

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: P929070

Luminaire Tested: DFN2DIP-HX4F0-110D040US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929070
REPORT IS A COMBINATION OF REPORTS P900834 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D040US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

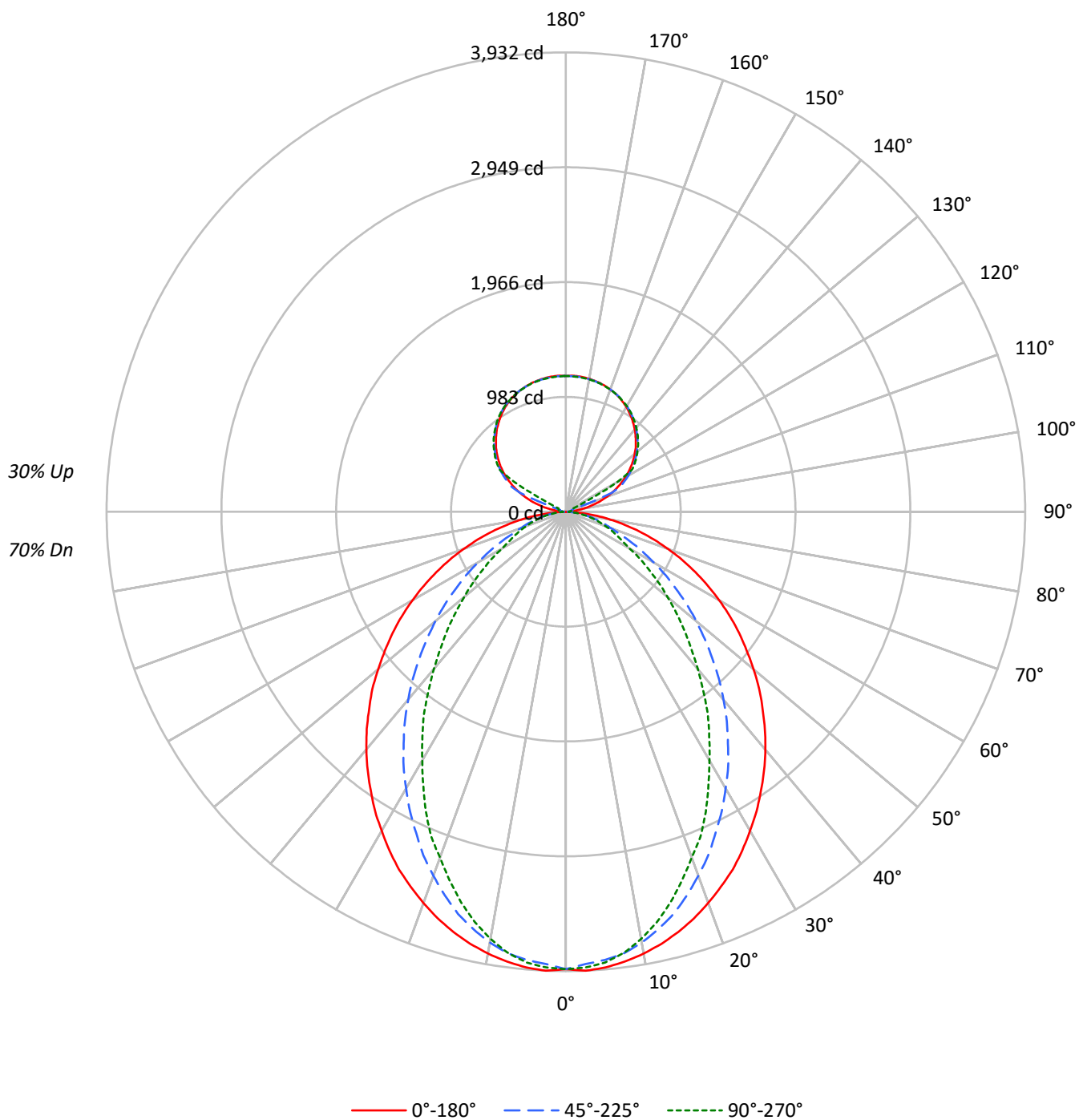
Lumens per Lamp: N/A
Luminaire Lumens: 11459.9 lumens
Efficiency: N/A
Efficacy: 80.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 142.4
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: P929070

