

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: P916454

Luminaire Tested: DFN2DIP-HX4F0-110D050US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916454
REPORT IS A COMBINATION OF REPORTS P899331 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D050US930-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

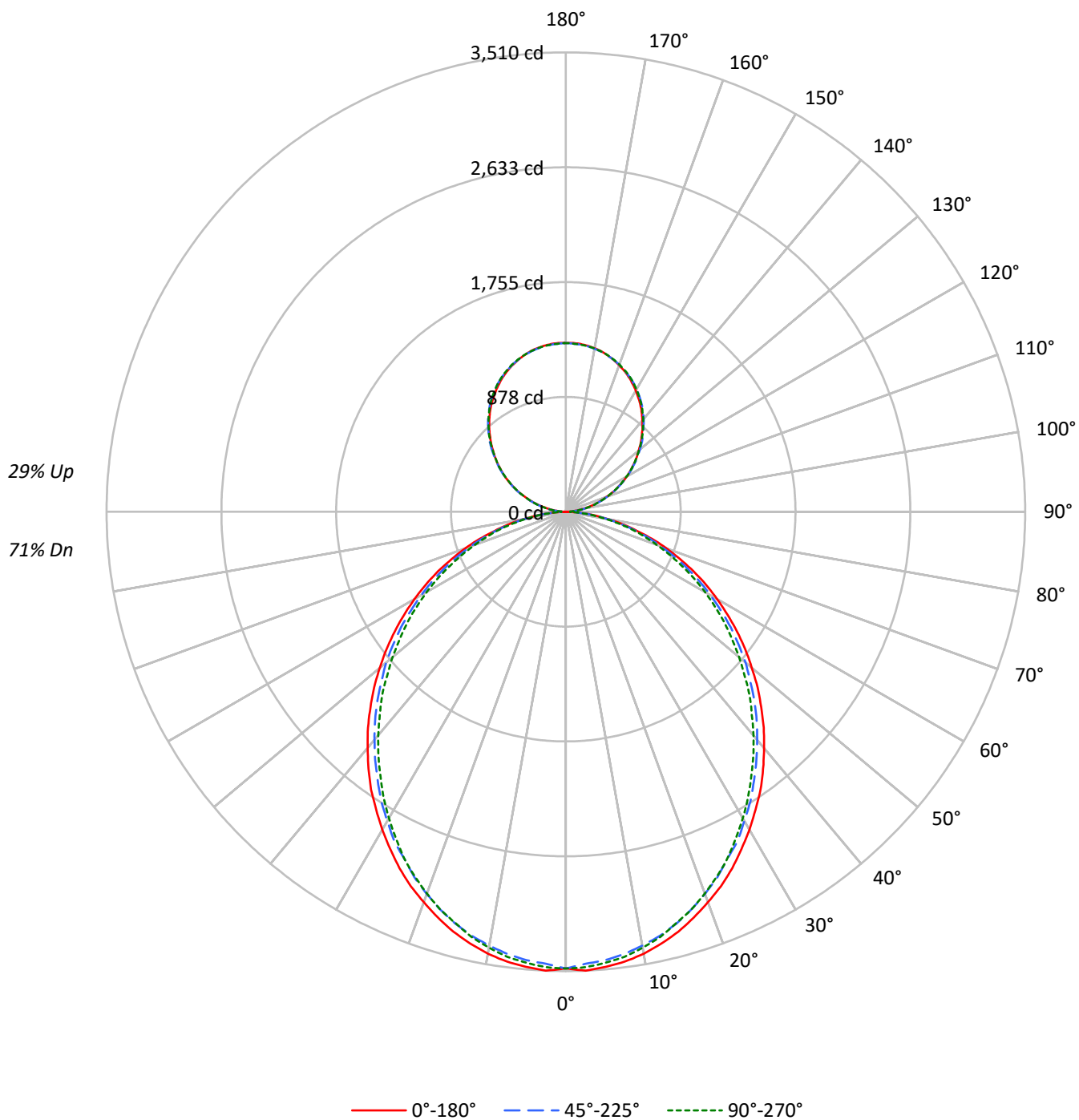
Lumens per Lamp: N/A
Luminaire Lumens: 12486.3 lumens
Efficiency: N/A
Efficacy: 88.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 140.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916454

