

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: P919052

Luminaire Tested: DFN2DIP-HX3F0-090D090US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919052
REPORT IS A COMBINATION OF REPORTS P899297 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D090US935-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

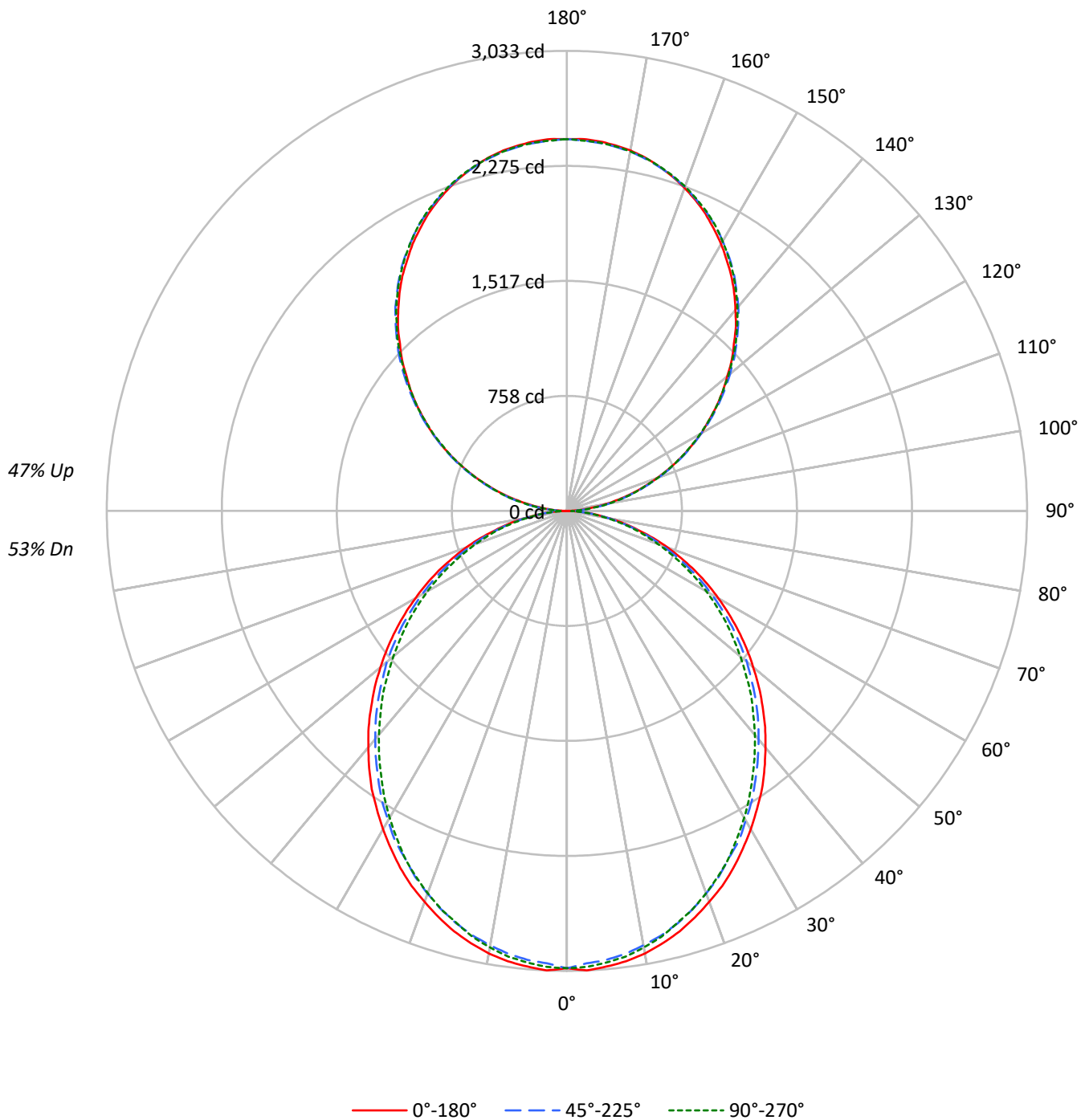
Lumens per Lamp: N/A
Luminaire Lumens: 14529.3 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 163.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919052

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US935-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P919052

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US935-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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3493	3493	3493
5°	3497	3442	3465
10°	3467	3393	3416
15°	3414	3334	3341
20°	3344	3254	3264
25°	3274	3159	3176
30°	3186	3070	3063
35°	3103	2966	2945
40°	3001	2861	2832
45°	2899	2755	2716
50°	2788	2643	2582
55°	2671	2515	2459
60°	2539	2362	2317
65°	2394	2204	2150
70°	2211	2011	1970
75°	1957	1780	1801
80°	1650	1484	1483
85°	1170	982	962

