

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: P916417

Luminaire Tested: DFN2DIP-HX4F0-090D040US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916417
REPORT IS A COMBINATION OF REPORTS P899310 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D040US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

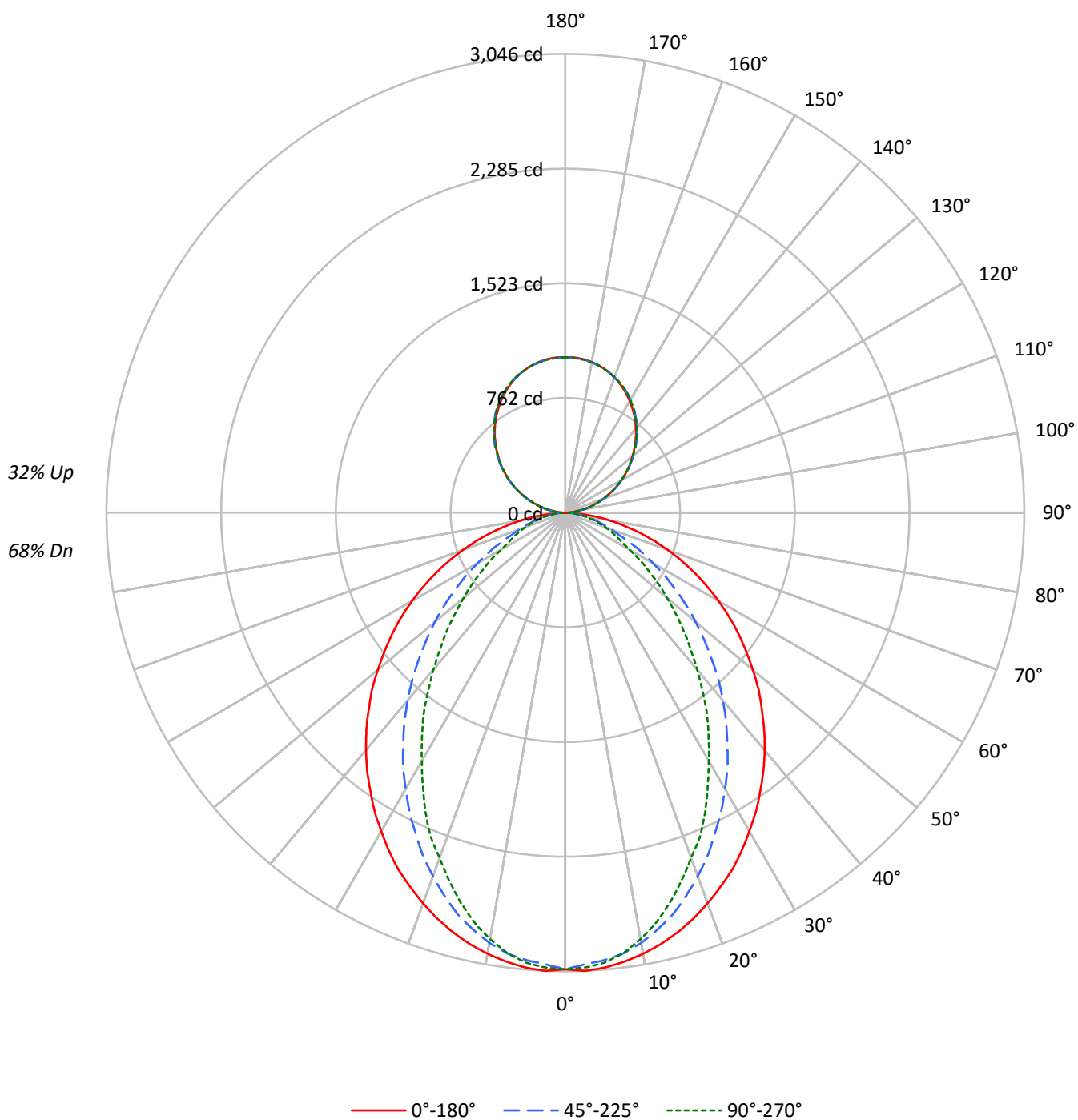
Lumens per Lamp: N/A
Luminaire Lumens: 9123.2 lumens
Efficiency: N/A
Efficacy: 81.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 112.4
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: P916417

CATALOG NUMBER: DFN2DIP-HX4F0-090D040US930-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P916417

CATALOG NUMBER: DFN2DIP-HX4F0-090D040US930-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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73
1	103	98	95	91	97	93	90	87	83	81	78	74	72	70	66	64	63
2	94	87	81	76	89	82	77	72	74	70	66	66	63	60	59	56	54
3	86	77	70	64	81	73	67	61	66	61	56	59	55	51	52	49	47
4	79	69	61	55	75	65	58	53	59	53	49	53	48	45	47	44	41
5	73	62	53	48	69	59	51	46	53	47	43	48	43	39	43	39	36
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	39	35	32
7	63	51	43	37	59	48	41	36	44	38	33	40	35	31	36	32	29
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26
9	55	42	35	30	52	41	34	29	37	31	27	34	29	25	31	27	24
10	51	39	32	27	48	37	31	26	34	29	25	32	27	23	29	25	22

