

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: P928850

Luminaire Tested: DFN2DIP-HX4F0-040D120US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928850
REPORT IS A COMBINATION OF REPORTS P900964 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D120US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

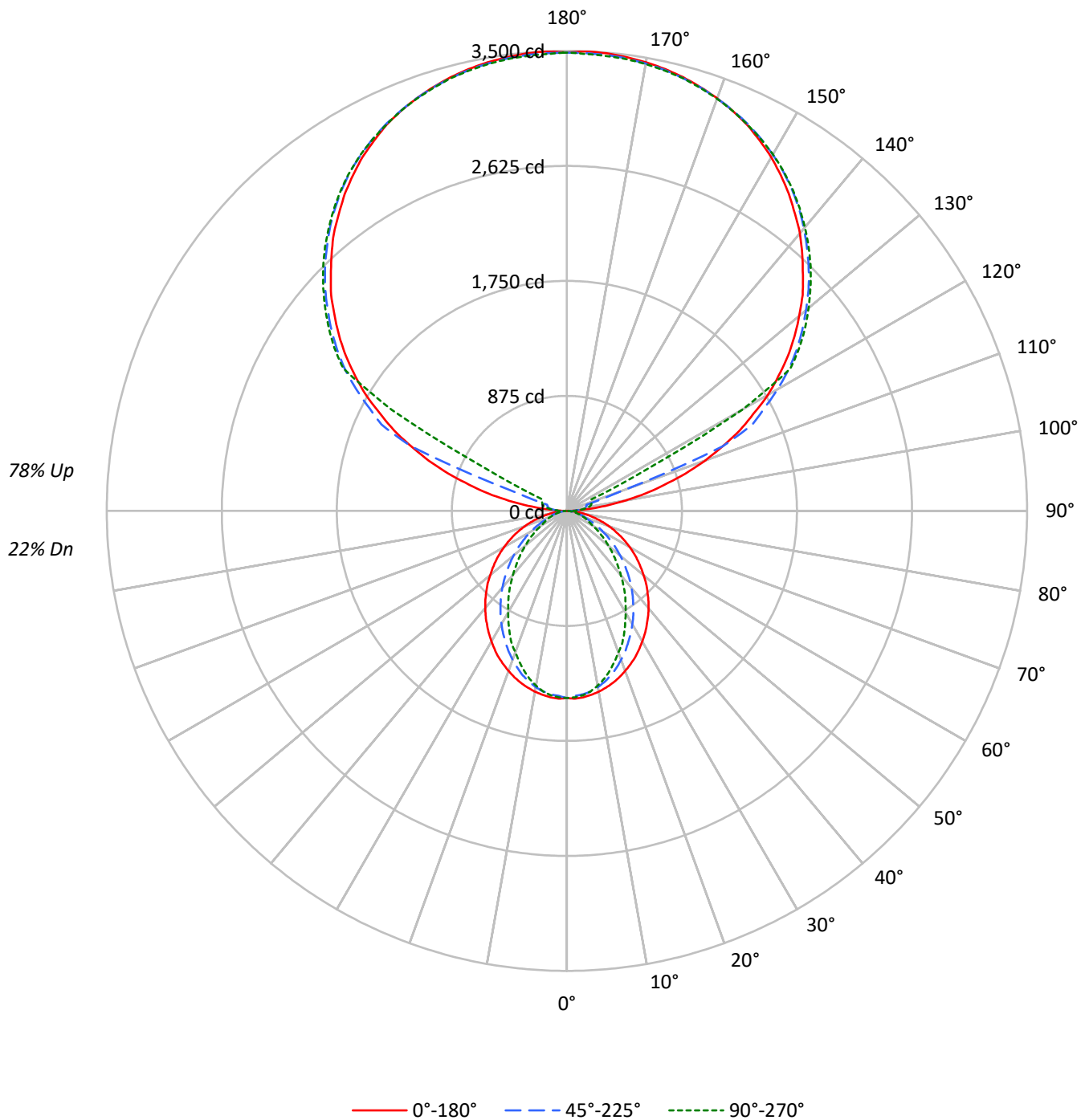
Lumens per Lamp: N/A
Luminaire Lumens: 13156.0 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 129.2
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