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2899 cd/sqm

TEST NUMBER: P919052

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US935-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	283.8	2.0
10°-20°	798.5	5.5
20°-30°	1173.4	8.1
30°-40°	1362.9	9.4
40°-50°	1361.2	9.4
50°-60°	1186.9	8.2
60°-70°	877.4	6.0
70°-80°	496.4	3.4
80°-90°	138.0	0.9
90°-100°	151.6	1.0
100°-110°	481.8	3.3
110°-120°	824.6	5.7
120°-130°	1084.4	7.5
130°-140°	1217.2	8.4
140°-150°	1193.6	8.2
150°-160°	1001.3	6.9
160°-170°	664.0	4.6
170°-180°	232.1	1.6
0°-30°	2255.7	15.5
0°-40°	3618.6	24.9
0°-60°	6166.7	42.4
0°-90°	7678.5	52.8
90°-120°	1458.0	10.0
90°-150°	4953.4	34.1
90°-180°	6851.0	47.2
0°-180°	14529.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3015	3015	3015	3015	3015	
5°	3015	3004	2972	2995	2989	286
15°	2870	2853	2815	2827	2812	808
25°	2598	2575	2526	2531	2526	1195
35°	2241	2212	2166	2148	2134	1400
45°	1824	1804	1760	1728	1716	1408
55°	1380	1363	1328	1293	1279	1234
65°	931	913	884	858	844	920
75°	487	481	467	449	455	520
85°	119	116	113	104	102	132
90°	2	27	72	68	70	14
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	

TEST NUMBER: P919052

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US935-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3015.1	3015.1	3015.1	3015.1	3015.1
2.5°	3032.7	3018.2	2986.3	3015.1	3009.6
5°	3015.1	3003.8	2971.8	2994.9	2989.3
7.5°	2994.9	2977.7	2945.6	2969.1	2963.2
10°	2963.2	2942.9	2908.1	2931.2	2922.6
12.5°	2919.5	2902.3	2867.6	2881.9	2876.2
15°	2870.3	2853.1	2815.2	2826.9	2812.4
17.5°	2809.3	2792.1	2754.3	2768.8	2754.3
20°	2742.6	2725.4	2684.8	2693.4	2682.0
22.5°	2676.2	2650.1	2612.2	2612.2	2606.3
25°	2597.7	2574.6	2525.5	2531.0	2525.5
27.5°	2510.7	2490.4	2452.9	2444.3	2429.8
30°	2424.0	2400.5	2357.2	2348.5	2336.9
32.5°	2331.1	2313.8	2267.4	2249.9	2238.2
35°	2241.3	2212.3	2165.8	2148.4	2133.9
37.5°	2139.8	2113.6	2067.1	2046.9	2032.4
40°	2035.4	2012.1	1965.6	1939.7	1928.1
42.5°	1933.9	1910.6	1864.4	1835.2	1818.0
45°	1823.8	1803.5	1759.8	1728.1	1716.5
47.5°	1716.5	1696.2	1649.7	1617.7	1600.5
50°	1603.3	1588.8	1548.2	1507.6	1493.1
52.5°	1493.1	1472.8	1435.3	1403.3	1383.0
55°	1380.3	1362.7	1327.9	1293.2	1278.8
57.5°	1267.0	1252.6	1214.8	1180.0	1168.3
60°	1153.8	1142.5	1101.8	1069.9	1061.3
62.5°	1043.7	1023.4	994.5	965.6	953.9
65°	930.8	913.3	884.3	858.2	843.8
67.5°	814.8	800.1	774.2	754.0	742.3
70°	707.5	695.8	669.7	649.4	638.0
72.5°	597.4	585.7	571.2	551.0	542.3
75°	487.0	481.4	466.7	449.4	455.3
77.5°	388.5	376.9	371.0	362.4	353.8
80°	290.1	287.0	281.1	272.5	266.7
82.5°	197.2	197.2	194.4	182.7	182.7
85°	118.7	116.0	113.2	104.3	101.5
87.5°	52.3	46.4	40.6	32.0	28.9
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9

TEST NUMBER: P919052

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US935-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7

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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	11.83	12.72	12.76	13.67	14.90	11.40	12.29	12.34	13.24	14.47
	3H	13.49	14.28	14.43	15.24	16.50	13.02	13.81	13.96	14.77	16.03
	4H	14.07	14.82	15.03	15.79	17.05	13.60	14.35	14.56	15.32	16.58
	6H	14.47	15.16	15.43	16.13	17.40	14.00	14.69	14.96	15.66	16.93
	8H	14.57	15.23	15.54	16.22	17.49	14.10	14.76	15.07	15.75	17.02
	12H	14.61	15.24	15.60	16.22	17.52	14.14	14.77	15.12	15.75	17.05
4H	2H	12.29	13.05	13.26	14.01	15.27	11.95	12.70	12.91	13.67	14.93
	3H	14.15	14.78	15.13	15.78	17.05	13.76	14.39	14.74	15.39	16.66
	4H	14.86	15.44	15.85	16.42	17.72	14.46	15.04	15.44	16.02	17.32
	6H	15.37	15.87	16.37	16.88	18.18	14.97	15.46	15.96	16.47	17.77
	8H	15.52	15.98	16.51	16.98	18.30	15.11	15.57	16.11	16.58	17.89
	12H	15.59	16.01	16.60	17.03	18.34	15.17	15.59	16.19	16.61	17.93
8H	4H	15.06	15.52	16.05	16.52	17.84	14.70	15.16	15.70	16.17	17.48
	6H	15.68	16.06	16.70	17.11	18.42	15.32	15.71	16.34	16.75	18.06
	8H	15.90	16.23	16.93	17.27	18.60	15.53	15.87	16.56	16.90	18.23
	12H	16.02	16.32	17.06	17.35	18.72	15.65	15.94	16.68	16.97	18.34
12H	4H	15.04	15.46	16.06	16.48	17.80	14.69	15.11	15.71	16.13	17.45
	6H	15.71	16.05	16.74	17.08	18.41	15.36	15.70	16.39	16.73	18.06
	8H	15.95	16.24	16.98	17.27	18.64	15.59	15.89	16.63	16.92	18.29