

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: P919108

Luminaire Tested: DFN2DIP-HX4F0-070D040US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919108
REPORT IS A COMBINATION OF REPORTS P899305 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D040US935-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

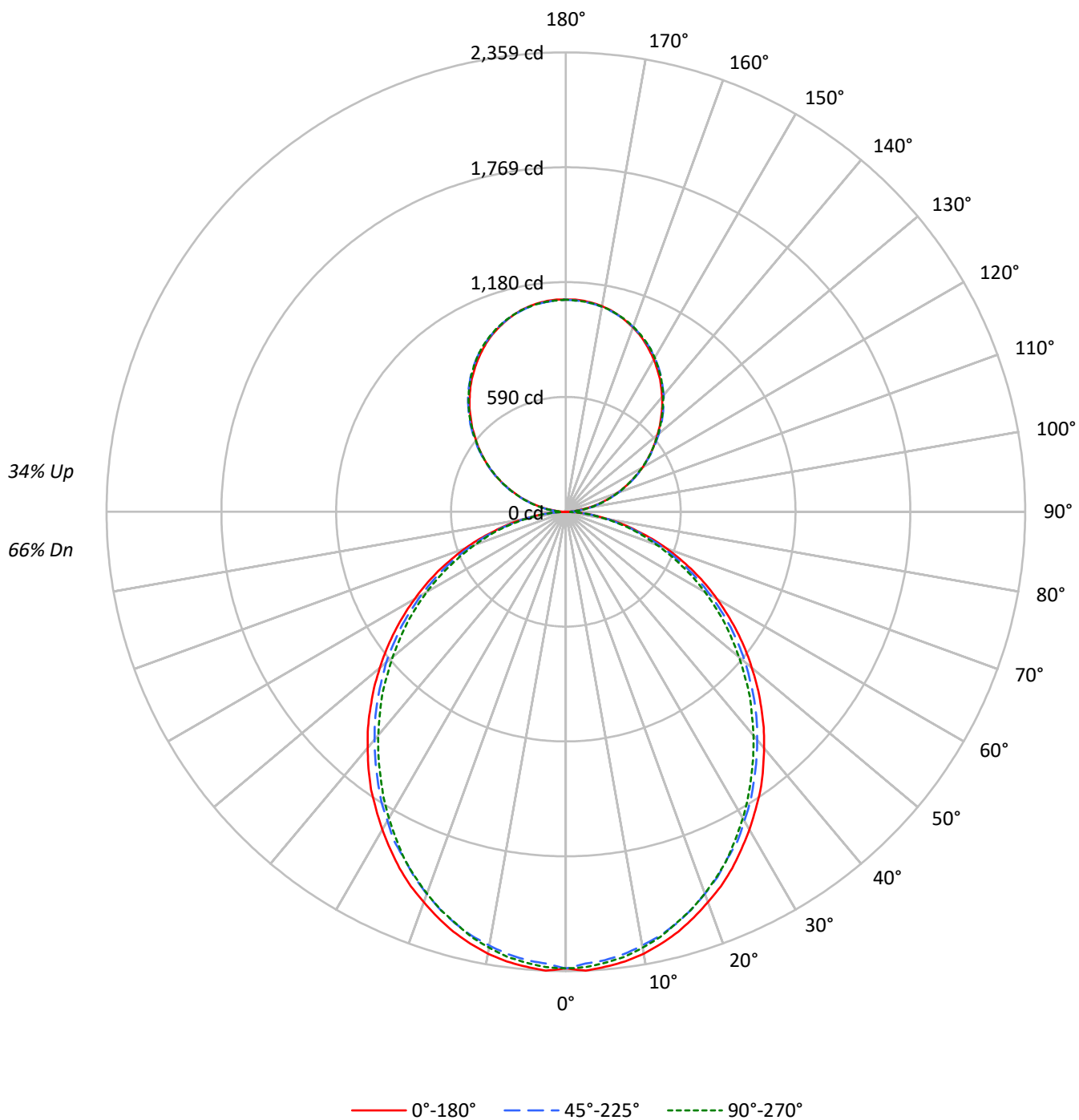
Lumens per Lamp: N/A
Luminaire Lumens: 9014.7 lumens
Efficiency: N/A
Efficacy: 100.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 90
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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CATALOG NUMBER: DFN2DIP-HX4F0-070D040US935-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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	101	97	93	89	95	91	88	85	81	78	76	72	70	68	63	61	60
2	92	85	78	73	87	80	74	70	71	67	63	63	60	57	55	53	51
3	84	75	67	61	79	70	64	58	63	57	53	56	51	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	25
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1744	1744	1744
5°	1747	1720	1731
10°	1733	1697	1708
15°	1707	1669	1671
20°	1673	1630	1634
25°	1639	1584	1591
30°	1596	1541	1536
35°	1556	1490	1477
40°	1506	1439	1422
45°	1456	1388	1365
50°	1402	1334	1300
55°	1345	1271	1239
60°	1280	1197	1170
65°	1210	1121	1089
70°	1121	1027	1001
75°	997	915	920
80°	848	773	765
85°	616	527	510

