

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: P916419

Luminaire Tested: DFN2DIP-HX4F0-090D050US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916419
REPORT IS A COMBINATION OF REPORTS P899328 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D050US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

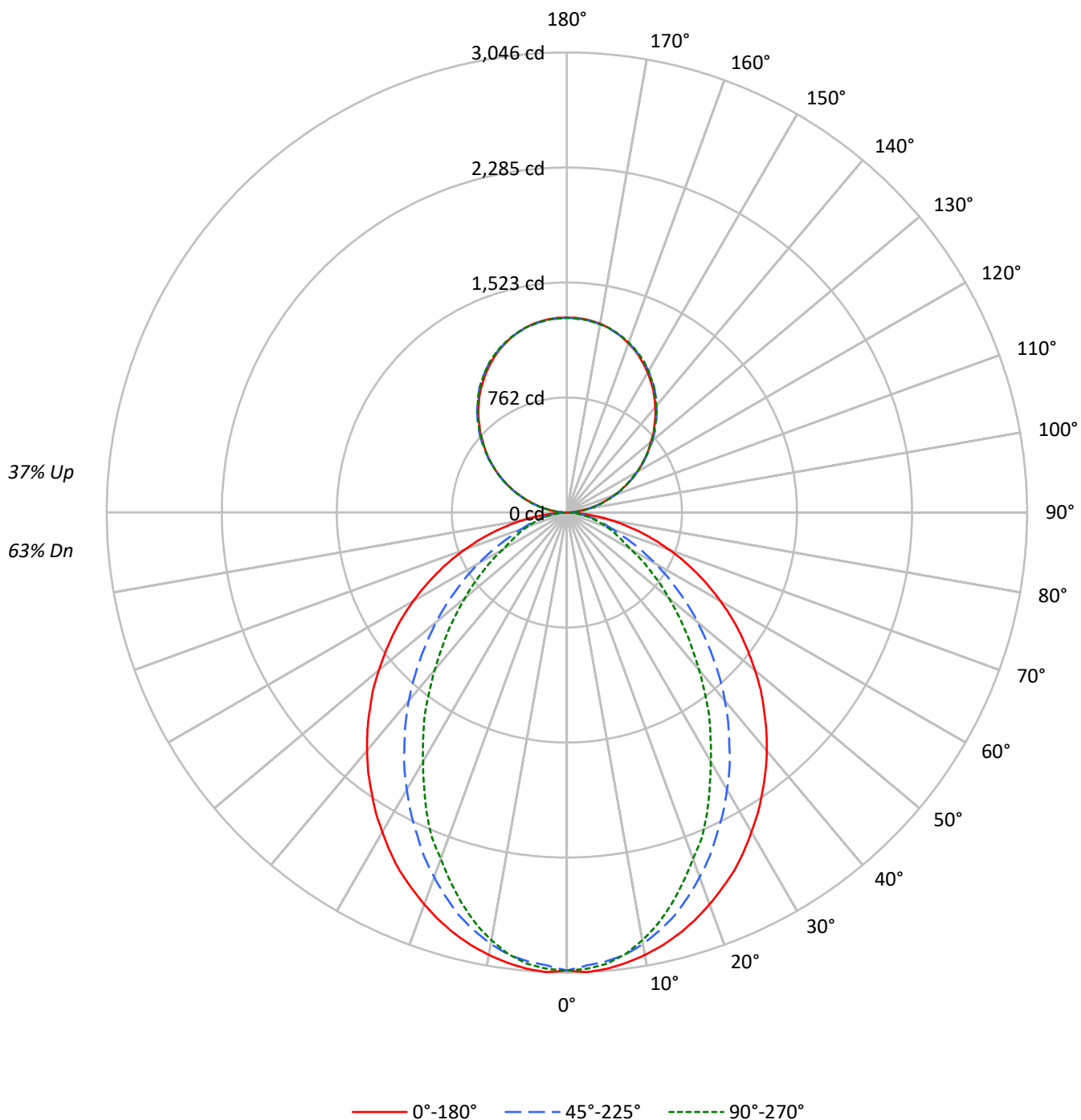
Lumens per Lamp: N/A
Luminaire Lumens: 9844.7 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 117.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916419

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P916419

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-RLLFLL

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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	81	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	53	51
3	85	76	69	63	80	72	65	60	64	59	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	68	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	47	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	37	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2255	2255	2255
5°	2259	2219	2233
10°	2237	2176	2161
15°	2206	2104	2049
20°	2165	2005	1911
25°	2124	1895	1778
30°	2068	1781	1609
35°	2013	1658	1461
40°	1958	1532	1291
45°	1893	1391	1137
50°	1826	1249	986
55°	1757	1098	841
60°	1676	939	693
65°	1583	778	624
70°	1471	628	564
75°	1329	554	514
80°	1125	465	446
85°	786	312	336