TEST NUMBER: P928850

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US935-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928850

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US935-RLLONL

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	101	101	101	101	89	89	89	89	68	68	68	49	49	49	31	31	31
1	92	88	84	81	81	78	75	72	60	58	56	43	42	41	27	27	26
2	84	77	71	66	74	68	64	60	52	49	47	38	36	34	24	23	22
3	76	68	61	55	68	60	55	50	46	43	39	34	31	29	22	20	19
4	70	60	52	47	62	53	47	42	41	37	34	30	27	25	20	18	17
5	64	53	46	40	57	48	41	36	37	32	29	27	24	22	18	16	15
6	59	48	40	35	52	43	36	31	33	29	25	24	21	19	16	14	13
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12
8	50	39	32	27	45	35	29	24	27	23	20	20	17	15	14	12	10
9	47	35	28	23	42	32	26	21	25	20	17	19	16	13	12	11	9
10	44	32	25	21	39	29	23	19	23	19	16	17	14	12	12	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1058	1058	1058
5°	1060	1042	1048
10°	1050	1021	1014
15°	1035	988	962
20°	1016	941	897
25°	997	889	834
30°	971	836	755
35°	945	778	686
40°	919	719	606
45°	888	653	534
50°	857	586	463
55°	824	515	395
60°	787	441	325
65°	743	365	293
70°	690	295	265
75°	624	260	241
80°	528	218	209
85°	369	147	158

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1790 cd/sqm

TEST NUMBER: P928850

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.4	1.0
10°-20°	366.2	2.8
20°-30°	514.2	3.9
30°-40°	560.5	4.3
40°-50°	515.1	3.9
50°-60°	404.5	3.1
60°-70°	263.3	2.0
70°-80°	135.6	1.0
80°-90°	40.7	0.3
90°-100°	115.0	0.9
100°-110°	428.6	3.3
110°-120°	1136.8	8.6
120°-130°	1885.4	14.3
130°-140°	2002.8	15.2
140°-150°	1861.3	14.1
150°-160°	1496.5	11.4
160°-170°	964.3	7.3
170°-180°	331.9	2.5
0°-30°	1013.8	7.7
0°-40°	1574.2	12.0
0°-60°	2493.9	19.0
0°-90°	2933.5	22.3
90°-120°	1680.4	12.8
90°-150°	7429.9	56.5
90°-180°	10223.0	77.7
0°-180°	13156.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1423	1423	1423	1423	1423	
5°	1423	1417	1400	1412	1408	135
15°	1354	1340	1296	1271	1259	382
25°	1229	1188	1103	1050	1030	565
35°	1059	993	880	799	770	663
45°	866	779	644	553	522	668
55°	658	558	419	341	317	588
65°	444	340	224	180	176	441
75°	237	147	103	94	93	251
85°	55	28	24	24	24	64
90°	2	30	50	63	68	12
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

