

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: P928782

Luminaire Tested: DFN2DIP-HX4F0-120D040US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928782
REPORT IS A COMBINATION OF REPORTS P900836 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D040US930-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

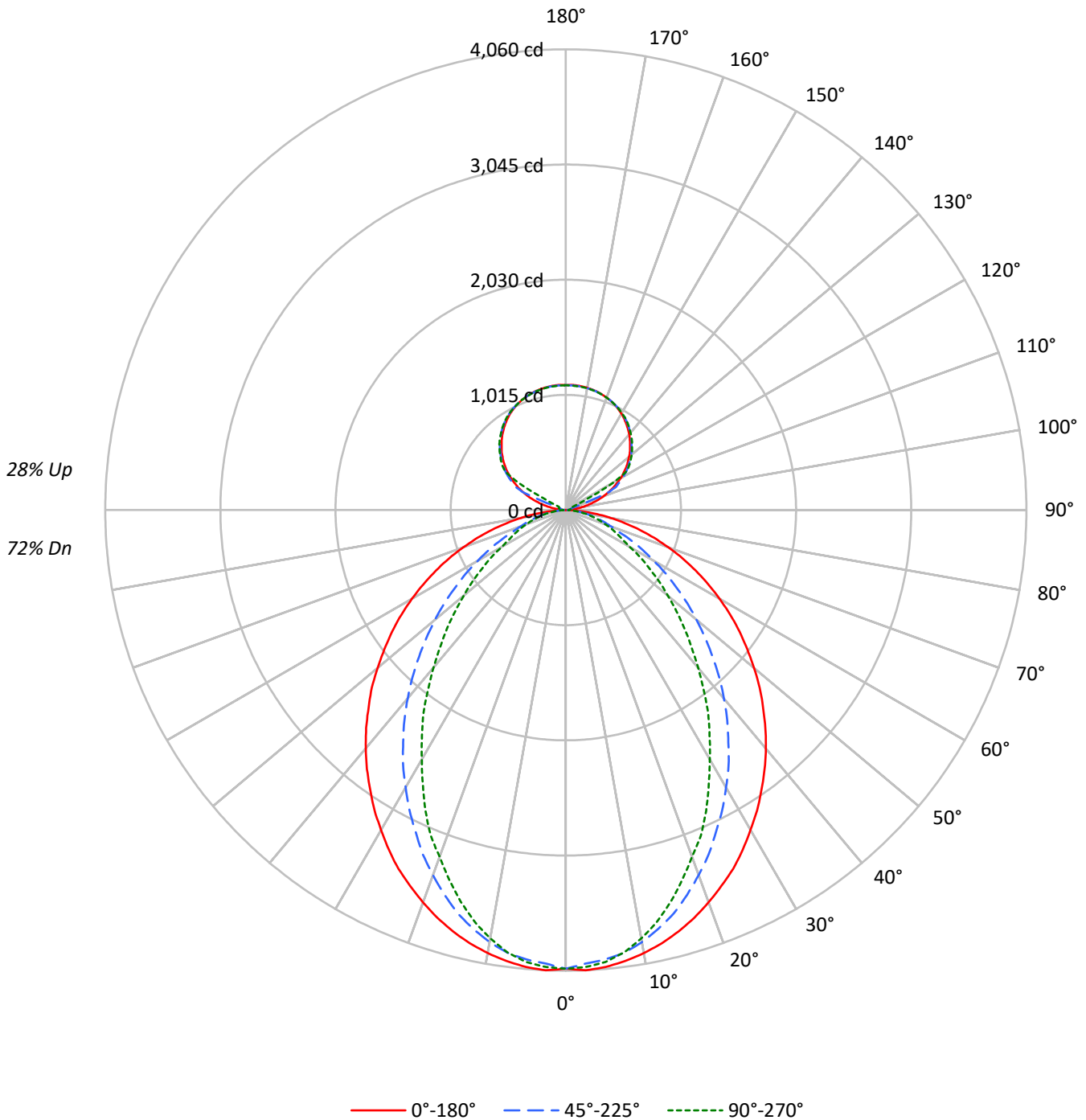
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11540.4 lumens
Efficiency: N/A
Efficacy: 73.8 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): 156.3
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				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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	76	76	76	76	76	76	72
1	103	99	95	92	98	94	91	88	85	82	80	76	75	73	69	67	66	66	66	66	62
2	95	87	81	76	90	83	78	73	75	71	68	68	65	62	61	59	57	57	57	57	53
3	87	78	70	65	82	74	67	62	67	62	58	61	57	53	55	52	49	49	49	49	46
4	80	69	61	55	76	66	59	54	60	54	50	55	50	46	50	46	43	43	43	43	40
5	74	62	54	48	70	59	52	47	54	48	44	50	45	41	45	41	38	38	38	38	35
6	68	56	48	42	65	54	46	41	49	43	39	45	40	36	41	37	34	34	34	34	31
7	63	51	43	38	60	49	42	36	45	39	34	41	36	32	38	34	30	30	30	30	28
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	27	27	27	27	25
9	55	43	35	30	52	41	34	30	38	32	28	35	30	26	32	28	25	25	25	25	23
10	52	40	32	28	49	38	31	27	35	29	25	33	28	24	30	26	23	23	23	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3006	3006	3006
5°	3011	2958	2977
10°	2981	2900	2880
15°	2940	2805	2731
20°	2886	2673	2547
25°	2831	2525	2370
30°	2756	2373	2145
35°	2684	2210	1947
40°	2609	2042	1720
45°	2523	1854	1515
50°	2434	1665	1314
55°	2341	1463	1121
60°	2234	1252	923
65°	2110	1037	831
70°	1960	837	752
75°	1771	738	685
80°	1499	620	594
85°	1048	415	448