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: P916417

CATALOG NUMBER: DFN2DIP-HX4F0-090D040US930-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.2	3.1
10°-20°	780.3	8.6
20°-30°	1095.5	12.0
30°-40°	1194.1	13.1
40°-50°	1097.5	12.0
50°-60°	861.9	9.4
60°-70°	561.0	6.1
70°-80°	288.8	3.2
80°-90°	76.6	0.8
90°-100°	63.8	0.7
100°-110°	202.8	2.2
110°-120°	347.0	3.8
120°-130°	456.4	5.0
130°-140°	512.3	5.6
140°-150°	502.4	5.5
150°-160°	421.4	4.6
160°-170°	279.5	3.1
170°-180°	97.7	1.1
0°-30°	2159.9	23.7
0°-40°	3354.0	36.8
0°-60°	5313.5	58.2
0°-90°	6240.0	68.4
90°-120°	613.6	6.7
90°-150°	2084.7	22.9
90°-180°	2883.0	31.6
0°-180°	9123.2	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	11	30	29	30	9
95°	45	54	56	56	54	51
105°	187	190	192	193	193	198
115°	348	353	352	351	348	344
125°	506	514	512	509	508	453
135°	655	665	667	666	663	506
145°	795	802	807	808	804	497
155°	910	912	915	919	916	419
165°	989	988	988	995	990	279
175°	1030	1027	1025	1031	1026	98
180°	1031	1031	1031	1031	1031	

TEST NUMBER: P916417

CATALOG NUMBER: DFN2DIP-HX4F0-090D040US930-RLFL

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°	0.9	11.2	30.5	28.6	29.5
92.5°	19.2	26.1	27.1	28.0	28.0
95°	45.4	54.1	55.7	55.7	54.1
97.5°	75.6	83.6	87.1	87.1	87.1
100°	110.4	117.6	120.0	120.0	119.1
102.5°	147.1	152.4	155.8	156.7	155.8
105°	187.2	189.6	191.5	193.1	193.1
107.5°	227.0	230.7	230.7	231.3	227.0
110°	265.5	270.5	270.5	270.5	268.1

TEST NUMBER: P916417

CATALOG NUMBER: DFN2DIP-HX4F0-090D040US930-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	307.2	312.5	311.5	309.1	307.2
115°	348.2	353.3	351.6	350.7	348.2
117.5°	389.0	395.8	391.5	389.0	386.5
120°	430.1	436.8	430.1	430.1	427.2
122.5°	467.3	476.1	471.7	469.2	467.3
125°	506.5	514.3	511.8	509.0	508.1
127.5°	544.8	554.4	551.0	547.2	544.8
130°	580.5	591.7	590.2	588.3	584.9
132.5°	620.6	629.3	630.0	625.6	623.1
135°	655.2	664.8	666.7	665.7	663.2
137.5°	693.7	701.5	703.0	702.4	698.7
140°	727.6	735.4	739.7	739.7	736.3
142.5°	762.5	770.2	772.7	773.6	770.2
145°	795.4	801.6	806.6	807.6	804.1
147.5°	824.9	832.7	836.4	838.0	834.5
150°	855.4	860.7	864.1	866.9	864.1
152.5°	882.5	887.7	892.1	895.5	892.1
155°	909.5	912.0	914.8	919.2	916.3
157.5°	932.9	934.7	936.2	942.5	938.1
160°	953.7	955.5	956.4	961.7	958.0
162.5°	972.9	972.9	973.9	979.7	975.4
165°	989.4	988.5	988.5	994.7	990.3
167.5°	1004.4	1001.5	1001.5	1007.8	1003.4
170°	1015.5	1013.0	1012.1	1018.3	1013.0
172.5°	1023.3	1020.8	1019.9	1026.1	1020.8
175°	1029.6	1027.0	1025.2	1031.4	1026.1
177.5°	1033.0	1030.5	1028.6	1033.9	1028.6
180°	1031.4	1031.4	1031.4	1031.4	1031.4

TEST NUMBER: P916417

CATALOG NUMBER: DFN2DIP-HX4F0-090D040US930-RLFL

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	11.54	12.55	12.33	13.35	14.34	7.51	8.52	8.30	9.33	10.31
	3H	13.23	14.13	14.03	14.95	15.96	8.72	9.62	9.52	10.43	11.45
	4H	13.85	14.70	14.67	15.52	16.55	9.18	10.03	10.00	10.85	11.87
	6H	14.28	15.06	15.11	15.89	16.93	9.51	10.29	10.34	11.12	12.16
	8H	14.41	15.16	15.25	16.01	17.05	9.60	10.35	10.44	11.20	12.24
	12H	14.48	15.19	15.33	16.03	17.10	9.65	10.36	10.50	11.21	12.27
4H	2H	11.58	12.43	12.40	13.25	14.28	8.13	8.98	8.95	9.80	10.83
	3H	13.43	14.13	14.26	14.99	16.03	9.50	10.20	10.33	11.06	12.10
	4H	14.13	14.77	14.97	15.62	16.69	10.05	10.69	10.90	11.55	12.62
	6H	14.65	15.20	15.52	16.08	17.16	10.48	11.04	11.35	11.92	12.99
	8H	14.83	15.35	15.70	16.22	17.31	10.62	11.13	11.49	12.01	13.09
	12H	14.93	15.40	15.82	16.29	17.38	10.69	11.16	11.58	12.05	13.14
8H	4H	14.11	14.62	14.97	15.50	16.58	10.35	10.86	11.22	11.74	12.82
	6H	14.68	15.11	15.58	16.02	17.11	10.87	11.30	11.77	12.22	13.30
	8H	14.90	15.28	15.80	16.19	17.29	11.07	11.45	11.97	12.36	13.46
	12H	15.05	15.38	15.95	16.28	17.44	11.20	11.53	12.10	12.43	13.59
12H	4H	14.07	14.53	14.95	15.42	16.52	10.36	10.82	11.25	11.72	12.81
	6H	14.66	15.03	15.56	15.95	17.05	10.92	11.30	11.83	12.21	13.32
	8H	14.89	15.22	15.79	16.12	17.28	11.14	11.48	12.05	12.38	13.54