

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: P924467

Luminaire Tested: DFN2DIP-HX3F0-080D040US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924467
REPORT IS A COMBINATION OF REPORTS P900745 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-080D040US950-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

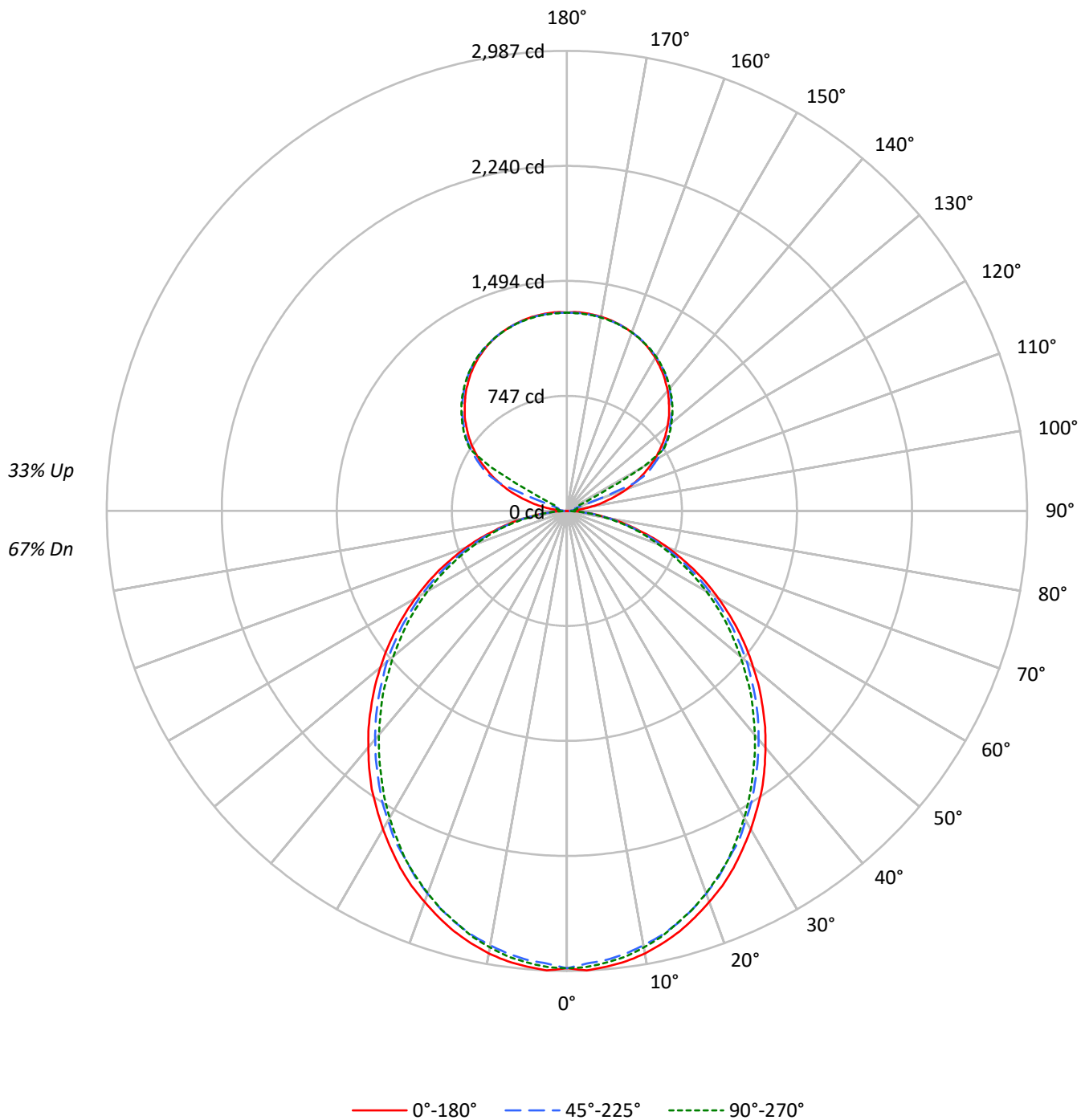
Lumens per Lamp: N/A
Luminaire Lumens: 11333.5 lumens
Efficiency: N/A
Efficacy: 103.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 109.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924467

CATALOG NUMBER: DFN2DIP-HX3F0-080D040US950-FLLONL

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			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71	71	71	67
1	102	97	93	90	95	92	88	85	81	79	76		72	70	68		63	62	60	56
2	92	85	79	73	87	80	75	70	71	67	63		63	60	57		56	53	51	47
3	84	75	67	61	79	71	64	58	63	58	53		56	52	48		49	46	43	40
4	77	66	58	52	72	63	55	50	56	50	45		50	45	41		44	40	37	34
5	71	59	51	44	67	56	48	43	50	44	39		45	40	36		40	36	33	30
6	66	53	45	39	62	50	43	37	45	39	34		41	35	32		36	32	29	26
7	61	48	40	34	57	46	38	33	41	35	30		37	32	28		33	29	26	23
8	56	44	36	30	53	42	34	29	38	31	27		34	29	25		30	26	23	21
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28	24	21	19
10	49	37	29	24	46	35	28	24	32	26	22		29	24	20		26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3440	3440	3440
5°	3444	3390	3413
10°	3414	3342	3365
15°	3363	3284	3291
20°	3293	3205	3215
25°	3224	3112	3128
30°	3138	3024	3017
35°	3056	2921	2900
40°	2956	2817	2789
45°	2855	2713	2675
50°	2746	2603	2543
55°	2631	2477	2421
60°	2500	2327	2282
65°	2358	2171	2118
70°	2177	1981	1940
75°	1927	1753	1773
80°	1625	1462	1460
85°	1153	968	947

