

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: P921892

Luminaire Tested: DFN2DIP-HX4F0-100D050US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921892
REPORT IS A COMBINATION OF REPORTS P899329 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US940-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

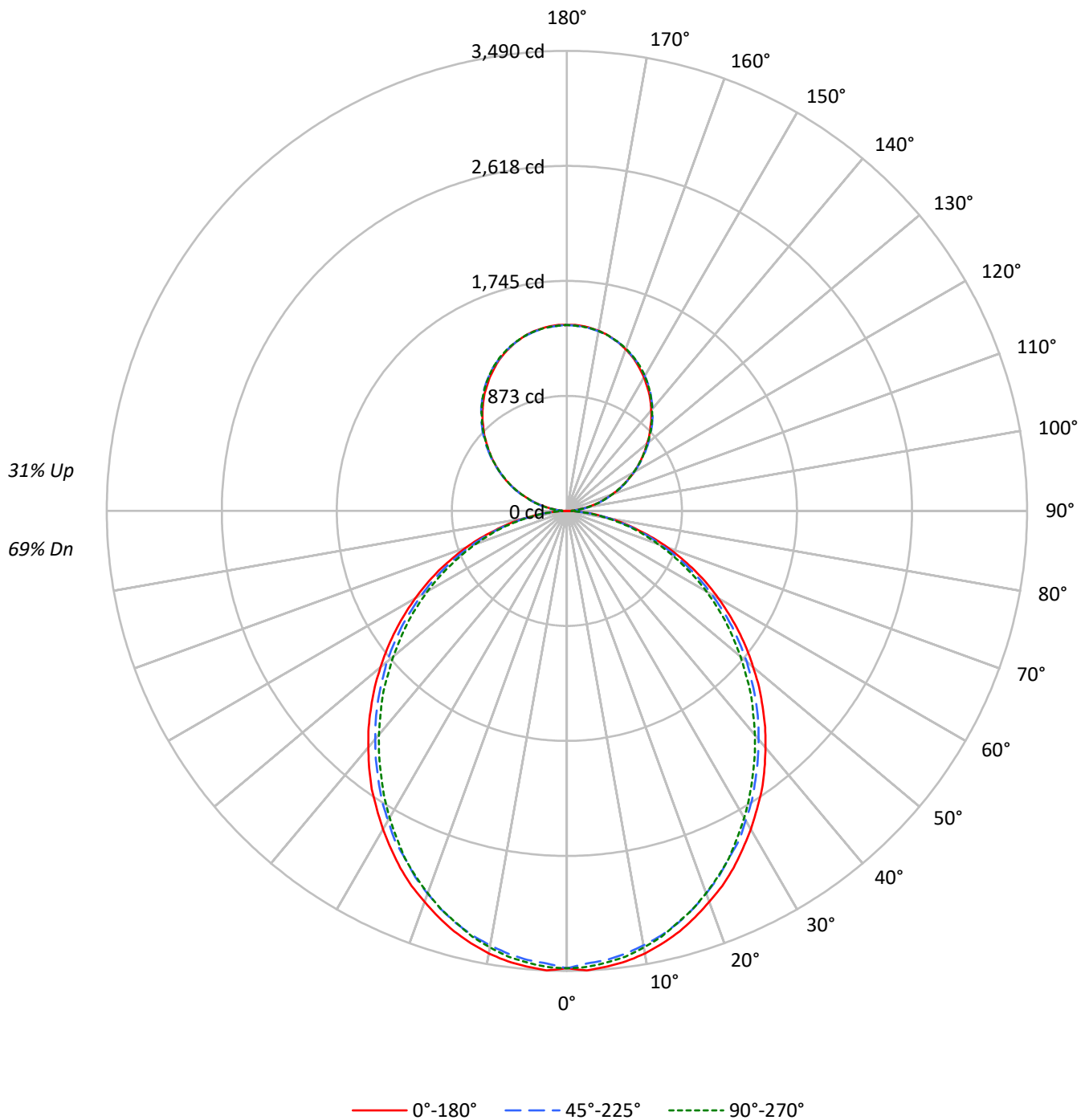
Lumens per Lamp: N/A
Luminaire Lumens: 12773.7 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 128
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

TEST NUMBER: P921892

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P921892

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US940-FLLFL

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	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	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	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	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	26	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°	2580	2580	2580
5°	2584	2544	2561
10°	2564	2510	2527
15°	2526	2469	2473
20°	2475	2412	2417
25°	2425	2344	2353
30°	2362	2280	2272
35°	2302	2205	2186
40°	2228	2129	2104
45°	2154	2053	2020
50°	2074	1973	1923
55°	1990	1881	1834
60°	1894	1771	1731
65°	1791	1658	1611
70°	1658	1520	1481
75°	1475	1354	1362
80°	1255	1144	1133
85°	911	780	753

