

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: P929142

Luminaire Tested: DFN2DIP-HX4F0-040D040US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929142
REPORT IS A COMBINATION OF REPORTS P900820 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D040US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

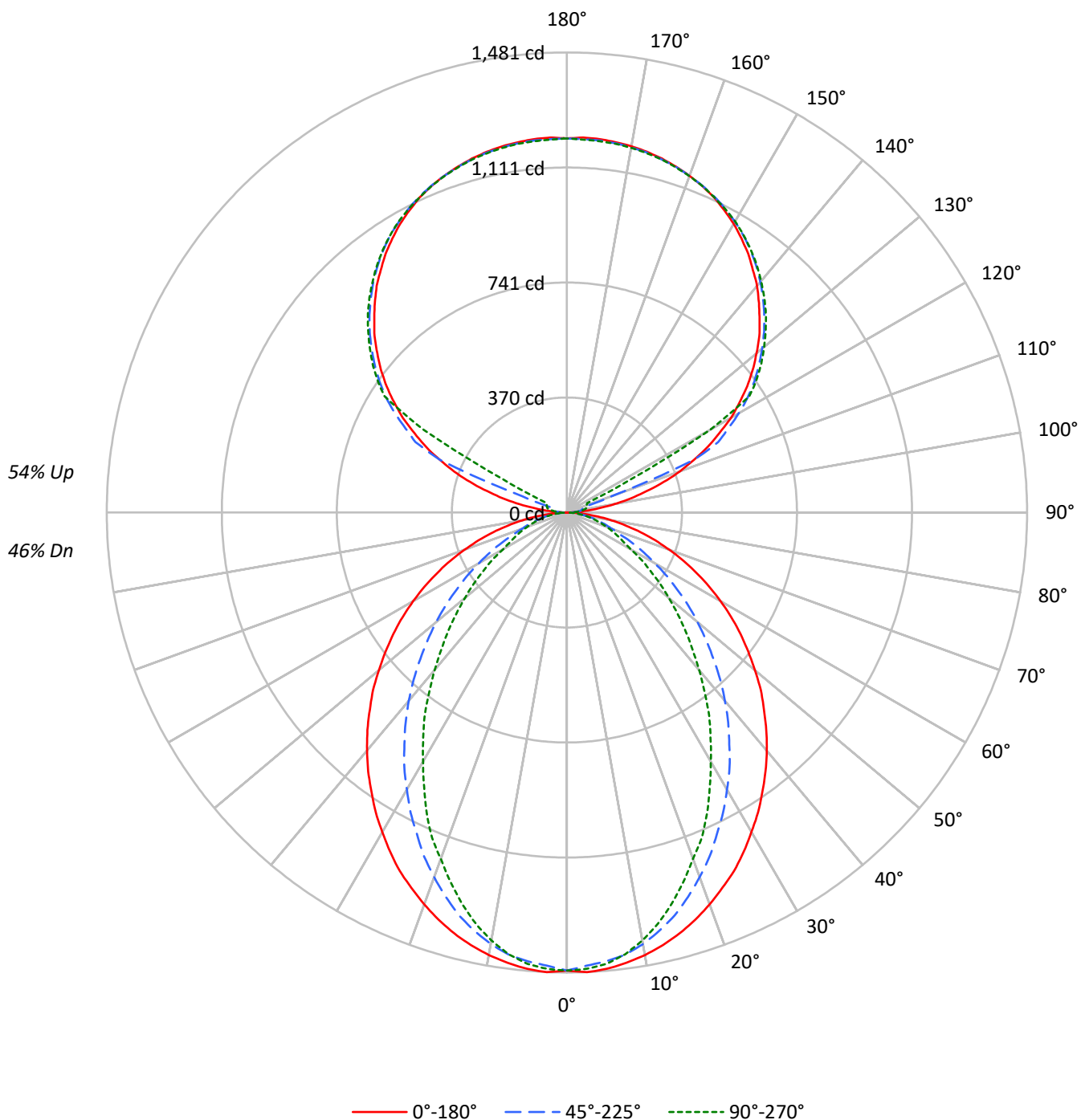
Lumens per Lamp: N/A
Luminaire Lumens: 6565.1 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 63.4
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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1097	1097	1097
5°	1098	1079	1086
10°	1088	1058	1051
15°	1073	1023	996
20°	1053	975	929
25°	1033	921	864
30°	1006	866	782
35°	979	806	710
40°	952	745	628
45°	921	676	553
50°	888	608	479
55°	854	534	409
60°	815	457	337
65°	770	378	303
70°	715	305	274
75°	646	269	250
80°	547	226	217
85°	383	151	163

