

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: P927130

Luminaire Tested: DFN2DIP-HX4F0-110D050US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927130
REPORT IS A COMBINATION OF REPORTS P900852 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D050US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

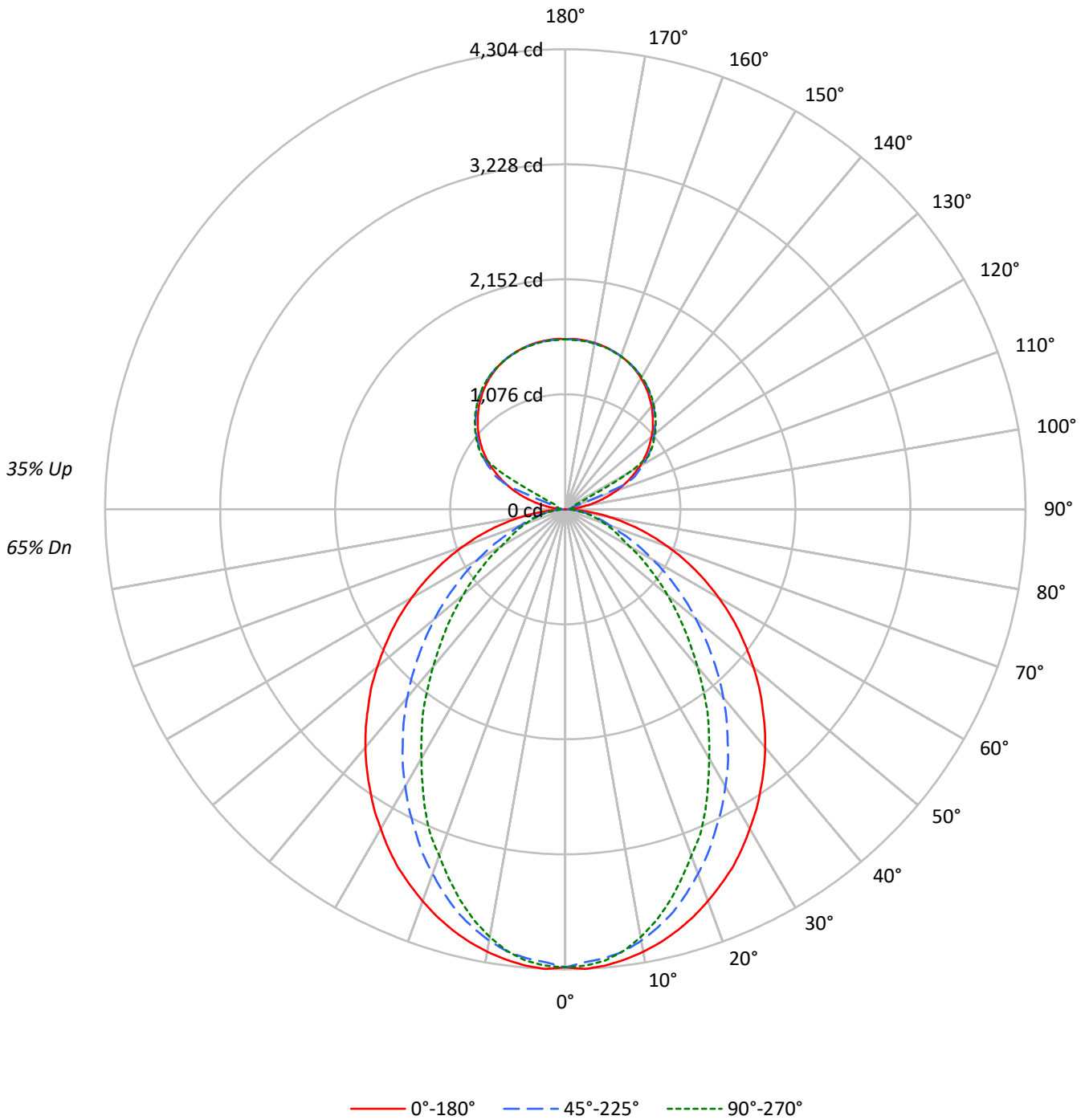
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13477.7 lumens
Efficiency: N/A
Efficacy: 89.9 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): 149.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	70	70	70	65				65
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61	56				56
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	56	54	52	48				48
3	86	76	69	63	80	72	66	61	64	59	55	57	53	50	50	48	45	42				42
4	79	68	60	54	74	64	57	52	58	52	48	51	47	43	46	42	39	36				36
5	72	61	53	47	68	58	51	45	52	46	42	46	42	38	41	38	35	32				32
6	67	55	47	41	63	52	45	40	47	41	37	42	37	34	38	34	31	28				28
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28	25				25
8	58	46	38	33	55	44	36	32	39	34	29	36	31	27	32	28	25	23				23
9	54	42	34	29	51	40	33	28	36	31	27	33	28	25	30	26	23	21				21
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21	19				19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3186	3186	3186
5°	3191	3136	3156
10°	3160	3075	3053
15°	3117	2973	2895
20°	3060	2834	2700
25°	3001	2677	2512
30°	2922	2516	2273
35°	2845	2343	2064
40°	2766	2164	1824
45°	2675	1966	1606
50°	2580	1765	1393
55°	2482	1551	1189
60°	2368	1327	979
65°	2237	1099	881
70°	2078	887	798
75°	1878	782	726
80°	1589	657	630
85°	1111	440	475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2675 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	3.0
10°-20°	1102.4	8.2
20°-30°	1547.8	11.5
30°-40°	1687.2	12.5
40°-50°	1550.7	11.5
50°-60°	1217.8	9.0
60°-70°	792.7	5.9
70°-80°	408.0	3.0
80°-90°	107.0	0.8
90°-100°	52.5	0.4
100°-110°	195.5	1.5
110°-120°	518.5	3.8
120°-130°	860.0	6.4
130°-140°	913.5	6.8
140°-150°	849.0	6.3
150°-160°	682.6	5.1
160°-170°	439.8	3.3
170°-180°	151.4	1.1
0°-30°	3051.8	22.6
0°-40°	4738.9	35.2
0°-60°	7507.5	55.7
0°-90°	8815.2	65.4
90°-120°	766.4	5.7
90°-150°	3388.8	25.1
90°-180°	4663.0	34.6
0°-180°	13477.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4238	406
15°	4076	4033	3901	3827	3789	1148