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US935-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P929070

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US935-RLLONL

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	84	84	84	75	75	75
1	103	99	95	92	97	94	90	87	84	82	79	75	73	72	67	66	64
2	94	87	81	76	89	83	77	73	75	70	67	67	64	61	60	58	55
3	87	77	70	64	82	73	67	62	66	61	57	60	56	52	54	51	48
4	80	69	61	55	75	66	59	53	60	54	49	54	49	46	48	45	42
5	73	62	54	48	69	59	52	46	54	48	43	49	44	40	44	40	37
6	68	56	48	42	64	53	46	41	49	43	38	44	39	35	40	36	33
7	63	51	43	37	60	49	41	36	44	38	34	41	36	32	37	33	30
8	59	46	39	33	56	45	37	32	41	35	30	37	32	29	34	30	27
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	27	24
10	52	39	32	27	49	38	31	27	35	29	25	32	27	24	29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2911	2911	2911
5°	2915	2865	2883
10°	2887	2809	2789
15°	2847	2716	2644
20°	2795	2588	2466
25°	2741	2445	2295
30°	2669	2298	2077
35°	2599	2141	1885
40°	2527	1977	1666
45°	2444	1796	1467
50°	2357	1613	1273
55°	2267	1417	1086
60°	2163	1212	894
65°	2043	1004	805
70°	1898	810	729
75°	1716	715	663
80°	1452	601	576
85°	1015	402	433

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2444 cd/sqm

TEST NUMBER: P929070

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	3.2
10°-20°	1007.1	8.8
20°-30°	1413.9	12.3
30°-40°	1541.3	13.4
40°-50°	1416.6	12.4
50°-60°	1112.5	9.7
60°-70°	724.2	6.3
70°-80°	372.8	3.3
80°-90°	97.2	0.8
90°-100°	38.3	0.3
100°-110°	142.9	1.2
110°-120°	378.9	3.3
120°-130°	628.5	5.5
130°-140°	667.6	5.8
140°-150°	620.5	5.4
150°-160°	498.8	4.4
160°-170°	321.4	2.8
170°-180°	110.6	1.0
0°-30°	2787.9	24.3
0°-40°	4329.2	37.8
0°-60°	6858.3	59.8
0°-90°	8052.4	70.3
90°-120°	560.1	4.9
90°-150°	2476.6	21.6
90°-180°	3407.0	29.7
0°-180°	11459.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	1	10	17	21	23	11
95°	55	27	33	37	36	65
105°	256	281	51	60	64	273
115°	484	498	519	130	69	476
125°	684	695	711	717	719	610
135°	846	860	867	876	874	654
145°	982	981	995	1001	997	614
155°	1081	1073	1083	1088	1082	498
165°	1139	1134	1136	1142	1136	322
175°	1165	1159	1161	1166	1158	111
180°	1162	1162	1162	1162	1162	

TEST NUMBER: P929070

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.6	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.1	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.1	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.3	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.7	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.9	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.9	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
90°	0.8	10.1	16.8	21.1	22.6
92.5°	21.1	17.7	20.1	21.9	22.6
95°	54.6	26.9	32.7	37.0	36.2
97.5°	98.4	29.4	42.9	45.5	46.2
100°	148.9	33.7	48.0	54.6	56.3
102.5°	204.3	202.8	49.6	58.8	61.4
105°	255.6	280.9	51.3	60.5	63.9
107.5°	315.4	336.4	53.0	62.3	65.6
110°	372.6	390.2	147.2	63.1	66.4