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 921 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	2.1
10°-20°	379.4	5.8
20°-30°	532.7	8.1
30°-40°	580.6	8.8
40°-50°	533.7	8.1
50°-60°	419.1	6.4
60°-70°	272.8	4.2
70°-80°	140.4	2.1
80°-90°	38.0	0.6
90°-100°	39.7	0.6
100°-110°	148.0	2.3
110°-120°	392.6	6.0
120°-130°	651.1	9.9
130°-140°	691.6	10.5
140°-150°	642.8	9.8
150°-160°	516.8	7.9
160°-170°	333.0	5.1
170°-180°	114.6	1.7
0°-30°	1050.3	16.0
0°-40°	1630.9	24.8
0°-60°	2583.7	39.4
0°-90°	3034.9	46.2
90°-120°	580.3	8.8
90°-150°	2565.8	39.1
90°-180°	3530.0	53.8
0°-180°	6565.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1475	1475	1475	1475	1475	
5°	1475	1468	1451	1463	1459	140
15°	1403	1388	1342	1317	1304	395
25°	1273	1230	1142	1088	1068	586
35°	1097	1029	912	827	798	687
45°	897	807	667	572	540	693
55°	682	578	434	354	328	609
65°	460	352	232	187	183	457
75°	246	152	107	97	96	260
85°	57	29	25	25	25	66
90°	1	10	17	22	24	6
95°	57	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	538	134	72	493
125°	708	720	736	742	745	632
135°	877	891	898	907	905	677
145°	1017	1016	1031	1037	1032	636
155°	1120	1112	1122	1128	1120	516
165°	1180	1175	1177	1183	1177	333
175°	1207	1201	1202	1208	1200	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.7	1474.7	1474.7	1474.7	1474.7
2.5°	1481.3	1474.7	1459.9	1473.4	1470.6
5°	1474.7	1468.0	1450.6	1462.6	1458.7
7.5°	1462.6	1454.7	1436.0	1441.2	1434.6
10°	1446.6	1437.3	1410.6	1406.5	1398.7
12.5°	1426.7	1414.6	1378.5	1370.6	1355.8
15°	1402.6	1387.9	1342.5	1317.2	1303.9
17.5°	1374.6	1353.2	1297.1	1267.8	1246.4
20°	1342.5	1315.8	1249.1	1215.8	1186.4
22.5°	1307.9	1277.2	1199.7	1154.3	1134.4
25°	1273.2	1230.4	1142.3	1087.7	1067.5
27.5°	1231.9	1186.4	1089.0	1026.2	995.5
30°	1187.8	1136.9	1030.2	962.2	926.2
32.5°	1145.1	1083.6	974.2	894.1	860.7
35°	1097.1	1028.9	911.5	827.4	798.0
37.5°	1050.3	976.8	852.8	760.6	727.3
40°	1000.9	920.9	791.4	696.7	662.0
42.5°	950.2	864.8	730.0	631.2	597.9
45°	896.8	807.3	667.3	572.5	540.5
47.5°	846.2	751.4	607.3	512.5	483.1
50°	790.0	695.3	548.5	456.3	428.4
52.5°	735.3	635.2	492.5	404.3	379.0
55°	681.9	577.8	433.7	353.7	328.3
57.5°	627.3	520.5	381.7	306.9	285.6
60°	571.1	464.4	326.9	258.9	237.6
62.5°	516.6	409.8	280.2	216.2	205.6
65°	460.5	352.3	232.2	186.9	182.8
67.5°	407.1	298.9	186.9	164.1	160.1
70°	351.0	246.9	154.8	141.5	136.0
72.5°	297.7	198.8	129.4	118.8	116.1
75°	245.5	152.1	106.8	97.4	96.2
77.5°	193.6	108.0	84.1	78.8	76.0
80°	145.4	77.4	64.0	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.4	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	0.8	10.4	17.4	21.9	23.5
92.5°	21.9	18.3	20.9	22.7	23.5
95°	56.6	27.8	33.9	38.4	37.5
97.5°	102.0	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.6	58.3
102.5°	211.7	210.1	51.4	60.9	63.6
105°	264.8	291.1	53.2	62.7	66.2
107.5°	326.7	348.5	54.9	64.5	68.0
110°	386.1	404.3	152.5	65.4	68.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.8	457.4	442.6	67.1	69.8
115°	500.9	515.8	537.6	134.2	71.5
117.5°	552.4	569.8	584.7	460.0	231.7
120°	609.9	623.0	638.7	649.2	531.5
122.5°	658.7	672.7	690.1	695.3	696.2
125°	708.3	719.8	736.3	742.4	745.0
127.5°	753.7	765.9	779.0	787.7	788.5
130°	796.4	810.4	819.8	829.5	828.7
132.5°	839.9	851.3	860.9	868.7	867.9
135°	876.6	890.6	898.3	907.1	905.4
137.5°	914.8	925.3	934.1	942.8	940.2
140°	952.3	959.3	968.9	976.7	972.4
142.5°	983.8	989.9	1001.2	1008.0	1003.8
145°	1016.9	1016.0	1030.7	1036.9	1032.5
147.5°	1045.5	1042.9	1057.7	1062.1	1058.7
150°	1073.4	1067.4	1081.4	1086.5	1082.2
152.5°	1097.0	1090.0	1103.0	1108.3	1102.2
155°	1119.6	1111.9	1122.3	1127.5	1120.5
157.5°	1137.9	1131.0	1138.9	1145.0	1137.9
160°	1153.6	1148.4	1153.6	1158.8	1152.7
162.5°	1167.5	1162.4	1166.7	1172.8	1165.0
165°	1179.8	1174.6	1177.2	1183.2	1177.2
167.5°	1189.4	1184.0	1186.8	1192.9	1185.0
170°	1197.2	1192.0	1193.7	1199.8	1192.0
172.5°	1202.4	1197.2	1199.0	1205.1	1197.2
175°	1206.7	1200.6	1202.4	1208.5	1199.8
177.5°	1208.5	1202.4	1203.3	1209.5	1201.6
180°	1204.2	1204.2	1204.2	1204.2	1204.2

