81	6.41	6.96	7.55	9.16
	4H	6.86	7.43	8.02	8.58	10.18	6.39	6.96	7.55	8.10	9.71
	6H	7.25	7.78	8.42	8.92	10.54	6.77	7.30	7.94	8.45	10.07
	8H	7.35	7.85	8.52	9.01	10.62	6.87	7.38	8.05	8.54	10.15
	12H	7.39	7.87	8.57	9.02	10.66	6.91	7.39	8.09	8.54	10.17
4H	2H	5.07	5.65	6.24	6.79	8.40	4.73	5.30	5.90	6.44	8.05
	3H	6.92	7.40	8.10	8.57	10.19	6.53	7.01	7.70	8.18	9.80
	4H	7.63	8.07	8.80	9.23	10.86	7.22	7.66	8.40	8.82	10.46
	6H	8.13	8.51	9.31	9.69	11.32	7.72	8.10	8.91	9.28	10.91
	8H	8.28	8.63	9.46	9.80	11.45	7.87	8.22	9.05	9.39	11.04
	12H	8.34	8.66	9.54	9.84	11.50	7.92	8.24	9.12	9.42	11.07
8H	4H	7.81	8.16	8.99	9.33	10.98	7.45	7.80	8.63	8.97	10.62
	6H	8.43	8.73	9.63	9.94	11.58	8.07	8.36	9.27	9.58	11.22
	8H	8.65	8.91	9.86	10.10	11.76	8.29	8.54	9.49	9.73	11.39
	12H	8.78	9.00	9.99	10.19	11.88	8.39	8.62	9.60	9.80	11.50
12H	4H	7.79	8.11	8.98	9.29	10.94	7.44	7.75	8.63	8.94	10.59
	6H	8.46	8.72	9.67	9.91	11.57	8.11	8.36	9.32	9.56	11.22
	8H	8.70	8.92	9.91	10.11	11.80	8.34	8.56	9.55	9.75	11.44