

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: P928062

Luminaire Tested: DFN2DIP-HX4F0-100D040US850-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928062
REPORT IS A COMBINATION OF REPORTS P900832 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D040US850-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

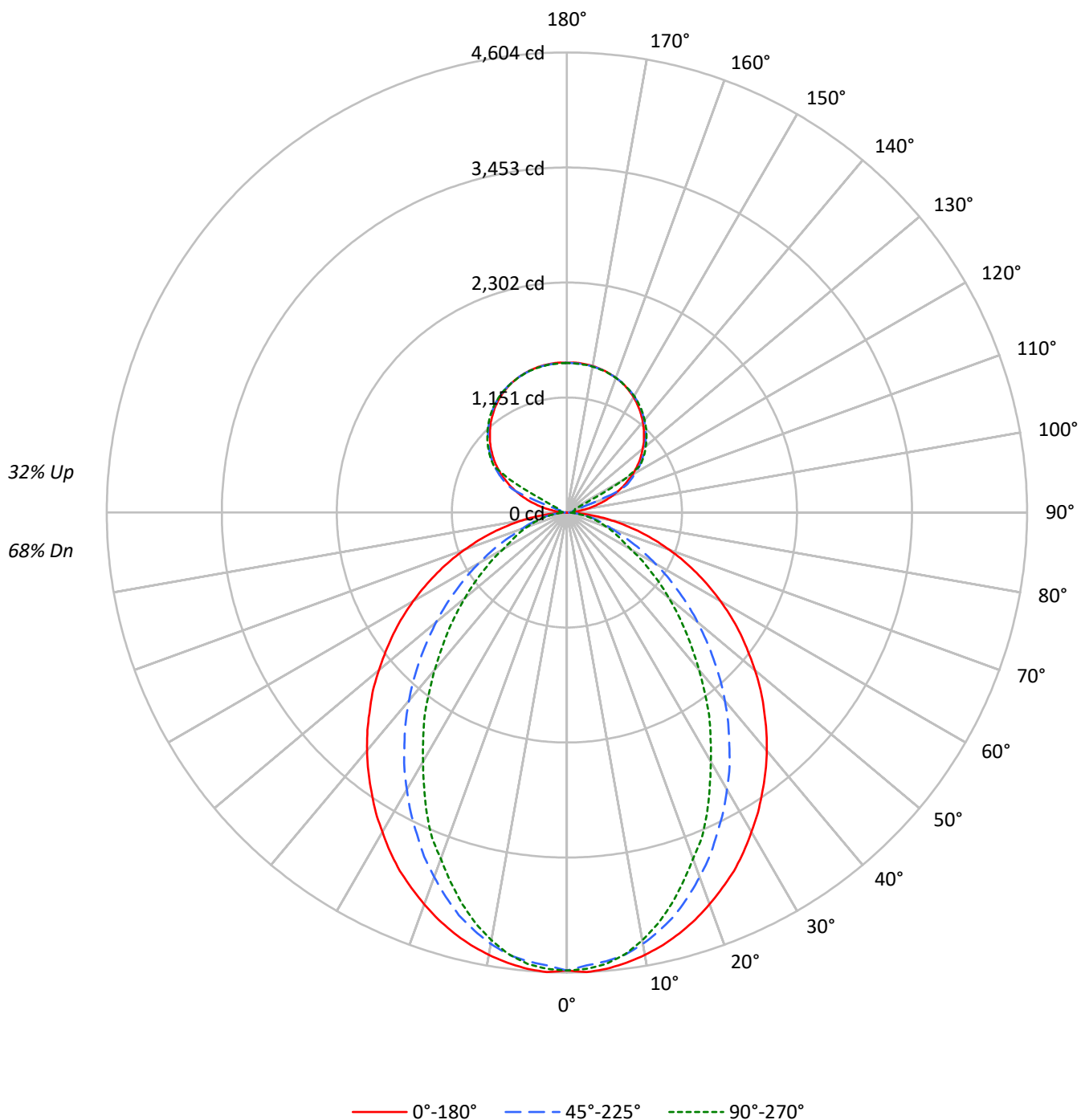
Lumens per Lamp: N/A
Luminaire Lumens: 13818.1 lumens
Efficiency: N/A
Efficacy: 106.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 129.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93		83	83	83		73
1	103	98	95	91	97	93	90	87	83	81	78		74	72	70		65
2	94	87	81	76	88	82	77	72	74	69	66		66	63	60		58
3	86	77	70	64	81	73	66	61	66	60	56		59	55	51		52
4	79	69	61	55	75	65	58	53	59	53	49		53	48	45		47
5	73	62	53	48	69	59	51	46	53	47	42		48	43	39		43
6	68	56	47	42	64	53	46	40	48	42	38		43	39	35		39
7	63	50	43	37	59	48	41	36	44	38	33		40	35	31		36
8	58	46	38	33	55	44	37	32	40	34	30		37	32	28		33
9	55	42	35	30	52	41	34	29	37	31	27		34	29	25		31
10	51	39	32	27	48	37	31	26	34	29	25		31	27	23		29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3408	3408	3408
5°	3414	3354	3376
10°	3380	3289	3266
15°	3334	3180	3096
20°	3273	3031	2888
25°	3210	2863	2687
30°	3126	2691	2432
35°	3043	2506	2208
40°	2959	2315	1951
45°	2861	2103	1718
50°	2760	1888	1490
55°	2655	1659	1272
60°	2533	1420	1047
65°	2393	1176	942
70°	2222	949	853
75°	2009	837	777
80°	1699	703	674
85°	1188	471	508