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1893 cd/sqm

TEST NUMBER: P916419

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.2	2.9
10°-20°	780.3	7.9
20°-30°	1095.5	11.1
30°-40°	1194.1	12.1
40°-50°	1097.5	11.1
50°-60°	861.9	8.8
60°-70°	561.0	5.7
70°-80°	288.8	2.9
80°-90°	77.4	0.8
90°-100°	79.8	0.8
100°-110°	253.5	2.6
110°-120°	433.8	4.4
120°-130°	570.5	5.8
130°-140°	640.4	6.5
140°-150°	627.9	6.4
150°-160°	526.8	5.4
160°-170°	349.3	3.5
170°-180°	122.1	1.2
0°-30°	2159.9	21.9
0°-40°	3354.0	34.1
0°-60°	5313.5	54.0
0°-90°	6240.7	63.4
90°-120°	767.0	7.8
90°-150°	2605.8	26.5
90°-180°	3604.0	36.6
0°-180°	9844.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3033	3033	3033	3033	3033	
5°	3033	3019	2983	3008	3000	288
15°	2884	2854	2761	2709	2682	813
25°	2618	2530	2349	2237	2196	1204
35°	2256	2116	1875	1702	1641	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	947	724	478	384	376	939
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	1	14	38	36	37	10
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: P916419

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3032.7	3032.7	3032.7	3032.7	3032.7
2.5°	3046.4	3032.7	3002.3	3030.1	3024.5
5°	3032.7	3019.0	2983.2	3007.9	2999.7
7.5°	3007.9	2991.6	2953.2	2963.9	2950.2
10°	2975.0	2955.8	2901.1	2892.6	2876.3
12.5°	2933.9	2909.2	2835.0	2818.6	2788.3
15°	2884.4	2854.2	2761.0	2708.8	2681.5
17.5°	2826.8	2782.9	2667.5	2607.2	2563.3
20°	2761.0	2706.0	2568.8	2500.4	2439.8
22.5°	2689.7	2626.5	2467.2	2374.0	2333.0
25°	2618.3	2530.4	2349.3	2236.9	2195.5
27.5°	2533.3	2439.8	2239.5	2110.5	2047.3
30°	2442.7	2338.2	2118.6	1978.9	1904.6
32.5°	2354.7	2228.4	2003.6	1838.8	1770.1
35°	2256.1	2116.0	1874.6	1701.7	1641.1
37.5°	2160.0	2008.9	1753.8	1564.2	1495.8
40°	2058.4	1893.9	1627.4	1432.6	1361.3
42.5°	1954.1	1778.6	1501.3	1298.1	1229.6
45°	1844.4	1660.4	1372.3	1177.2	1111.4
47.5°	1740.1	1545.3	1248.9	1053.8	993.5
50°	1624.8	1430.0	1128.0	938.5	881.1
52.5°	1512.1	1306.3	1012.8	831.6	779.5
55°	1402.3	1188.3	891.9	727.4	675.2
57.5°	1290.0	1070.4	785.1	631.3	587.3
60°	1174.6	955.0	672.4	532.6	488.6
62.5°	1062.3	842.7	576.3	444.7	422.8
65°	946.9	724.5	477.5	384.3	375.9
67.5°	837.1	614.7	384.3	337.5	329.3
70°	721.9	507.8	318.3	290.9	279.8
72.5°	612.0	408.8	266.1	244.3	238.8
75°	504.9	312.7	219.6	200.3	197.7
77.5°	398.0	222.2	172.9	161.9	156.4
80°	299.1	159.3	131.6	120.8	120.8
82.5°	208.5	107.1	90.6	85.0	85.0
85°	117.9	60.3	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
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: P916419

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-RLFL

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

TEST NUMBER: P916419

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-RLLFLL

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	11.14	12.09	11.98	12.95	14.02	7.11	8.06	7.95	8.92	9.99
	3H	12.83	13.68	13.68	14.55	15.64	8.31	9.16	9.16	10.03	11.13
	4H	13.44	14.25	14.31	15.12	16.23	8.77	9.57	9.64	10.45	11.55
	6H	13.87	14.61	14.75	15.49	16.61	9.10	9.84	9.98	10.72	11.84
	8H	14.00	14.70	14.89	15.60	16.72	9.19	9.90	10.08	10.80	11.91
	12H	14.07	14.74	14.96	15.63	16.77	9.24	9.91	10.14	10.80	11.95
4H	2H	11.17	11.98	12.05	12.85	13.96	7.72	8.53	8.60	9.40	10.51
	3H	13.01	13.68	13.90	14.59	15.71	9.09	9.75	9.97	10.66	11.78
	4H	13.71	14.32	14.61	15.22	16.37	9.64	10.25	10.54	11.15	12.30
	6H	14.23	14.76	15.15	15.68	16.83	10.07	10.59	10.98	11.52	12.67
	8H	14.41	14.90	15.33	15.82	16.99	10.20	10.69	11.11	11.61	12.77
	12H	14.51	14.95	15.45	15.89	17.06	10.27	10.71	11.20	11.65	12.82
8H	4H	13.69	14.18	14.60	15.10	16.26	9.93	10.42	10.84	11.34	12.50
	6H	14.26	14.66	15.20	15.63	16.79	10.45	10.86	11.39	11.82	12.98
	8H	14.48	14.84	15.43	15.79	16.97	10.65	11.00	11.60	11.96	13.14
	12H	14.62	14.94	15.58	15.88	17.11	10.77	11.09	11.73	12.03	13.26
12H	4H	13.65	14.09	14.58	15.02	16.19	9.94	10.38	10.87	11.32	12.49
	6H	14.24	14.59	15.19	15.55	16.73	10.50	10.86	11.45	11.82	13.00
	8H	14.46	14.78	15.42	15.72	16.95	10.72	11.04	11.67	11.98	13.21