TEST NUMBER: P928850

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1423.4	1423.4	1423.4	1423.4	1423.4
2.5°	1429.9	1423.4	1409.2	1422.2	1419.5
5°	1423.4	1416.9	1400.2	1411.8	1408.0
7.5°	1411.8	1404.1	1386.1	1391.1	1384.7
10°	1396.4	1387.3	1361.6	1357.6	1350.0
12.5°	1377.1	1365.5	1330.6	1322.9	1308.7
15°	1353.8	1339.6	1295.9	1271.4	1258.6
17.5°	1326.8	1306.1	1252.0	1223.7	1203.1
20°	1295.9	1270.1	1205.7	1173.5	1145.1
22.5°	1262.4	1232.8	1158.0	1114.2	1095.0
25°	1228.9	1187.7	1102.6	1049.9	1030.4
27.5°	1189.0	1145.1	1051.1	990.6	960.9
30°	1146.5	1097.4	994.4	928.8	894.0
32.5°	1105.3	1045.9	940.4	863.1	830.8
35°	1058.9	993.2	879.9	798.7	770.3
37.5°	1013.8	942.9	823.1	734.2	702.1
40°	966.1	888.9	763.9	672.4	638.9
42.5°	917.1	834.7	704.6	609.2	577.1
45°	865.6	779.3	644.1	552.6	521.7
47.5°	816.7	725.3	586.2	494.6	466.3
50°	762.6	671.1	529.4	440.5	413.5
52.5°	709.7	613.1	475.4	390.3	365.8
55°	658.2	557.8	418.6	341.4	316.9
57.5°	605.5	502.4	368.4	296.3	275.7
60°	551.3	448.2	315.6	249.9	229.4
62.5°	498.6	395.5	270.4	208.7	198.5
65°	444.4	340.0	224.1	180.4	176.4
67.5°	393.0	288.5	180.4	158.4	154.5
70°	338.8	238.3	149.4	136.6	131.3
72.5°	287.3	191.9	124.9	114.7	112.1
75°	236.9	146.8	103.1	94.0	92.8
77.5°	186.8	104.3	81.2	76.0	73.4
80°	140.3	74.7	61.7	56.7	56.7
82.5°	97.9	50.3	42.5	39.9	39.9
85°	55.4	28.3	24.5	24.5	24.5
87.5°	20.7	10.2	10.2	9.0	9.0
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2

TEST NUMBER: P928850

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.7	1650.0	1693.2	1332.1	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.3	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2942.0	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.9
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.7	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.6	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

TEST NUMBER: P928850

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US935-RLONL

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	3.92	4.57	5.09	5.72	7.34	0.00	0.54	1.06	1.69	3.31
	3H	5.58	6.16	6.76	7.32	8.95	1.07	1.65	2.24	2.80	4.44
	4H	6.18	6.73	7.37	7.89	9.53	1.51	2.06	2.69	3.22	4.86
	6H	6.60	7.10	7.79	8.26	9.91	1.82	2.33	3.01	3.49	5.14
	8H	6.72	7.20	7.91	8.37	10.01	1.91	2.39	3.10	3.56	5.21
	12H	6.77	7.23	7.97	8.40	10.06	1.95	2.40	3.14	3.57	5.24
4H	2H	3.92	4.46	5.11	5.62	7.26	0.47	1.01	1.66	2.17	3.81
	3H	5.73	6.19	6.92	7.37	9.02	1.80	2.26	2.99	3.44	5.09
	4H	6.41	6.84	7.61	8.01	9.68	2.34	2.76	3.54	3.93	5.60
	6H	6.92	7.28	8.12	8.47	10.13	2.75	3.11	3.95	4.31	5.96
	8H	7.09	7.43	8.29	8.61	10.29	2.88	3.22	4.08	4.40	6.08
	12H	7.18	7.48	8.39	8.68	10.36	2.94	3.24	4.15	4.44	6.12
8H	4H	6.37	6.70	7.57	7.89	9.56	2.61	2.95	3.81	4.13	5.80
	6H	6.93	7.21	8.15	8.43	10.10	3.12	3.40	4.34	4.63	6.30
	8H	7.15	7.39	8.37	8.59	10.28	3.32	3.56	4.54	4.76	6.45
	12H	7.28	7.49	8.50	8.69	10.41	3.43	3.64	4.65	4.84	6.56
12H	4H	6.31	6.62	7.53	7.81	9.49	2.61	2.91	3.82	4.11	5.79
	6H	6.90	7.14	8.13	8.35	10.04	3.17	3.41	4.39	4.62	6.31
	8H	7.12	7.33	8.34	8.53	10.25	3.38	3.59	4.60	4.79	6.51