TEST NUMBER: P929070

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	426.5	441.5	427.2	64.7	67.3
115°	483.5	497.8	518.9	129.5	69.1
117.5°	533.2	550.0	564.4	444.0	223.7
120°	588.8	601.3	616.5	626.6	513.1
122.5°	635.8	649.3	666.2	671.1	672.0
125°	683.7	694.7	710.7	716.6	719.1
127.5°	727.5	739.3	751.9	760.3	761.1
130°	768.7	782.2	791.3	800.6	799.9
132.5°	810.7	821.7	831.0	838.5	837.8
135°	846.1	859.6	867.1	875.6	873.9
137.5°	883.0	893.1	901.6	910.0	907.5
140°	919.2	926.0	935.2	942.8	938.6
142.5°	949.6	955.5	966.4	973.0	968.9
145°	981.5	980.7	994.9	1000.8	996.6
147.5°	1009.2	1006.7	1021.0	1025.2	1021.9
150°	1036.1	1030.3	1043.8	1048.8	1044.6
152.5°	1058.9	1052.1	1064.7	1069.8	1063.9
155°	1080.7	1073.2	1083.3	1088.3	1081.6
157.5°	1098.4	1091.7	1099.3	1105.2	1098.4
160°	1113.5	1108.5	1113.5	1118.5	1112.7
162.5°	1127.0	1122.0	1126.2	1132.0	1124.5
165°	1138.8	1133.8	1136.3	1142.1	1136.3
167.5°	1148.1	1142.9	1145.6	1151.4	1143.8
170°	1155.6	1150.6	1152.2	1158.1	1150.6
172.5°	1160.6	1155.6	1157.4	1163.2	1155.6
175°	1164.8	1158.9	1160.6	1166.5	1158.1
177.5°	1166.5	1160.6	1161.5	1167.4	1159.9
180°	1162.4	1162.4	1162.4	1162.4	1162.4

TEST NUMBER: P929070

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US935-RLONL

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	12.57	13.60	13.34	14.39	15.34	8.55	9.58	9.32	10.36	11.31
	3H	14.27	15.19	15.05	15.98	16.96	9.75	10.67	10.53	11.47	12.45
	4H	14.88	15.75	15.68	16.56	17.55	10.21	11.08	11.01	11.88	12.88
	6H	15.32	16.12	16.13	16.93	17.94	10.55	11.34	11.36	12.16	13.16
	8H	15.45	16.21	16.27	17.04	18.05	10.64	11.40	11.46	12.23	13.24
	12H	15.52	16.24	16.35	17.07	18.10	10.69	11.42	11.52	12.24	13.28
4H	2H	12.62	13.48	13.42	14.29	15.28	9.17	10.03	9.97	10.84	11.83
	3H	14.46	15.18	15.28	16.02	17.03	10.54	11.26	11.35	12.09	13.10
	4H	15.16	15.82	15.99	16.66	17.69	11.09	11.75	11.92	12.58	13.62
	6H	15.69	16.26	16.54	17.12	18.16	11.53	12.09	12.37	12.95	13.99
	8H	15.87	16.40	16.72	17.25	18.31	11.66	12.19	12.51	13.04	14.10
	12H	15.98	16.45	16.84	17.33	18.39	11.73	12.21	12.60	13.08	14.14
8H	4H	15.15	15.67	16.00	16.53	17.59	11.39	11.92	12.24	12.77	13.83
	6H	15.72	16.16	16.60	17.06	18.11	11.92	12.35	12.79	13.25	14.31
	8H	15.94	16.33	16.83	17.22	18.29	12.11	12.50	13.00	13.39	14.46
	12H	16.09	16.43	16.98	17.31	18.44	12.24	12.58	13.13	13.46	14.59
12H	4H	15.11	15.58	15.98	16.46	17.52	11.40	11.88	12.27	12.75	13.81
	6H	15.70	16.08	16.59	16.98	18.05	11.97	12.35	12.85	13.25	14.32
	8H	15.93	16.27	16.82	17.15	18.28	12.19	12.53	13.08	13.41	14.54