25°	3699	3575	3319	3160	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2012
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	1	14	23	29	31	13
95°	75	37	45	51	50	89
105°	350	384	70	83	88	374
115°	662	681	710	177	94	651
125°	936	951	972	980	984	834
135°	1158	1176	1186	1198	1196	894
145°	1343	1342	1361	1370	1364	840
155°	1479	1468	1482	1489	1480	681
165°	1558	1551	1555	1563	1555	440
175°	1594	1586	1588	1596	1585	152
180°	1590	1590	1590	1590	1590	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4284.9	4284.9	4284.9	4284.9	4284.9
2.5°	4304.2	4284.9	4242.1	4281.2	4273.4
5°	4284.9	4265.6	4215.0	4249.9	4238.4
7.5°	4249.9	4226.8	4172.5	4187.8	4168.4
10°	4203.5	4176.2	4098.9	4087.0	4064.0
12.5°	4145.4	4110.4	4005.5	3982.4	3939.6
15°	4075.5	4032.7	3901.0	3827.4	3788.7
17.5°	3994.0	3931.9	3769.0	3683.8	3621.7
20°	3901.0	3823.3	3629.5	3532.8	3447.2
22.5°	3800.3	3710.9	3485.9	3354.3	3296.2
25°	3699.4	3575.2	3319.3	3160.5	3102.1
27.5°	3579.3	3447.2	3164.2	2981.9	2892.6
30°	3451.3	3303.7	2993.5	2795.9	2691.0
32.5°	3327.1	3148.5	2830.9	2598.1	2501.0
35°	3187.6	2989.7	2648.7	2404.3	2318.7
37.5°	3051.9	2838.3	2477.9	2210.1	2113.5
40°	2908.3	2675.9	2299.4	2024.1	1923.4
42.5°	2761.0	2512.9	2121.3	1834.1	1737.4
45°	2605.9	2345.9	1939.0	1663.3	1570.4
47.5°	2458.6	2183.4	1764.5	1488.9	1403.8
50°	2295.6	2020.4	1593.9	1326.0	1244.9
52.5°	2136.5	1845.6	1430.9	1175.0	1101.3
55°	1981.3	1679.0	1260.1	1027.7	954.1
57.5°	1822.6	1512.3	1109.1	892.0	829.8
60°	1659.6	1349.5	949.9	752.5	690.4
62.5°	1500.8	1190.7	814.2	628.3	597.4
65°	1337.9	1023.6	674.7	543.1	531.1
67.5°	1182.8	868.5	543.1	476.8	465.3
70°	1019.9	717.5	449.7	411.0	395.4
72.5°	864.7	577.7	376.1	345.1	337.3
75°	713.4	441.8	310.2	283.0	279.4
77.5°	562.4	313.9	244.4	228.7	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
90°	1.1	13.8	23.0	28.8	31.0
92.5°	28.8	24.2	27.6	30.0	31.0
95°	74.7	36.8	44.9	50.7	49.5
97.5°	134.6	40.3	58.6	62.2	63.2
100°	203.8	46.1	65.6	74.7	77.1
102.5°	279.6	277.4	68.0	80.5	84.1
105°	349.9	384.4	70.2	82.8	87.5
107.5°	431.6	460.2	72.6	85.1	89.8
110°	509.9	533.9	201.4	86.3	90.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	583.5	604.1	584.6	88.6	92.1
115°	661.7	681.2	710.1	177.3	94.4
117.5°	729.6	752.6	772.3	607.5	306.1
120°	805.6	822.8	843.5	857.4	702.0
