

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: P928526

Luminaire Tested: DFN2DIP-HX4F0-040D120US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928526
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-HX4F0-040D120US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

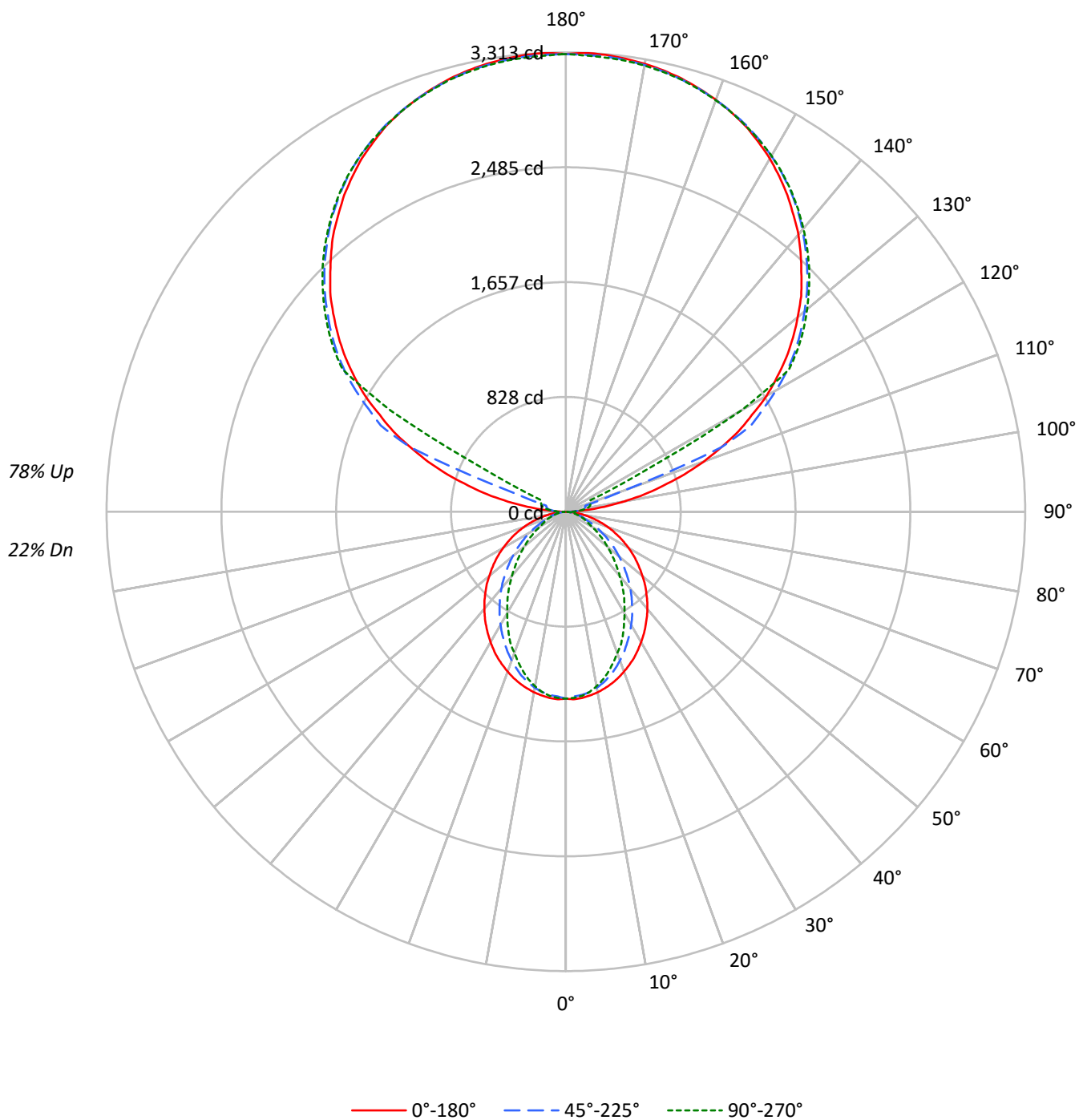
Lumens per Lamp: N/A
Luminaire Lumens: 12453.3 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

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: P928526

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US930-RLLONL

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1002	1002	1002
5°	1004	986	992
10°	994	967	960
15°	980	935	910
20°	962	891	849
25°	944	842	790
30°	919	791	715
35°	895	737	649
40°	870	681	573
45°	841	618	505
50°	811	555	438
55°	781	488	374
60°	744	417	308
65°	703	346	277
70°	653	279	251
75°	590	246	228
80°	499	206	198
85°	349	138	149