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2523 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.8	3.3
10°-20°	1040.0	9.0
20°-30°	1460.1	12.7
30°-40°	1591.6	13.8
40°-50°	1462.8	12.7
50°-60°	1148.8	10.0
60°-70°	747.8	6.5
70°-80°	384.9	3.3
80°-90°	100.2	0.9
90°-100°	36.3	0.3
100°-110°	135.2	1.2
110°-120°	358.7	3.1
120°-130°	594.9	5.2
130°-140°	631.9	5.5
140°-150°	587.3	5.1
150°-160°	472.2	4.1
160°-170°	304.3	2.6
170°-180°	104.7	0.9
0°-30°	2878.9	24.9
0°-40°	4470.4	38.7
0°-60°	7082.1	61.4
0°-90°	8315.0	72.1
90°-120°	530.2	4.6
90°-150°	2344.3	20.3
90°-180°	3225.0	27.9
0°-180°	11540.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4042	4042	4042	4042	4042	
5°	4042	4024	3976	4009	3998	383
15°	3844	3804	3680	3610	3574	1083
25°	3490	3373	3131	2981	2926	1605
35°	3007	2820	2498	2268	2187	1882
45°	2458	2213	1829	1569	1481	1898
55°	1869	1584	1189	969	900	1670
65°	1262	966	636	512	501	1251
75°	673	417	293	267	264	712
85°	157	80	69	69	69	180
90°	1	10	16	20	21	11
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	678	681	577
135°	801	814	821	829	827	619
145°	929	928	942	947	943	581
155°	1023	1016	1025	1030	1024	471
165°	1078	1073	1076	1081	1076	305
175°	1102	1097	1099	1104	1096	105
180°	1100	1100	1100	1100	1100	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4042.1	4042.1	4042.1	4042.1	4042.1
2.5°	4060.3	4042.1	4001.7	4038.6	4031.2
5°	4042.1	4023.8	3976.1	4009.1	3998.2
7.5°	4009.1	3987.3	3936.1	3950.5	3932.2
10°	3965.2	3939.6	3866.6	3855.4	3833.7
12.5°	3910.5	3877.5	3778.5	3756.8	3716.5
15°	3844.5	3804.2	3680.0	3610.4	3574.0
17.5°	3767.7	3709.1	3555.4	3475.1	3416.5
20°	3680.0	3606.6	3423.8	3332.6	3251.8
22.5°	3584.9	3500.7	3288.4	3164.2	3109.5
25°	3489.8	3372.6	3131.1	2981.4	2926.3
27.5°	3376.5	3251.8	2984.9	2813.0	2728.7
30°	3255.8	3116.5	2823.8	2637.5	2538.6
32.5°	3138.6	2970.1	2670.5	2450.9	2359.3
35°	3007.0	2820.3	2498.5	2268.1	2187.3
37.5°	2878.9	2677.5	2337.5	2084.9	1993.7
40°	2743.5	2524.2	2169.1	1909.5	1814.4
42.5°	2604.5	2370.5	2001.1	1730.2	1639.0
45°	2458.2	2213.0	1829.1	1569.1	1481.3
47.5°	2319.2	2059.7	1664.6	1404.6	1324.2
50°	2165.6	1906.0	1503.5	1250.9	1174.4
52.5°	2015.4	1741.0	1349.8	1108.4	1039.0
55°	1869.1	1583.9	1188.8	969.4	900.0
57.5°	1719.2	1426.7	1046.3	841.4	782.8
60°	1565.6	1272.9	896.1	709.9	651.3
62.5°	1415.8	1123.2	768.1	592.7	563.5
65°	1262.1	965.6	636.5	512.3	501.1
67.5°	1115.8	819.2	512.3	449.8	439.0
70°	962.1	676.9	424.2	387.7	372.9
72.5°	815.8	544.9	354.7	325.6	318.3
75°	672.9	416.8	292.7	267.0	263.5
77.5°	530.6	296.1	230.6	215.8	208.4
80°	398.6	212.3	175.4	161.0	161.0
82.5°	277.9	142.8	120.7	113.3	113.3
85°	157.2	80.4	69.4	69.4	69.4
87.5°	58.6	29.1	29.1	25.6	25.6
90°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.0	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	140.9	31.9	45.4	51.7	53.3
102.5°	193.4	191.9	46.9	55.7	58.1
105°	242.0	265.9	48.6	57.3	60.5
107.5°	298.5	318.4	50.2	58.9	62.1
110°	352.7	369.4	139.4	59.7	62.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.7	417.9	404.4	61.3	63.7
115°	457.7	471.2	491.2	122.6	65.4
117.5°	504.7	520.6	534.2	420.3	211.7
120°	557.3	569.2	583.5	593.2	485.7
122.5°	601.8	614.6	630.6	635.3	636.1
125°	647.2	657.6	672.7	678.3	680.7
127.5°	688.6	699.8	711.7	719.7	720.5
130°	727.6	740.4	749.1	757.9	757.1
132.5°	767.4	777.8	786.6	793.7	793.0
135°	800.9	813.7	820.8	828.8	827.2
137.5°	835.9	845.4	853.5	861.4	859.0
140°	870.1	876.5	885.3	892.4	888.4
142.5°	898.9	904.4	914.8	921.0	917.1
145°	929.1	928.3	941.7	947.4	943.4
147.5°	955.3	952.9	966.4	970.4	967.3
150°	980.8	975.2	988.0	992.8	988.8
152.5°	1002.3	995.9	1007.8	1012.6	1007.1
155°	1023.0	1015.9	1025.4	1030.2	1023.8
157.5°	1039.7	1033.3	1040.6	1046.1	1039.7
160°	1054.0	1049.2	1054.0	1058.8	1053.2
162.5°	1066.8	1062.0	1066.0	1071.6	1064.4
165°	1077.9	1073.2	1075.6	1081.1	1075.6
167.5°	1086.7	1081.8	1084.4	1089.9	1082.7
170°	1093.9	1089.1	1090.6	1096.3	1089.1
172.5°	1098.6	1093.9	1095.5	1101.1	1093.9
175°	1102.5	1097.0	1098.6	1104.2	1096.3
177.5°	1104.2	1098.6	1099.4	1105.1	1097.9
180°	1100.2	1100.2	1100.2	1100.2	1100.2



