

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: P926899

Luminaire Tested: DFN2DIP-HX4F0-040D110US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926899
REPORT IS A COMBINATION OF REPORTS P899425 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D110US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

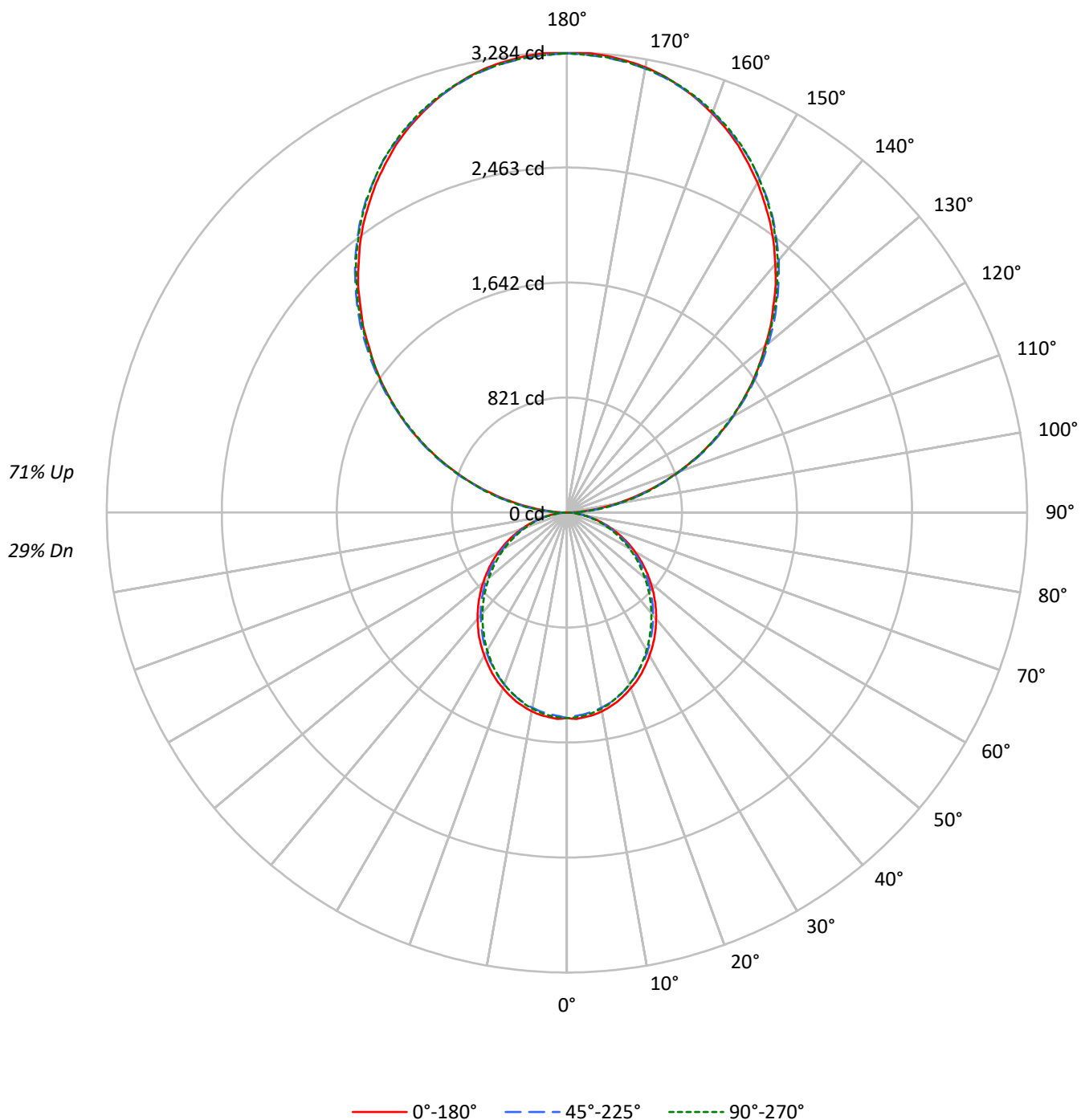
Lumens per Lamp: N/A
Luminaire Lumens: 12907.5 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 120.5
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