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1696 cd/sqm

TEST NUMBER: P928526

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.3	1.0
10°-20°	346.7	2.8
20°-30°	486.7	3.9
30°-40°	530.5	4.3
40°-50°	487.6	3.9
50°-60°	382.9	3.1
60°-70°	249.3	2.0
70°-80°	128.3	1.0
80°-90°	38.6	0.3
90°-100°	108.8	0.9
100°-110°	405.7	3.3
110°-120°	1076.0	8.6
120°-130°	1784.7	14.3
130°-140°	1895.8	15.2
140°-150°	1761.9	14.1
150°-160°	1416.5	11.4
160°-170°	912.8	7.3
170°-180°	314.2	2.5
0°-30°	959.6	7.7
0°-40°	1490.1	12.0
0°-60°	2360.7	19.0
0°-90°	2776.8	22.3
90°-120°	1590.6	12.8
90°-150°	7033.0	56.5
90°-180°	9676.0	77.7
0°-180°	12453.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1347	1347	1347	1347	1347	
5°	1347	1341	1325	1336	1333	128
15°	1282	1268	1227	1204	1191	361
25°	1163	1124	1044	994	975	535
35°	1002	940	833	756	729	627
45°	819	738	610	523	494	633
55°	623	528	396	323	300	557
65°	421	322	212	171	167	417
75°	224	139	98	89	88	237
85°	52	27	23	23	23	60
90°	2	29	48	60	64	12
95°	155	76	93	105	103	184
105°	726	798	146	172	182	776
115°	1373	1414	1474	368	196	1352
125°	1942	1973	2018	2035	2042	1732
135°	2403	2441	2462	2486	2482	1856
145°	2787	2785	2825	2842	2830	1743
155°	3069	3048	3076	3090	3072	1414
165°	3234	3220	3227	3243	3227	914
175°	3308	3291	3296	3313	3289	315
180°	3301	3301	3301	3301	3301	

TEST NUMBER: P928526

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1347.4	1347.4	1347.4	1347.4	1347.4
2.5°	1353.5	1347.4	1333.9	1346.2	1343.7
5°	1347.4	1341.2	1325.4	1336.4	1332.8
7.5°	1336.4	1329.1	1312.1	1316.8	1310.8
10°	1321.8	1313.2	1288.8	1285.1	1277.9
12.5°	1303.5	1292.5	1259.5	1252.2	1238.8
15°	1281.5	1268.1	1226.7	1203.5	1191.4
17.5°	1255.9	1236.4	1185.1	1158.4	1138.8
20°	1226.7	1202.2	1141.2	1110.8	1083.9
22.5°	1195.0	1166.9	1096.1	1054.7	1036.5
25°	1163.2	1124.2	1043.7	993.8	975.4
27.5°	1125.5	1083.9	995.0	937.7	909.5
30°	1085.3	1038.8	941.2	879.1	846.2
32.5°	1046.2	990.1	890.1	817.0	786.4
35°	1002.4	940.1	832.8	756.0	729.1
37.5°	959.7	892.5	779.1	695.0	664.6
40°	914.5	841.4	723.1	636.5	604.8
42.5°	868.1	790.1	667.0	576.7	546.3
45°	819.4	737.7	609.7	523.1	493.8
47.5°	773.1	686.6	554.9	468.2	441.4
50°	721.8	635.3	501.1	417.0	391.4
52.5°	671.8	580.4	450.0	369.4	346.3
55°	623.1	528.0	396.3	323.1	300.0
57.5°	573.1	475.6	348.7	280.4	261.0
60°	521.8	424.3	298.7	236.6	217.1
62.5°	472.0	374.4	256.0	197.6	187.9
65°	420.7	321.8	212.1	170.7	167.0
67.5°	372.0	273.1	170.7	150.0	146.3
70°	320.7	225.6	141.4	129.3	124.3
72.5°	272.0	181.7	118.3	108.6	106.1
75°	224.3	139.0	97.6	89.0	87.9
77.5°	176.9	98.7	76.9	72.0	69.4
80°	132.8	70.7	58.4	53.7	53.7
82.5°	92.7	47.6	40.3	37.7	37.7
85°	52.4	26.8	23.1	23.1	23.1
87.5°	19.6	9.7	9.7	8.6	8.6
90°	2.3	28.6	47.7	59.8	64.4
92.5°	59.8	50.2	57.3	62.1	64.4
95°	155.1	76.3	93.0	105.2	102.7
97.5°	279.4	83.7	121.7	129.0	131.3
100°	422.8	95.6	136.1	155.1	160.0
102.5°	580.3	575.7	140.9	167.1	174.4
105°	726.0	797.8	145.8	171.9	181.5
107.5°	895.6	955.2	150.6	176.7	186.3
110°	1058.1	1108.1	418.0	179.2	188.6

