

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: P921763

Luminaire Tested: DFN2DIP-HX3F0-090D040US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921763
REPORT IS A COMBINATION OF REPORTS P900747 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D040US940-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

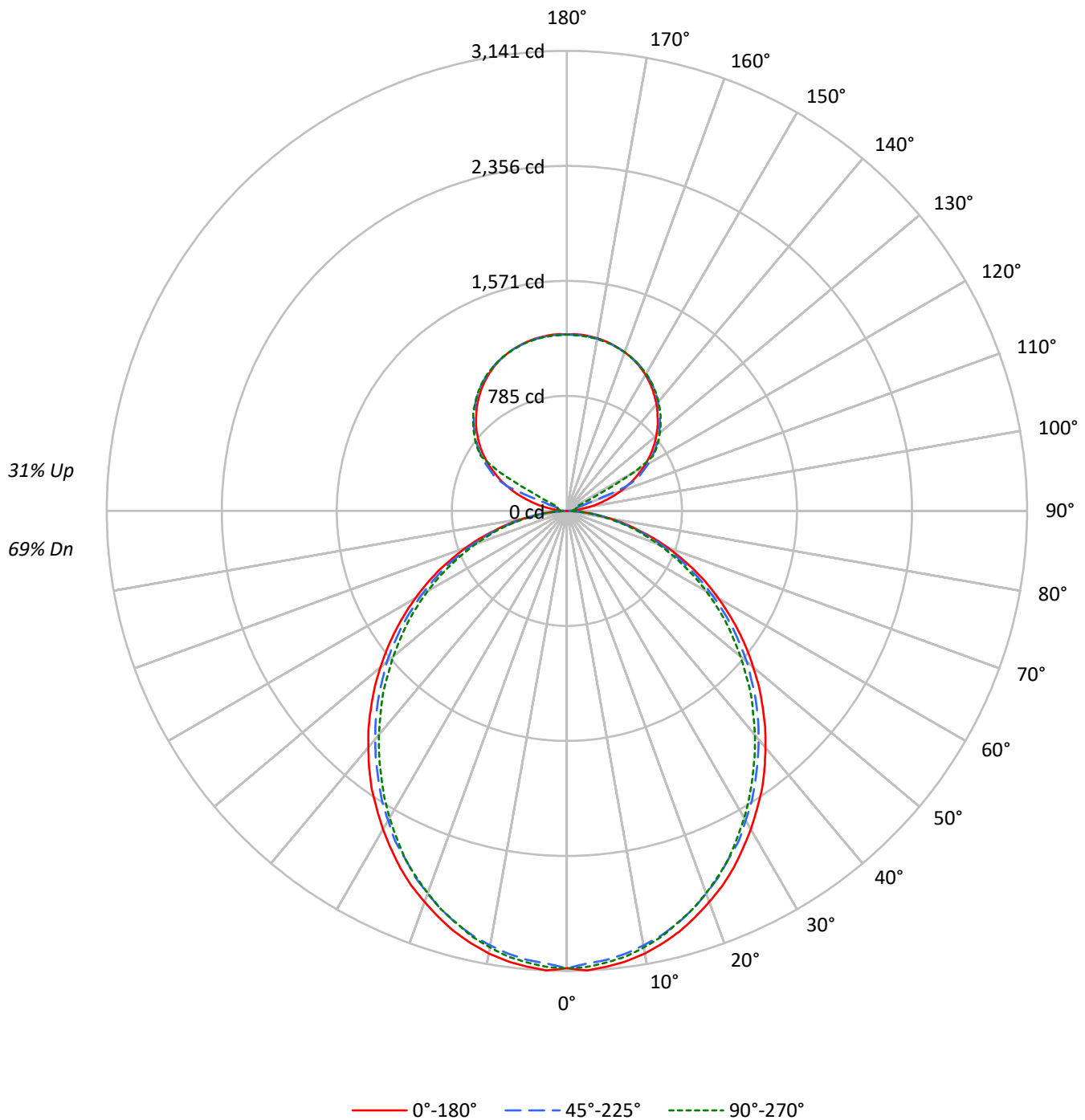
Lumens per Lamp: N/A
Luminaire Lumens: 11476.3 lumens
Efficiency: N/A
Efficacy: 93.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 122.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	72	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	53
3	85	75	67	61	80	71	64	59	64	59	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	42	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	27	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3617	3617	3617
5°	3621	3564	3589
10°	3590	3514	3538
15°	3536	3453	3460
20°	3463	3370	3381
25°	3390	3272	3289
30°	3300	3180	3173
35°	3214	3072	3050
40°	3108	2963	2933
45°	3002	2853	2813
50°	2887	2738	2674
55°	2766	2604	2546
60°	2629	2446	2400
65°	2480	2283	2227
70°	2289	2083	2040
75°	2027	1843	1865
80°	1708	1537	1536
85°	1212	1018	996

