

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: P929038

Luminaire Tested: DFN2DIP-HX4F0-100D050US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929038
REPORT IS A COMBINATION OF REPORTS P900850 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

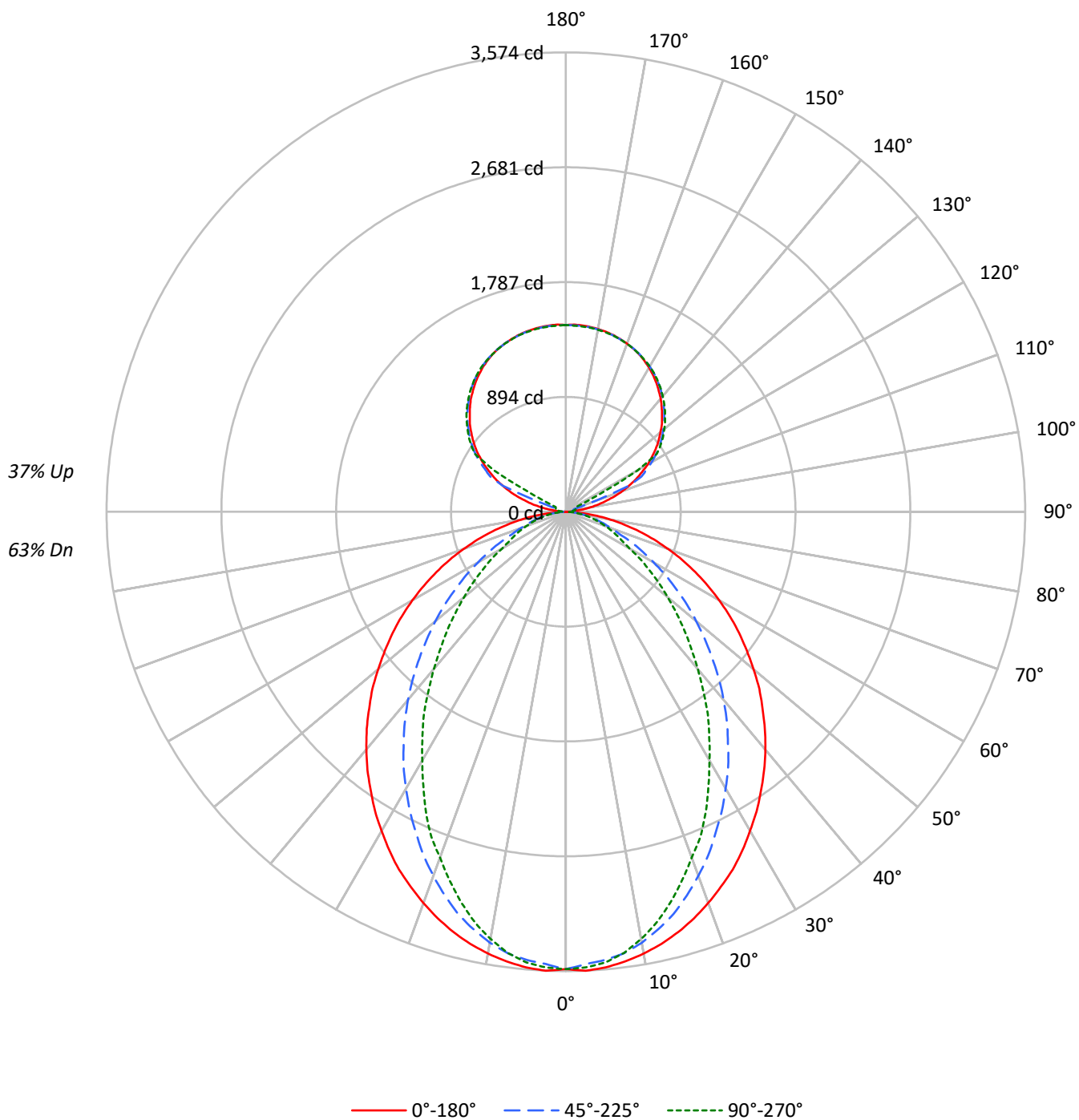
Lumens per Lamp: N/A
Luminaire Lumens: 11580.5 lumens
Efficiency: N/A
Efficacy: 84.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 137
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: P929038