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P916454

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US930-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	95	95	95	85	85	85	76	76	76
1	103	98	94	90	97	93	89	86	84	81	78	75	73	71	67	65	64
2	93	86	79	74	88	81	76	71	73	69	65	66	62	59	59	56	54
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	52	49	46
4	78	67	59	52	74	64	56	50	58	51	47	52	47	43	47	43	40
5	72	60	51	45	68	57	49	43	52	45	40	47	41	37	42	38	34
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	30
7	61	49	40	35	58	46	39	33	42	36	31	39	33	29	35	30	27
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	28	24
9	53	41	33	28	50	39	32	27	36	29	25	33	27	24	30	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2595	2595	2595
5°	2599	2559	2576
10°	2578	2525	2541
15°	2541	2483	2487
20°	2490	2426	2431
25°	2439	2357	2367
30°	2375	2293	2285
35°	2315	2217	2198
40°	2241	2141	2116
45°	2167	2065	2032
50°	2086	1985	1934
55°	2001	1892	1844
60°	1905	1781	1741
65°	1801	1668	1620
70°	1668	1528	1490
75°	1483	1362	1369
80°	1262	1150	1139
85°	917	784	758

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2167 cd/sqm

TEST NUMBER: P916454

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.4	2.6
10°-20°	924.1	7.4
20°-30°	1358.1	10.9
30°-40°	1577.3	12.6
40°-50°	1575.4	12.6
50°-60°	1373.7	11.0
60°-70°	1015.5	8.1
70°-80°	574.5	4.6
80°-90°	155.3	1.2
90°-100°	79.8	0.6
100°-110°	253.5	2.0
110°-120°	433.8	3.5
120°-130°	570.5	4.6
130°-140°	640.4	5.1
140°-150°	627.9	5.0
150°-160°	526.8	4.2
160°-170°	349.3	2.8
170°-180°	122.1	1.0
0°-30°	2610.6	20.9
0°-40°	4187.9	33.5
0°-60°	7137.0	57.2
0°-90°	8882.2	71.1
90°-120°	767.0	6.1
90°-150°	2605.8	20.9
90°-180°	3604.0	28.9
0°-180°	12486.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3490	3490	3490	3490	3490	
5°	3490	3476	3439	3466	3460	331
15°	3322	3302	3258	3272	3255	936
25°	3006	2980	2923	2929	2923	1383
35°	2594	2560	2507	2486	2470	1620
45°	2111	2087	2037	2000	1987	1629
55°	1597	1577	1537	1497	1480	1428
65°	1077	1057	1024	993	977	1065
75°	564	557	540	520	527	602
85°	138	134	131	121	118	153
90°	1	14	38	36	37	12
95°	57	68	70	70	68	63
105°	234	237	240	241	241	247
115°	435	442	440	438	435	431
125°	633	643	640	636	635	566
135°	819	831	833	832	829	633
145°	994	1002	1008	1009	1005	621
155°	1137	1140	1144	1149	1145	523
165°	1237	1236	1236	1243	1238	349
175°	1287	1284	1282	1289	1283	122
180°	1289	1289	1289	1289	1289	

TEST NUMBER: P916454

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3489.6	3489.6	3489.6	3489.6	3489.6
2.5°	3509.9	3493.1	3456.1	3489.6	3483.2
5°	3489.6	3476.4	3439.4	3466.1	3459.7
7.5°	3466.1	3446.2	3409.2	3436.2	3429.5
10°	3429.5	3405.9	3365.7	3392.4	3382.4
12.5°	3378.9	3358.9	3318.8	3335.5	3328.7
15°	3321.9	3302.0	3258.2	3271.7	3255.0
17.5°	3251.4	3231.5	3187.7	3204.4	3187.7
20°	3174.2	3154.2	3107.3	3117.2	3104.1
22.5°	3097.3	3067.0	3023.2	3023.2	3016.4
25°	3006.5	2979.8	2922.8	2929.3	2922.8
27.5°	2905.7	2882.2	2838.8	2828.8	2812.1
30°	2805.4	2778.3	2728.1	2718.1	2704.6
32.5°	2697.8	2677.9	2624.1	2603.8	2590.3
35°	2593.9	2560.4	2506.6	2486.3	2469.6
37.5°	2476.4	2446.1	2392.4	2368.8	2352.1
40°	2355.7	2328.7	2274.9	2245.0	2231.5
42.5°	2238.2	2211.2	2157.8	2123.9	2104.0
45°	2110.8	2087.2	2036.7	2000.1	1986.6
47.5°	1986.6	1963.1	1909.3	1872.3	1852.3
50°	1855.5	1838.8	1791.8	1744.8	1728.1
52.5°	1728.1	1704.5	1661.2	1624.1	1600.6
55°	1597.4	1577.1	1536.9	1496.6	1479.9
57.5°	1466.4	1449.7	1405.9	1365.6	1352.1
60°	1335.4	1322.3	1275.2	1238.2	1228.2
62.5°	1207.9	1184.5	1151.0	1117.5	1104.0
65°	1077.3	1057.0	1023.5	993.3	976.6
67.5°	943.1	926.0	896.1	872.6	859.1
70°	818.8	805.3	775.0	751.5	738.3
72.5°	691.4	677.8	661.1	637.6	627.6
75°	563.5	557.2	540.1	520.2	526.9
77.5°	449.6	436.1	429.3	419.4	409.4
80°	335.7	332.2	325.4	315.4	308.7
82.5°	228.2	228.2	225.0	211.5	211.5
85°	137.5	134.2	131.0	120.7	117.5
87.5°	60.5	53.7	47.0	37.0	33.4
90°	1.1	14.0	38.1	35.8	36.9
92.5°	24.1	32.6	33.8	35.0	35.0
95°	56.7	67.7	69.5	69.5	67.7
97.5°	94.4	104.5	108.8	108.8	108.8
100°	137.9	146.9	150.0	150.0	148.9
102.5°	183.8	190.5	194.7	195.9	194.7
105°	234.0	237.1	239.5	241.3	241.3
107.5°	283.7	288.4	288.4	289.2	283.7
110°	331.9	338.2	338.2	338.2	335.0