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1456 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.7	2.4
10°-20°	621.0	6.9
20°-30°	912.7	10.1
30°-40°	1060.0	11.8
40°-50°	1058.7	11.7
50°-60°	923.2	10.2
60°-70°	682.4	7.6
70°-80°	386.1	4.3
80°-90°	105.0	1.2
90°-100°	67.4	0.7
100°-110°	214.2	2.4
110°-120°	366.5	4.1
120°-130°	482.0	5.3
130°-140°	541.0	6.0
140°-150°	530.5	5.9
150°-160°	445.0	4.9
160°-170°	295.1	3.3
170°-180°	103.2	1.1
0°-30°	1754.4	19.5
0°-40°	2814.4	31.2
0°-60°	4796.3	53.2
0°-90°	5969.8	66.2
90°-120°	648.0	7.2
90°-150°	2201.5	24.4
90°-180°	3045.0	33.8
0°-180°	9014.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	1	12	32	30	31	9
95°	48	57	59	59	57	53
105°	198	200	202	204	204	209
115°	368	373	371	370	368	364
125°	535	543	540	538	537	478
135°	692	702	704	703	700	535
145°	840	846	852	853	849	525
155°	960	963	966	971	968	442
165°	1045	1044	1044	1050	1046	295
175°	1087	1085	1083	1089	1084	103
180°	1089	1089	1089	1089	1089	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.0	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.2	2153.5	2142.2
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1564.9	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.5	857.0	832.2	825.4
62.5°	811.7	796.0	773.5	751.0	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	0.9	11.8	32.2	30.2	31.2
92.5°	20.3	27.6	28.6	29.5	29.5
95°	48.0	57.2	58.8	58.8	57.2
97.5°	79.8	88.3	92.0	92.0	92.0
100°	116.6	124.2	126.7	126.7	125.8
102.5°	155.3	160.9	164.5	165.5	164.5
105°	197.7	200.3	202.2	203.9	203.9
107.5°	239.7	243.7	243.7	244.3	239.7
110°	280.4	285.7	285.7	285.7	283.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	324.4	330.0	329.0	326.4	324.4
115°	367.7	373.1	371.3	370.4	367.7
117.5°	410.8	418.0	413.5	410.8	408.2
120°	454.2	461.3	454.2	454.2	451.2
122.5°	493.5	502.7	498.2	495.5	493.5
125°	534.9	543.1	540.5	537.5	536.6
127.5°	575.3	585.5	581.9	577.9	575.3
130°	613.0	624.9	623.3	621.3	617.7
132.5°	655.4	664.6	665.3	660.6	658.1
135°	691.9	702.1	704.0	703.0	700.4
137.5°	732.6	740.8	742.4	741.7	737.9
140°	768.4	776.6	781.2	781.2	777.6
142.5°	805.2	813.4	816.0	817.0	813.4
145°	840.0	846.5	851.8	852.8	849.2
147.5°	871.2	879.3	883.3	884.9	881.3
150°	903.4	909.0	912.6	915.5	912.6
152.5°	931.9	937.5	942.1	945.7	942.1
155°	960.4	963.1	966.0	970.7	967.7
157.5°	985.2	987.0	988.7	995.3	990.7
160°	1007.1	1009.1	1010.0	1015.6	1011.7
162.5°	1027.4	1027.4	1028.5	1034.7	1030.1
165°	1044.9	1043.9	1043.9	1050.4	1045.9
167.5°	1060.7	1057.6	1057.6	1064.3	1059.6
170°	1072.5	1069.8	1068.8	1075.4	1069.8
172.5°	1080.6	1078.1	1077.0	1083.7	1078.1
175°	1087.3	1084.6	1082.6	1089.2	1083.7
177.5°	1090.9	1088.2	1086.2	1091.8	1086.2
180°	1089.2	1089.2	1089.2	1089.2	1089.2

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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	10.58	11.61	11.38	12.44	13.46	10.15	11.18	10.95	12.00	13.02
	3H	12.25	13.18	13.07	14.01	15.06	11.78	12.70	12.60	13.54	14.59
	4H	12.85	13.72	13.68	14.57	15.62	12.38	13.25	13.21	14.09	15.15
	6H	13.26	14.06	14.11	14.92	15.99	12.78	13.59	13.63	14.44	15.51
	8H	13.37	14.14	14.22	15.01	16.08	12.89	13.66	13.75	14.53	15.60
	12H	13.42	14.15	14.28	15.02	16.12	12.94	13.67	13.80	14.54	15.64
4H	2H	11.06	11.94	11.90	12.78	13.84	10.72	11.59	11.56	12.43	13.49
	3H	12.94	13.67	13.79	14.55	15.62	12.55	13.28	13.40	14.16	15.23
	4H	13.67	14.33	14.53	15.21	16.31	13.26	13.92	14.12	14.80	15.90
	6H	14.19	14.77	15.07	15.67	16.77	13.78	14.36	14.66	15.26	16.36
	8H	14.35	14.88	15.23	15.78	16.89	13.93	14.47	14.82	15.36	16.48
	12H	14.43	14.91	15.33	15.82	16.95	14.01	14.49	14.91	15.40	16.53
8H	4H	13.88	14.41	14.76	15.31	16.42	13.52	14.05	14.40	14.95	16.06
	6H	14.52	14.96	15.43	15.90	17.01	14.15	14.60	15.06	15.53	16.65
	8H	14.74	15.13	15.66	16.06	17.20	14.37	14.77	15.29	15.69	16.83
	12H	14.88	15.23	15.80	16.15	17.33	14.50	14.84	15.42	15.76	16.95
12H	4H	13.87	14.35	14.77	15.27	16.39	13.52	14.00	14.42	14.92	16.04
	6H	14.55	14.94	15.47	15.87	17.01	14.20	14.59	15.12	15.52	16.65
	8H	14.80	15.15	15.72	16.07	17.25	14.44	14.79	15.36	15.71	16.90