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US935-RLLONL

Luminous Intensity Polar Plot



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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	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	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	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	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	27	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°	2646	2646	2646
5°	2650	2604	2621
10°	2624	2553	2536
15°	2588	2469	2404
20°	2541	2353	2242
25°	2492	2223	2086
30°	2427	2090	1888
35°	2362	1946	1714
40°	2297	1797	1515
45°	2221	1632	1334
50°	2143	1466	1157
55°	2061	1288	987
60°	1966	1102	813
65°	1857	913	732
70°	1725	736	663
75°	1560	650	603
80°	1320	546	523
85°	923	366	394

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2221 cd/sqm

TEST NUMBER: P929038

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	2.9
10°-20°	915.5	7.9
20°-30°	1285.4	11.1
30°-40°	1401.2	12.1
40°-50°	1287.8	11.1
50°-60°	1011.4	8.7
60°-70°	658.3	5.7
70°-80°	338.9	2.9
80°-90°	89.1	0.8
90°-100°	47.9	0.4
100°-110°	178.6	1.5
110°-120°	473.7	4.1
120°-130°	785.6	6.8
130°-140°	834.5	7.2
140°-150°	775.6	6.7
150°-160°	623.5	5.4
160°-170°	401.8	3.5
170°-180°	138.3	1.2
0°-30°	2534.4	21.9
0°-40°	3935.6	34.0
0°-60°	6234.8	53.8
0°-90°	7321.1	63.2
90°-120°	700.2	6.0
90°-150°	3095.8	26.7
90°-180°	4259.0	36.8
0°-180°	11580.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3179	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	1	13	21	26	28	11
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	623
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	

TEST NUMBER: P929038

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3523.0	3555.4	3549.0
5°	3558.5	3542.4	3500.4	3529.5	3519.9
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.6	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2483.0	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.8	1188.4	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0

TEST NUMBER: P929038

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.3	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.8	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.7	1074.5	1083.8	1094.5	1092.4
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.5	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.4	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1373.0	1364.6	1374.1	1381.5	1373.0
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.1	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.7	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.8
180°	1452.9	1452.9	1452.9	1452.9	1452.9

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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	11.68	12.63	12.52	13.49	14.56	7.65	8.60	8.50	9.46	10.54
	3H	13.37	14.22	14.22	15.09	16.19	8.85	9.70	9.71	10.57	11.67
	4H	13.98	14.79	14.85	15.66	16.77	9.31	10.11	10.18	10.99	12.10
	6H	14.41	15.15	15.30	16.03	17.16	9.64	10.38	10.52	11.26	12.38
	8H	14.54	15.25	15.43	16.14	17.27	9.73	10.44	10.63	11.34	12.46
	12H	14.61	15.28	15.50	16.17	17.32	9.78	10.45	10.68	11.35	12.49
4H	2H	11.71	12.52	12.59	13.39	14.50	8.26	9.07	9.14	9.94	11.05
	3H	13.56	14.22	14.44	15.13	16.25	9.63	10.29	10.51	11.20	12.33
	4H	14.25	14.86	15.15	15.76	16.91	10.18	10.79	11.08	11.69	12.84
	6H	14.78	15.30	15.69	16.23	17.38	10.61	11.13	11.52	12.06	13.21
	8H	14.95	15.44	15.87	16.36	17.53	10.74	11.23	11.66	12.15	13.32
	12H	15.06	15.49	15.99	16.43	17.61	10.81	11.25	11.75	12.19	13.36
8H	4H	14.23	14.72	15.15	15.64	16.81	10.47	10.96	11.39	11.88	13.05
	6H	14.80	15.20	15.74	16.17	17.33	11.00	11.40	11.94	12.36	13.53
	8H	15.02	15.38	15.97	16.33	17.51	11.19	11.55	12.14	12.50	13.68
	12H	15.16	15.48	16.12	16.43	17.66	11.32	11.63	12.27	12.58	13.81
12H	4H	14.19	14.63	15.12	15.57	16.74	10.48	10.92	11.42	11.86	13.03
	6H	14.78	15.13	15.73	16.09	17.27	11.05	11.40	12.00	12.36	13.54
	8H	15.00	15.32	15.96	16.27	17.50	11.26	11.58	12.22	12.53	13.76

END OF REPORT