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3002 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.6
10°-20°	827.0	7.2
20°-30°	1215.3	10.6
30°-40°	1411.5	12.3
40°-50°	1409.7	12.3
50°-60°	1229.3	10.7
60°-70°	908.7	7.9
70°-80°	514.1	4.5
80°-90°	137.8	1.2
90°-100°	39.7	0.3
100°-110°	148.0	1.3
110°-120°	392.4	3.4
120°-130°	650.9	5.7
130°-140°	691.4	6.0
140°-150°	642.6	5.6
150°-160°	516.6	4.5
160°-170°	332.9	2.9
170°-180°	114.6	1.0
0°-30°	2336.2	20.4
0°-40°	3747.7	32.7
0°-60°	6386.7	55.7
0°-90°	7947.3	69.2
90°-120°	580.1	5.1
90°-150°	2565.0	22.4
90°-180°	3529.0	30.8
0°-180°	11476.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	1	10	17	22	24	11
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
90°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

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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	13.31	14.37	14.08	15.17	16.13	12.88	13.94	13.65	14.74	15.71
	3H	14.97	15.93	15.76	16.74	17.73	14.51	15.46	15.29	16.27	17.26
	4H	15.57	16.47	16.37	17.28	18.29	15.10	16.00	15.90	16.81	17.82
	6H	15.97	16.80	16.79	17.63	18.65	15.50	16.33	16.32	17.16	18.18
	8H	16.08	16.87	16.90	17.71	18.74	15.61	16.40	16.43	17.24	18.27
	12H	16.13	16.89	16.96	17.72	18.77	15.66	16.41	16.49	17.25	18.30
4H	2H	13.79	14.69	14.60	15.51	16.51	13.45	14.35	14.25	15.16	16.17
	3H	15.67	16.42	16.48	17.27	18.29	15.28	16.03	16.09	16.88	17.90
	4H	16.38	17.07	17.21	17.91	18.97	15.98	16.67	16.81	17.51	18.56
	6H	16.90	17.50	17.75	18.37	19.42	16.50	17.09	17.35	17.96	19.02
	8H	17.05	17.61	17.90	18.47	19.54	16.64	17.20	17.50	18.07	19.13
	12H	17.13	17.63	18.00	18.52	19.59	16.71	17.22	17.59	18.10	19.18
8H	4H	16.59	17.15	17.44	18.01	19.08	16.23	16.79	17.09	17.65	18.72
	6H	17.22	17.68	18.10	18.59	19.66	16.86	17.32	17.74	18.23	19.30
	8H	17.44	17.85	18.33	18.75	19.84	17.08	17.48	17.97	18.38	19.47
	12H	17.58	17.94	18.47	18.83	19.97	17.20	17.56	18.09	18.45	19.59
12H	4H	16.59	17.09	17.46	17.97	19.05	16.24	16.74	17.11	17.62	18.70
	6H	17.25	17.66	18.14	18.56	19.65	16.90	17.31	17.80	18.21	19.30
	8H	17.50	17.86	18.39	18.75	19.89	17.14	17.51	18.04	18.40	19.54