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2154 cd/sqm

TEST NUMBER: P921892

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	326.6	2.6
10°-20°	918.8	7.2
20°-30°	1350.3	10.6
30°-40°	1568.3	12.3
40°-50°	1566.4	12.3
50°-60°	1365.8	10.7
60°-70°	1009.7	7.9
70°-80°	571.3	4.5
80°-90°	154.8	1.2
90°-100°	87.3	0.7
100°-110°	277.2	2.2
110°-120°	474.5	3.7
120°-130°	624.0	4.9
130°-140°	700.4	5.5
140°-150°	686.8	5.4
150°-160°	576.1	4.5
160°-170°	382.1	3.0
170°-180°	133.5	1.0
0°-30°	2595.7	20.3
0°-40°	4164.0	32.6
0°-60°	7096.2	55.6
0°-90°	8831.9	69.1
90°-120°	838.9	6.6
90°-150°	2850.1	22.3
90°-180°	3942.0	30.9
0°-180°	12773.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3470	3470	3470	3470	3470	
5°	3470	3457	3420	3446	3440	329
15°	3303	3283	3240	3253	3236	930
25°	2989	2963	2906	2912	2906	1376
35°	2579	2546	2492	2472	2456	1611
45°	2099	2075	2025	1989	1975	1620
55°	1588	1568	1528	1488	1472	1420
65°	1071	1051	1018	988	971	1059
75°	560	554	537	517	524	598
85°	137	134	130	120	117	152
90°	1	15	42	39	40	12
95°	62	74	76	76	74	69
105°	256	259	262	264	264	270
115°	476	483	481	480	476	471
125°	692	703	700	696	695	619
135°	896	909	911	910	907	692
145°	1087	1096	1103	1104	1099	679
155°	1243	1247	1251	1257	1253	572
165°	1353	1351	1351	1360	1354	382
175°	1408	1404	1402	1410	1403	134
180°	1410	1410	1410	1410	1410	

TEST NUMBER: P921892

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3469.7	3469.7	3469.7	3469.7	3469.7
2.5°	3489.9	3473.2	3436.4	3469.7	3463.3
5°	3469.7	3456.6	3419.8	3446.4	3440.0
7.5°	3446.4	3426.5	3389.7	3416.6	3409.9
10°	3409.9	3386.5	3346.5	3373.1	3363.2
12.5°	3359.6	3339.8	3299.8	3316.4	3309.7
15°	3303.0	3283.2	3239.6	3253.0	3236.5
17.5°	3232.9	3213.1	3169.5	3186.2	3169.5
20°	3156.0	3136.2	3089.5	3099.4	3086.3
22.5°	3079.6	3049.6	3006.0	3006.0	2999.3
25°	2989.4	2962.8	2906.2	2912.5	2906.2
27.5°	2889.1	2865.8	2822.6	2812.7	2796.0
30°	2789.4	2762.4	2712.5	2702.6	2689.1
32.5°	2682.4	2662.6	2609.1	2589.0	2575.5
35°	2579.1	2545.8	2492.3	2472.2	2455.5
37.5°	2462.3	2432.1	2378.7	2355.4	2338.7
40°	2342.3	2315.3	2261.9	2232.2	2218.8
42.5°	2225.4	2198.5	2145.5	2111.8	2092.0
45°	2098.7	2075.4	2025.1	1988.6	1975.2
47.5°	1975.2	1951.9	1898.4	1861.5	1841.7
50°	1844.9	1828.3	1781.5	1734.8	1718.2
52.5°	1718.2	1694.9	1651.6	1614.9	1591.5
55°	1588.3	1568.2	1528.1	1488.1	1471.5
57.5°	1458.0	1441.4	1397.8	1357.9	1344.4
60°	1327.8	1314.6	1267.9	1231.1	1221.2
62.5°	1201.0	1177.7	1144.4	1111.2	1097.7
65°	1071.1	1051.0	1017.7	987.6	971.0
67.5°	937.7	920.7	891.0	867.6	854.2
70°	814.1	800.7	770.6	747.3	734.1
72.5°	687.4	674.0	657.4	634.0	624.0
75°	560.4	554.0	537.0	517.2	523.9
77.5°	447.1	433.6	426.9	417.0	407.1
80°	333.8	330.3	323.5	313.6	306.9
82.5°	226.9	226.9	223.7	210.3	210.3
85°	136.6	133.5	130.3	120.0	116.8
87.5°	60.2	53.4	46.7	36.8	33.3
90°	1.2	15.3	41.6	39.1	40.4
92.5°	26.4	35.7	37.0	38.3	38.3
95°	62.1	74.0	76.1	76.1	74.0
97.5°	103.3	114.3	119.0	119.0	119.0
100°	150.9	160.7	164.1	164.1	162.8
102.5°	201.1	208.3	212.9	214.3	212.9
105°	255.9	259.3	261.9	263.9	263.9
107.5°	310.3	315.4	315.4	316.3	310.3
110°	363.0	369.9	369.9	369.9	366.4