TEST NUMBER: P916454

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	384.0	390.6	389.5	386.4	384.0
115°	435.3	441.6	439.6	438.5	435.3
117.5°	486.2	494.8	489.3	486.2	483.1
120°	537.5	546.1	537.5	537.5	534.0
122.5°	584.2	595.1	589.6	586.5	584.2
125°	633.2	642.9	639.8	636.3	635.1
127.5°	680.9	693.0	688.8	684.0	680.9
130°	725.7	739.6	737.7	735.4	731.1
132.5°	775.8	786.7	787.5	782.0	778.9
135°	819.0	831.0	833.3	832.2	829.1
137.5°	867.2	876.9	878.8	878.0	873.3
140°	909.5	919.2	924.6	924.6	920.4
142.5°	953.0	962.8	965.9	967.0	962.8
145°	994.3	1002.0	1008.2	1009.4	1005.1
147.5°	1031.2	1040.9	1045.5	1047.5	1043.2
150°	1069.3	1075.9	1080.1	1083.6	1080.1
152.5°	1103.1	1109.7	1115.1	1119.4	1115.1
155°	1136.9	1140.0	1143.5	1148.9	1145.4
157.5°	1166.0	1168.3	1170.3	1178.1	1172.6
160°	1192.0	1194.4	1195.6	1202.2	1197.5
162.5°	1216.2	1216.2	1217.3	1224.7	1219.3
165°	1236.8	1235.6	1235.6	1243.4	1237.9
167.5°	1255.4	1251.9	1251.9	1259.7	1254.3
170°	1269.4	1266.3	1265.2	1272.9	1266.3
172.5°	1279.1	1276.0	1274.9	1282.6	1276.0
175°	1286.9	1283.8	1281.5	1289.2	1282.6
177.5°	1291.2	1288.1	1285.7	1292.3	1285.7
180°	1289.2	1289.2	1289.2	1289.2	1289.2

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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	12.34	13.43	13.09	14.20	15.14	11.91	13.00	12.66	13.77	14.71
	3H	14.02	15.00	14.78	15.78	16.75	13.55	14.52	14.31	15.31	16.27
	4H	14.62	15.54	15.40	16.33	17.31	14.14	15.07	14.93	15.86	16.84
	6H	15.03	15.88	15.83	16.68	17.67	14.55	15.41	15.35	16.21	17.20
	8H	15.14	15.95	15.95	16.77	17.77	14.67	15.48	15.47	16.30	17.29
	12H	15.20	15.97	16.01	16.79	17.80	14.72	15.49	15.53	16.31	17.32
4H	2H	12.83	13.75	13.62	14.55	15.52	12.49	13.41	13.27	14.20	15.18
	3H	14.72	15.49	15.52	16.32	17.31	14.32	15.10	15.12	15.92	16.92
	4H	15.44	16.14	16.26	16.97	17.99	15.04	15.74	15.85	16.56	17.58
	6H	15.97	16.58	16.80	17.43	18.46	15.56	16.17	16.39	17.02	18.05
	8H	16.13	16.70	16.96	17.54	18.58	15.71	16.28	16.55	17.13	18.17
	12H	16.21	16.72	17.07	17.59	18.63	15.79	16.30	16.64	17.17	18.21
8H	4H	15.66	16.23	16.49	17.07	18.11	15.30	15.87	16.13	16.71	17.75
	6H	16.30	16.77	17.16	17.66	18.70	15.94	16.41	16.80	17.30	18.33
	8H	16.52	16.94	17.40	17.83	18.88	16.15	16.57	17.03	17.46	18.51
	12H	16.67	17.04	17.54	17.91	19.02	16.28	16.65	17.16	17.52	18.63
12H	4H	15.65	16.17	16.51	17.03	18.08	15.30	15.81	16.16	16.68	17.72
	6H	16.33	16.75	17.20	17.63	18.69	15.98	16.40	16.85	17.28	18.34
	8H	16.59	16.95	17.46	17.83	18.94	16.23	16.60	17.10	17.47	18.58