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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	12.82	13.87	13.57	14.64	15.56	8.80	9.85	9.54	10.61	11.53
	3H	14.52	15.46	15.28	16.23	17.18	10.00	10.94	10.77	11.72	12.67
	4H	15.14	16.02	15.92	16.81	17.77	10.46	11.35	11.25	12.13	13.10
	6H	15.57	16.39	16.36	17.18	18.15	10.80	11.61	11.59	12.41	13.38
	8H	15.70	16.48	16.51	17.29	18.27	10.90	11.67	11.70	12.48	13.46
	12H	15.77	16.51	16.58	17.32	18.32	10.95	11.69	11.75	12.49	13.49
4H	2H	12.87	13.75	13.65	14.54	15.50	9.42	10.30	10.20	11.09	12.05
	3H	14.72	15.45	15.51	16.27	17.25	10.79	11.52	11.59	12.34	13.32
	4H	15.42	16.09	16.23	16.90	17.91	11.35	12.01	12.16	12.83	13.84
	6H	15.95	16.52	16.77	17.37	18.38	11.78	12.36	12.61	13.20	14.21
	8H	16.13	16.66	16.96	17.50	18.53	11.91	12.45	12.75	13.29	14.32
	12H	16.23	16.72	17.08	17.57	18.61	11.99	12.47	12.84	13.33	14.36
8H	4H	15.40	15.94	16.23	16.78	17.80	11.64	12.18	12.48	13.02	14.05
	6H	15.98	16.42	16.84	17.30	18.33	12.17	12.62	13.03	13.50	14.52
	8H	16.20	16.59	17.07	17.47	18.51	12.37	12.76	13.24	13.64	14.68
	12H	16.35	16.69	17.22	17.56	18.66	12.50	12.84	13.37	13.71	14.81
12H	4H	15.37	15.85	16.22	16.71	17.74	11.66	12.14	12.51	13.00	14.03
	6H	15.95	16.35	16.83	17.23	18.27	12.22	12.62	13.09	13.49	14.54
	8H	16.19	16.53	17.06	17.40	18.50	12.45	12.79	13.32	13.66	14.76