

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: P929110

Luminaire Tested: DFN2DIP-HX4F0-120D050US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929110
REPORT IS A COMBINATION OF REPORTS P900854 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D050US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

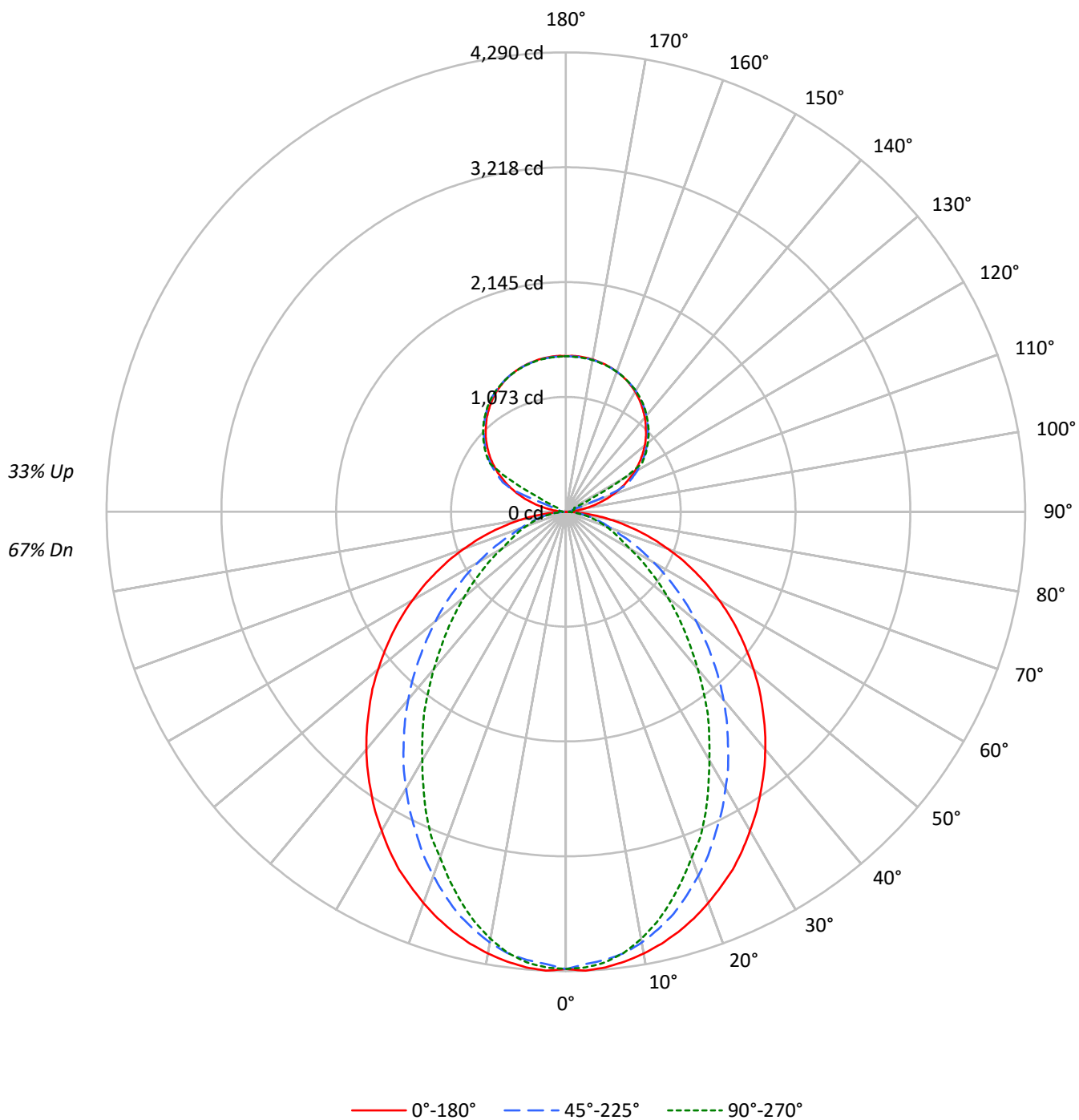
Lumens per Lamp: N/A
Luminaire Lumens: 13044.2 lumens
Efficiency: N/A
Efficacy: 79.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62
2	94	86	80	75	88	82	77	72	73	69	66	65	62	59	58	55	53
3	86	77	69	64	81	73	66	61	65	60	56	58	54	51	52	49	46
4	79	68	61	55	74	65	58	52	58	53	48	52	48	44	47	43	40
5	73	61	53	47	69	58	51	46	53	47	42	47	43	39	42	39	36
6	67	55	47	42	63	53	45	40	48	42	37	43	38	34	39	35	32
7	63	50	42	37	59	48	41	36	44	38	33	39	35	31	36	32	28
8	58	46	38	33	55	44	37	32	40	34	30	36	31	28	33	29	26
9	54	42	35	30	51	40	33	29	37	31	27	34	29	25	30	26	23
10	51	39	32	27	48	37	31	26	34	28	25	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3175	3175	3175
5°	3180	3125	3145
10°	3149	3064	3043
15°	3106	2963	2885
20°	3049	2824	2691
25°	2991	2668	2503
30°	2912	2507	2266
35°	2835	2335	2057
40°	2757	2157	1817
45°	2666	1959	1600
50°	2572	1759	1388
55°	2473	1546	1185
60°	2360	1323	975
65°	2229	1095	878
70°	2071	884	795
75°	1872	780	724
80°	1583	655	628
85°	1107	439	473