TEST NUMBER: P928526

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1211.0	1253.8	1213.3	183.8	191.1
115°	1373.2	1413.8	1473.6	367.8	196.0
117.5°	1514.2	1561.9	1602.7	1260.9	635.3
120°	1671.9	1707.6	1750.7	1779.4	1456.9
122.5°	1805.5	1843.8	1891.7	1905.9	1908.4
125°	1941.6	1972.8	2018.2	2034.9	2042.0
127.5°	2065.8	2099.3	2135.3	2159.1	2161.4
130°	2182.9	2221.2	2247.3	2273.7	2271.4
132.5°	2302.3	2333.5	2359.6	2381.2	2378.9
135°	2402.7	2441.0	2462.3	2486.4	2481.6
137.5°	2507.7	2536.3	2560.4	2584.2	2577.1
140°	2610.4	2629.6	2655.7	2677.3	2665.4
142.5°	2696.5	2713.3	2744.2	2763.2	2751.3
145°	2787.3	2784.8	2825.3	2842.1	2830.1
147.5°	2865.9	2858.8	2899.4	2911.3	2901.9
150°	2942.4	2925.7	2964.0	2978.2	2966.3
152.5°	3006.8	2987.8	3023.6	3038.0	3021.3
155°	3068.9	3047.6	3076.3	3090.5	3071.5
157.5°	3119.1	3100.1	3121.7	3138.4	3119.1
160°	3162.2	3147.8	3162.2	3176.4	3159.7
162.5°	3200.3	3186.1	3198.0	3214.7	3193.2
165°	3233.7	3219.5	3226.6	3243.4	3226.6
167.5°	3260.1	3245.6	3253.0	3269.7	3248.2
170°	3281.6	3267.2	3272.0	3288.7	3267.2
172.5°	3295.8	3281.6	3286.5	3303.2	3281.6
175°	3307.7	3291.0	3295.8	3312.6	3288.7
177.5°	3312.6	3295.8	3298.4	3315.1	3293.6
180°	3300.7	3300.7	3300.7	3300.7	3300.7

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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	3.73	4.38	4.90	5.52	7.15	0.00	0.35	0.87	1.50	3.12
	3H	5.39	5.97	6.57	7.13	8.76	0.88	1.45	2.05	2.61	4.25
	4H	5.99	6.54	7.18	7.70	9.34	1.32	1.87	2.50	3.03	4.67
	6H	6.41	6.91	7.60	8.07	9.72	1.63	2.14	2.82	3.30	4.95
	8H	6.53	7.01	7.72	8.18	9.82	1.72	2.20	2.91	3.37	5.02
	12H	6.58	7.04	7.78	8.21	9.87	1.76	2.21	2.95	3.38	5.04
4H	2H	3.72	4.27	4.92	5.43	7.07	0.27	0.82	1.46	1.98	3.62
	3H	5.54	6.00	6.73	7.18	8.83	1.61	2.07	2.80	3.25	4.90
	4H	6.22	6.65	7.42	7.82	9.48	2.15	2.57	3.35	3.74	5.41
	6H	6.73	7.09	7.93	8.28	9.94	2.56	2.92	3.76	4.12	5.77
	8H	6.90	7.24	8.10	8.42	10.10	2.69	3.02	3.89	4.21	5.88
	12H	6.99	7.29	8.20	8.49	10.17	2.75	3.05	3.96	4.25	5.93
8H	4H	6.18	6.51	7.38	7.70	9.37	2.42	2.76	3.62	3.94	5.61
	6H	6.74	7.02	7.96	8.24	9.91	2.93	3.21	4.15	4.44	6.11
	8H	6.96	7.20	8.18	8.40	10.09	3.12	3.36	4.35	4.57	6.26
	12H	7.09	7.30	8.31	8.50	10.22	3.24	3.45	4.46	4.65	6.37
12H	4H	6.12	6.43	7.34	7.62	9.30	2.42	2.72	3.63	3.92	5.59
	6H	6.71	6.95	7.94	8.16	9.85	2.98	3.22	4.20	4.43	6.12
	8H	6.93	7.14	8.15	8.34	10.06	3.19	3.40	4.41	4.60	6.32

END OF REPORT