122.5°	869.9	888.4	911.5	918.4	919.6
125°	935.5	950.6	972.5	980.5	984.0
127.5°	995.4	1011.5	1028.9	1040.3	1041.5
130°	1051.8	1070.3	1082.8	1095.6	1094.5
132.5°	1109.4	1124.4	1136.9	1147.4	1146.3
135°	1157.8	1176.2	1186.4	1198.1	1195.7
137.5°	1208.3	1222.1	1233.7	1245.2	1241.8
140°	1257.8	1267.1	1279.6	1290.0	1284.3
142.5°	1299.3	1307.4	1322.3	1331.5	1325.7
145°	1343.1	1341.8	1361.3	1369.5	1363.7
147.5°	1381.0	1377.5	1397.1	1402.8	1398.3
150°	1417.8	1409.8	1428.2	1435.1	1429.3
152.5°	1448.8	1439.7	1456.9	1463.9	1455.8
155°	1478.8	1468.5	1482.3	1489.2	1480.0
157.5°	1502.9	1493.8	1504.1	1512.2	1502.9
160°	1523.7	1516.8	1523.7	1530.5	1522.5
162.5°	1542.0	1535.2	1540.9	1549.0	1538.6
165°	1558.1	1551.4	1554.7	1562.8	1554.7
167.5°	1570.9	1563.9	1567.5	1575.5	1565.1
170°	1581.2	1574.3	1576.6	1584.6	1574.3
172.5°	1588.1	1581.2	1583.6	1591.6	1581.2
175°	1593.9	1585.8	1588.1	1596.1	1584.6
177.5°	1596.1	1588.1	1589.3	1597.3	1587.0
180°	1590.4	1590.4	1590.4	1590.4	1590.4



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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	12.50	13.48	13.32	14.31	15.35	8.48	9.45	9.30	10.29	11.32
	3H	14.19	15.06	15.03	15.91	16.98	9.68	10.55	10.51	11.40	12.46
	4H	14.81	15.63	15.66	16.48	17.56	10.14	10.96	10.99	11.81	12.89
	6H	15.24	15.99	16.10	16.86	17.94	10.47	11.22	11.33	12.08	13.17
	8H	15.37	16.09	16.24	16.97	18.06	10.56	11.28	11.43	12.16	13.25
	12H	15.44	16.12	16.31	16.99	18.11	10.61	11.30	11.49	12.17	13.28
4H	2H	12.54	13.36	13.39	14.21	15.29	9.09	9.91	9.94	10.77	11.84
	3H	14.38	15.07	15.25	15.95	17.04	10.46	11.14	11.32	12.02	13.11
	4H	15.08	15.70	15.96	16.59	17.70	11.01	11.63	11.89	12.51	13.63
	6H	15.61	16.14	16.50	17.05	18.17	11.44	11.97	12.33	12.88	14.00
	8H	15.78	16.28	16.68	17.19	18.32	11.57	12.07	12.47	12.97	14.11
	12H	15.89	16.33	16.80	17.26	18.39	11.64	12.09	12.56	13.02	14.15
8H	4H	15.06	15.56	15.96	16.46	17.59	11.30	11.80	12.20	12.70	13.84
	6H	15.63	16.05	16.56	16.99	18.12	11.83	12.24	12.75	13.18	14.32
	8H	15.85	16.22	16.78	17.15	18.30	12.02	12.39	12.95	13.32	14.47
	12H	16.00	16.32	16.93	17.25	18.45	12.15	12.47	13.08	13.40	14.60
12H	4H	15.02	15.47	15.93	16.39	17.53	11.31	11.76	12.23	12.68	13.82
	6H	15.61	15.97	16.54	16.91	18.06	11.88	12.24	12.81	13.18	14.33
	8H	15.84	16.16	16.77	17.09	18.29	12.10	12.42	13.03	13.35	14.55