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2666 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	400.2	3.1
10°-20°	1098.7	8.4
20°-30°	1542.5	11.8
30°-40°	1681.4	12.9
40°-50°	1545.4	11.8
50°-60°	1213.7	9.3
60°-70°	790.0	6.1
70°-80°	406.7	3.1
80°-90°	106.4	0.8
90°-100°	47.9	0.4
100°-110°	178.6	1.4
110°-120°	473.7	3.6
120°-130°	785.6	6.0
130°-140°	834.5	6.4
140°-150°	775.6	5.9
150°-160°	623.5	4.8
160°-170°	401.8	3.1
170°-180°	138.3	1.1
0°-30°	3041.3	23.3
0°-40°	4722.7	36.2
0°-60°	7481.8	57.4
0°-90°	8784.8	67.3
90°-120°	700.2	5.4
90°-150°	3095.8	23.7
90°-180°	4259.0	32.7
0°-180°	13044.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4270	4270	4270	4270	4270	
5°	4270	4251	4200	4235	4224	405
15°	4062	4019	3888	3814	3776	1144
25°	3687	3563	3308	3150	3091	1696
35°	3177	2980	2640	2396	2311	1988
45°	2597	2338	1932	1658	1565	2006
55°	1975	1673	1256	1024	951	1764
65°	1333	1020	672	541	529	1322
75°	711	440	309	282	278	752
85°	166	85	73	73	73	191
90°	1	13	21	26	28	12
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	623
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4270.2	4270.2	4270.2	4270.2	4270.2
2.5°	4289.5	4270.2	4227.6	4266.5	4258.7
5°	4270.2	4250.9	4200.5	4235.3	4223.9
7.5°	4235.3	4212.4	4158.3	4173.4	4154.2
10°	4189.0	4162.0	4084.8	4073.0	4050.1
12.5°	4131.2	4096.4	3991.8	3968.9	3926.2
15°	4061.5	4018.9	3887.7	3814.2	3775.7
17.5°	3980.3	3918.4	3756.0	3671.2	3609.3
20°	3887.7	3810.2	3617.1	3520.7	3435.4
22.5°	3787.2	3698.3	3474.0	3342.7	3285.0
25°	3686.8	3562.9	3307.9	3149.6	3091.4
27.5°	3567.0	3435.4	3153.3	2971.7	2882.7
30°	3439.5	3292.4	2983.2	2786.4	2681.8
32.5°	3315.7	3137.7	2821.2	2589.2	2492.4
35°	3176.7	2979.5	2639.6	2396.1	2310.8
37.5°	3041.4	2828.6	2469.4	2202.5	2106.2
40°	2898.3	2666.7	2291.6	2017.2	1916.8
42.5°	2751.5	2504.3	2114.0	1827.8	1731.5
45°	2596.9	2337.9	1932.3	1657.7	1565.0
47.5°	2450.1	2175.9	1758.5	1483.8	1399.0
50°	2287.8	2013.5	1588.4	1321.5	1240.7
52.5°	2129.2	1839.3	1426.0	1171.0	1097.6
55°	1974.6	1673.3	1255.9	1024.2	950.8
57.5°	1816.3	1507.2	1105.4	888.9	827.0
60°	1654.0	1344.8	946.7	749.9	688.0
62.5°	1495.7	1186.5	811.4	626.1	595.3
65°	1333.3	1020.1	672.4	541.2	529.3
67.5°	1178.8	865.5	541.2	475.2	463.7
70°	1016.4	715.1	448.2	409.6	394.0
72.5°	861.9	575.7	374.7	344.0	336.2
75°	710.9	440.3	309.2	282.1	278.4
77.5°	560.5	312.8	243.6	228.0	220.2
80°	421.1	224.3	185.3	170.1	170.1
82.5°	293.6	150.8	127.5	119.7	119.7
85°	166.1	84.9	73.4	73.4	73.4
87.5°	61.9	30.7	30.7	27.0	27.0
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.3	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.8	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.7	1074.5	1083.8	1094.5	1092.4
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.5	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.4	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1373.0	1364.6	1374.1	1381.5	1373.0
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.1	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.7	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.8
180°	1452.9	1452.9	1452.9	1452.9	1452.9