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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	7.11	7.91	8.10	8.91	10.23	3.08	3.88	4.07	4.88	6.21
	3H	8.78	9.50	9.79	10.51	11.86	4.27	4.98	5.27	5.99	7.34
	4H	9.39	10.07	10.41	11.08	12.44	4.72	5.39	5.73	6.41	7.76
	6H	9.81	10.43	10.84	11.45	12.82	5.04	5.66	6.07	6.68	8.05
	8H	9.94	10.53	10.97	11.56	12.93	5.13	5.72	6.16	6.76	8.12
	12H	10.00	10.56	11.04	11.59	12.98	5.17	5.73	6.21	6.76	8.15
4H	2H	7.12	7.80	8.15	8.81	10.17	3.67	4.35	4.69	5.36	6.72
	3H	8.95	9.51	9.98	10.55	11.92	5.02	5.58	6.05	6.62	7.99
	4H	9.64	10.15	10.68	11.19	12.58	5.57	6.08	6.61	7.12	8.51
	6H	10.15	10.60	11.20	11.65	13.04	5.99	6.43	7.04	7.49	8.88
	8H	10.33	10.74	11.38	11.79	13.19	6.12	6.53	7.17	7.58	8.98
	12H	10.42	10.80	11.49	11.86	13.27	6.18	6.55	7.25	7.62	9.03
8H	4H	9.61	10.02	10.66	11.07	12.47	5.85	6.26	6.90	7.31	8.71
	6H	10.17	10.51	11.25	11.60	13.00	6.37	6.71	7.44	7.80	9.20
	8H	10.39	10.69	11.47	11.76	13.18	6.56	6.86	7.64	7.93	9.35
	12H	10.53	10.79	11.61	11.86	13.32	6.68	6.94	7.76	8.01	9.47
12H	4H	9.56	9.93	10.62	10.99	12.40	5.85	6.22	6.92	7.29	8.70
	6H	10.15	10.45	11.23	11.52	12.94	6.42	6.72	7.50	7.79	9.21
	8H	10.37	10.63	11.45	11.70	13.16	6.63	6.89	7.71	7.96	9.42