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2861 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	3.1
10°-20°	1179.3	8.5
20°-30°	1655.6	12.0
30°-40°	1804.7	13.1
40°-50°	1658.8	12.0
50°-60°	1302.7	9.4
60°-70°	847.9	6.1
70°-80°	436.5	3.2
80°-90°	114.1	0.8
90°-100°	49.4	0.4
100°-110°	184.0	1.3
110°-120°	488.1	3.5
120°-130°	809.5	5.9
130°-140°	859.9	6.2
140°-150°	799.2	5.8
150°-160°	642.5	4.6
160°-170°	414.0	3.0
170°-180°	142.5	1.0
0°-30°	3264.5	23.6
0°-40°	5069.2	36.7
0°-60°	8030.6	58.1
0°-90°	9429.1	68.2
90°-120°	721.5	5.2
90°-150°	3190.0	23.1
90°-180°	4389.0	31.8
0°-180°	13818.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	1	13	22	27	29	13
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2

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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	12.96	13.97	13.75	14.78	15.76	8.94	9.94	9.73	10.75	11.74
	3H	14.65	15.55	15.46	16.37	17.39	10.14	11.04	10.94	11.86	12.87
	4H	15.27	16.12	16.09	16.94	17.97	10.60	11.45	11.42	12.27	13.30
	6H	15.70	16.48	16.54	17.32	18.36	10.93	11.71	11.76	12.54	13.59
	8H	15.83	16.58	16.68	17.43	18.47	11.03	11.77	11.87	12.62	13.66
	12H	15.90	16.61	16.75	17.45	18.52	11.08	11.78	11.92	12.63	13.70
4H	2H	13.00	13.85	13.83	14.68	15.70	9.55	10.40	10.38	11.23	12.25
	3H	14.85	15.55	15.69	16.41	17.46	10.92	11.62	11.76	12.48	13.53
	4H	15.55	16.19	16.40	17.04	18.12	11.48	12.12	12.33	12.97	14.05
	6H	16.07	16.63	16.94	17.51	18.58	11.91	12.46	12.77	13.34	14.42
	8H	16.25	16.77	17.12	17.64	18.73	12.04	12.56	12.91	13.43	14.52
	12H	16.36	16.82	17.24	17.72	18.81	12.12	12.58	13.00	13.47	14.57
8H	4H	15.53	16.04	16.40	16.92	18.01	11.77	12.29	12.64	13.16	14.25
	6H	16.10	16.53	17.00	17.45	18.53	12.30	12.72	13.19	13.64	14.73
	8H	16.32	16.70	17.23	17.61	18.72	12.49	12.87	13.40	13.78	14.89
	12H	16.47	16.80	17.38	17.70	18.86	12.62	12.95	13.53	13.85	15.01
12H	4H	15.49	15.95	16.38	16.85	17.94	11.78	12.25	12.67	13.14	14.24
	6H	16.08	16.46	16.99	17.37	18.47	12.35	12.73	13.25	13.64	14.74
	8H	16.31	16.64	17.22	17.54	18.70	12.57	12.90	13.48	13.80	14.96