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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	12.65	13.64	13.45	14.46	15.46	8.62	9.61	9.42	10.43	11.43
	3H	14.34	15.23	15.15	16.05	17.09	9.82	10.71	10.64	11.54	12.57
	4H	14.95	15.79	15.78	16.63	17.67	10.28	11.12	11.11	11.96	13.00
	6H	15.38	16.16	16.23	17.00	18.06	10.61	11.39	11.46	12.23	13.28
	8H	15.52	16.25	16.37	17.11	18.17	10.71	11.44	11.56	12.30	13.36
	12H	15.58	16.28	16.44	17.14	18.22	10.76	11.46	11.62	12.31	13.39
4H	2H	12.69	13.52	13.52	14.36	15.40	9.24	10.07	10.07	10.91	11.95
	3H	14.53	15.23	15.38	16.10	17.15	10.60	11.30	11.45	12.17	13.23
	4H	15.23	15.86	16.09	16.73	17.81	11.16	11.79	12.02	12.66	13.74
	6H	15.75	16.30	16.63	17.19	18.28	11.59	12.13	12.46	13.02	14.11
	8H	15.93	16.44	16.81	17.33	18.43	11.72	12.23	12.60	13.12	14.22
	12H	16.04	16.50	16.93	17.40	18.51	11.80	12.25	12.69	13.16	14.27
8H	4H	15.21	15.72	16.09	16.60	17.71	11.45	11.96	12.33	12.85	13.95
	6H	15.78	16.20	16.69	17.13	18.23	11.98	12.40	12.88	13.33	14.43
	8H	16.00	16.37	16.92	17.29	18.41	12.17	12.54	13.09	13.46	14.58
	12H	16.15	16.48	17.06	17.39	18.56	12.30	12.63	13.22	13.54	14.71
12H	4H	15.17	15.63	16.07	16.53	17.64	11.46	11.92	12.36	12.83	13.93
	6H	15.76	16.13	16.67	17.05	18.17	12.03	12.40	12.94	13.32	14.44
	8H	15.99	16.32	16.90	17.23	18.40	12.25	12.58	13.16	13.49	14.66