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: 2472 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.1
10°-20°	388.5	3.0
20°-30°	570.9	4.4
30°-40°	663.1	5.1
40°-50°	662.2	5.1
50°-60°	577.4	4.5
60°-70°	426.9	3.3
70°-80°	241.5	1.9
80°-90°	73.1	0.6
90°-100°	202.9	1.6
100°-110°	644.7	5.0
110°-120°	1103.2	8.5
120°-130°	1450.9	11.2
130°-140°	1628.6	12.6
140°-150°	1597.0	12.4
150°-160°	1339.7	10.4
160°-170°	888.4	6.9
170°-180°	310.5	2.4
0°-30°	1097.4	8.5
0°-40°	1760.5	13.6
0°-60°	3000.2	23.2
0°-90°	3741.6	29.0
90°-120°	1950.8	15.1
90°-150°	6627.3	51.3
90°-180°	9166.0	71.0
0°-180°	12907.5	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	36	97	91	94	13
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2113	2119	2116	2108	1610
145°	2528	2548	2564	2567	2556	1580
155°	2891	2899	2908	2922	2913	1331
165°	3145	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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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°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.2	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	608.9	613.9	613.9
107.5°	721.6	733.5	733.5	735.4	721.6
110°	844.2	860.0	860.0	860.0	852.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.6	993.4	990.5	982.6	976.6
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.3	1244.5	1236.7	1228.7
120°	1367.1	1388.9	1367.1	1367.1	1358.2
122.5°	1485.8	1513.4	1499.5	1491.6	1485.8
125°	1610.3	1635.0	1627.0	1618.2	1615.2
127.5°	1731.8	1762.5	1751.6	1739.8	1731.8
130°	1845.5	1881.1	1876.1	1870.2	1859.4
132.5°	1973.0	2000.7	2002.7	1988.9	1980.9
135°	2082.7	2113.4	2119.3	2116.4	2108.5
137.5°	2205.4	2230.0	2235.0	2233.0	2221.2
140°	2313.1	2337.8	2351.6	2351.6	2340.8
142.5°	2423.8	2448.5	2456.4	2459.4	2448.5
145°	2528.5	2548.3	2564.2	2567.1	2556.2
147.5°	2622.5	2647.2	2659.1	2664.0	2653.1
150°	2719.4	2736.2	2747.0	2756.0	2747.0
152.5°	2805.4	2822.1	2836.0	2846.9	2836.0
155°	2891.4	2899.2	2908.2	2922.0	2913.1
157.5°	2965.5	2971.4	2976.3	2996.1	2982.3
160°	3031.7	3037.7	3040.6	3057.5	3045.6
162.5°	3093.0	3093.0	3096.0	3114.8	3100.9
165°	3145.4	3142.4	3142.4	3162.2	3148.3
167.5°	3192.8	3184.0	3184.0	3203.7	3189.9
170°	3228.4	3220.5	3217.6	3237.3	3220.5
172.5°	3253.1	3245.2	3242.3	3262.1	3245.2
175°	3272.9	3265.0	3259.1	3278.9	3262.1
177.5°	3283.8	3275.8	3269.9	3286.8	3269.9
180°	3278.9	3278.9	3278.9	3278.9	3278.9

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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	5.22	5.92	6.34	7.03	8.57	4.79	5.49	5.90	6.60	8.14
	3H	6.87	7.49	7.99	8.61	10.17	6.39	7.02	7.52	8.14	9.70
	4H	7.45	8.04	8.58	9.16	10.73	6.97	7.57	8.11	8.69	10.25
	6H	7.84	8.39	8.98	9.51	11.09	7.36	7.91	8.51	9.03	10.61
	8H	7.94	8.46	9.09	9.60	11.17	7.46	7.99	8.61	9.12	10.69
	12H	7.98	8.48	9.13	9.61	11.20	7.50	8.00	8.65	9.13	10.72
4H	2H	5.66	6.25	6.80	7.38	8.94	5.31	5.91	6.46	7.03	8.60
	3H	7.51	8.01	8.66	9.16	10.73	7.12	7.62	8.27	8.76	10.34
	4H	8.22	8.68	9.37	9.81	11.41	7.81	8.27	8.97	9.41	11.00
	6H	8.73	9.12	9.88	10.28	11.86	8.32	8.71	9.48	9.87	11.45
	8H	8.87	9.24	10.03	10.39	11.99	8.46	8.83	9.62	9.98	11.58
	12H	8.94	9.27	10.11	10.43	12.04	8.52	8.85	9.69	10.01	11.62
8H	4H	8.40	8.77	9.56	9.92	11.52	8.04	8.41	9.20	9.56	11.16
	6H	9.03	9.33	10.21	10.52	12.12	8.67	8.97	9.84	10.16	11.76
	8H	9.25	9.51	10.43	10.68	12.30	8.88	9.14	10.06	10.31	11.94
	12H	9.37	9.61	10.56	10.77	12.43	8.99	9.22	10.18	10.39	12.04
12H	4H	8.38	8.71	9.56	9.88	11.48	8.03	8.36	9.20	9.52	11.13
	6H	9.06	9.32	10.24	10.49	12.11	8.71	8.97	9.89	10.14	11.76
	8H	9.29	9.52	10.48	10.69	12.35	8.94	9.17	10.12	10.34	11.99

END OF REPORT