TEST NUMBER: P921892

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	420.0	427.2	426.0	422.6	420.0
115°	476.1	483.0	480.8	479.6	476.1
117.5°	531.8	541.2	535.2	531.8	528.4
120°	587.9	597.3	587.9	587.9	584.1
122.5°	638.9	650.9	644.9	641.5	638.9
125°	692.5	703.1	699.7	695.9	694.6
127.5°	744.8	758.0	753.3	748.1	744.8
130°	793.7	809.0	806.8	804.3	799.6
132.5°	848.6	860.4	861.3	855.3	851.9
135°	895.7	908.8	911.4	910.2	906.8
137.5°	948.4	959.0	961.2	960.3	955.2
140°	994.7	1005.4	1011.3	1011.3	1006.7
142.5°	1042.3	1053.0	1056.4	1057.7	1053.0
145°	1087.4	1095.9	1102.7	1104.0	1099.3
147.5°	1127.8	1138.4	1143.5	1145.7	1140.9
150°	1169.5	1176.7	1181.3	1185.2	1181.3
152.5°	1206.5	1213.7	1219.6	1224.3	1219.6
155°	1243.4	1246.8	1250.6	1256.6	1252.8
157.5°	1275.3	1277.8	1280.0	1288.5	1282.5
160°	1303.8	1306.4	1307.6	1314.8	1309.7
162.5°	1330.2	1330.2	1331.4	1339.5	1333.6
165°	1352.7	1351.4	1351.4	1359.9	1354.0
167.5°	1373.1	1369.2	1369.2	1377.8	1371.8
170°	1388.4	1385.0	1383.8	1392.2	1385.0
172.5°	1399.0	1395.6	1394.4	1402.8	1395.6
175°	1407.6	1404.1	1401.6	1410.1	1402.8
177.5°	1412.2	1408.8	1406.2	1413.5	1406.2
180°	1410.1	1410.1	1410.1	1410.1	1410.1

TEST NUMBER: P921892

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US940-FLLFLL

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	12.17	13.23	12.94	14.03	15.00	11.74	12.80	12.51	13.60	14.57
	3H	13.84	14.80	14.63	15.61	16.60	13.37	14.33	14.16	15.13	16.13
	4H	14.44	15.34	15.25	16.16	17.17	13.97	14.87	14.77	15.69	16.70
	6H	14.85	15.69	15.67	16.51	17.53	14.38	15.21	15.19	16.03	17.06
	8H	14.96	15.76	15.79	16.60	17.62	14.49	15.28	15.31	16.12	17.15
	12H	15.02	15.78	15.85	16.61	17.66	14.54	15.30	15.37	16.13	17.18
4H	2H	12.65	13.56	13.46	14.37	15.38	12.31	13.21	13.12	14.03	15.04
	3H	14.54	15.29	15.36	16.14	17.17	14.15	14.90	14.97	15.75	16.77
	4H	15.26	15.95	16.10	16.80	17.85	14.86	15.54	15.69	16.39	17.44
	6H	15.79	16.39	16.64	17.26	18.31	15.38	15.98	16.23	16.85	17.90
	8H	15.95	16.50	16.80	17.37	18.44	15.53	16.09	16.39	16.95	18.03
	12H	16.03	16.53	16.90	17.42	18.49	15.61	16.11	16.48	16.99	18.07
8H	4H	15.48	16.03	16.33	16.90	17.97	15.12	15.67	15.97	16.54	17.61
	6H	16.12	16.58	17.00	17.49	18.56	15.75	16.22	16.64	17.12	18.19
	8H	16.34	16.75	17.23	17.65	18.74	15.97	16.38	16.86	17.28	18.37
	12H	16.48	16.84	17.38	17.74	18.88	16.10	16.46	16.99	17.35	18.49
12H	4H	15.47	15.97	16.35	16.86	17.93	15.12	15.62	15.99	16.51	17.58
	6H	16.15	16.56	17.04	17.46	18.55	15.80	16.21	16.69	17.11	18.20
	8H	16.40	16.76	17.30	17.66	18.80	16.05	16.40	16.94	17.30	18.44