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2855 cd/sqm

TEST NUMBER: P924467

CATALOG NUMBER: DFN2DIP-HX3F0-080D040US950-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	279.5	2.5
10°-20°	786.4	6.9
20°-30°	1155.7	10.2
30°-40°	1342.3	11.8
40°-50°	1340.6	11.8
50°-60°	1169.0	10.3
60°-70°	864.1	7.6
70°-80°	488.9	4.3
80°-90°	131.3	1.2
90°-100°	42.5	0.4
100°-110°	158.3	1.4
110°-120°	419.9	3.7
120°-130°	696.4	6.1
130°-140°	739.7	6.5
140°-150°	687.5	6.1
150°-160°	552.7	4.9
160°-170°	356.1	3.1
170°-180°	122.6	1.1
0°-30°	2221.6	19.6
0°-40°	3563.9	31.4
0°-60°	6073.6	53.6
0°-90°	7557.9	66.7
90°-120°	620.6	5.5
90°-150°	2744.1	24.2
90°-180°	3776.0	33.3
0°-180°	11333.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2970	2970	2970	2970	2970	
5°	2970	2958	2927	2950	2944	282
15°	2827	2810	2773	2784	2770	796
25°	2558	2536	2487	2493	2487	1177
35°	2207	2179	2133	2116	2102	1378
45°	1796	1776	1733	1702	1691	1386
55°	1359	1342	1308	1274	1259	1215
65°	917	900	871	845	831	906
75°	480	474	460	443	448	512
85°	117	114	112	103	100	130
90°	1	11	19	23	25	11
95°	60	30	36	41	40	72
105°	283	311	57	67	71	303
115°	536	552	575	144	76	527
125°	758	770	787	794	797	676
135°	938	952	961	970	968	724
145°	1088	1087	1102	1109	1104	680
155°	1198	1189	1200	1206	1198	552
165°	1262	1256	1259	1266	1259	356
175°	1291	1284	1286	1292	1283	123
180°	1288	1288	1288	1288	1288	

TEST NUMBER: P924467

CATALOG NUMBER: DFN2DIP-HX3F0-080D040US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2969.6	2969.6	2969.6	2969.6	2969.6
2.5°	2986.9	2972.7	2941.2	2969.6	2964.2
5°	2969.6	2958.4	2927.0	2949.7	2944.2
7.5°	2949.7	2932.7	2901.2	2924.2	2918.5
10°	2918.5	2898.4	2864.2	2886.9	2878.5
12.5°	2875.5	2858.5	2824.2	2838.4	2832.7
15°	2827.0	2810.0	2772.7	2784.2	2770.0
17.5°	2767.0	2750.0	2712.7	2727.0	2712.7
20°	2701.3	2684.3	2644.3	2652.8	2641.5
22.5°	2635.8	2610.0	2572.7	2572.7	2567.0
25°	2558.5	2535.8	2487.4	2492.8	2487.4
27.5°	2472.8	2452.8	2415.8	2407.3	2393.1
30°	2387.4	2364.3	2321.7	2313.2	2301.6
32.5°	2295.9	2278.9	2233.1	2215.9	2204.4
35°	2207.4	2178.9	2133.1	2115.9	2101.7
37.5°	2107.4	2081.6	2035.9	2015.9	2001.7
40°	2004.7	1981.6	1936.0	1910.5	1898.9
42.5°	1904.8	1881.7	1836.3	1807.4	1790.6
45°	1796.3	1776.3	1733.2	1702.0	1690.6
47.5°	1690.6	1670.5	1624.8	1593.3	1576.3
50°	1579.1	1564.8	1524.8	1484.8	1470.6
52.5°	1470.6	1450.6	1413.6	1382.2	1362.1
55°	1359.4	1342.1	1307.9	1273.7	1259.4
57.5°	1247.9	1233.7	1196.4	1162.2	1150.6
60°	1136.4	1125.2	1085.2	1053.7	1045.2
62.5°	1027.9	1008.0	979.5	951.0	939.5
65°	916.8	899.5	871.0	845.2	831.0
67.5°	802.5	788.0	762.5	742.6	731.1
70°	696.8	685.3	659.6	639.6	628.3
72.5°	588.3	576.9	562.6	542.6	534.1
75°	479.6	474.1	459.6	442.7	448.4
77.5°	382.6	371.1	365.4	356.9	348.4
80°	285.7	282.7	276.9	268.5	262.6
82.5°	194.2	194.2	191.5	179.9	179.9
85°	117.0	114.2	111.5	102.7	100.0
87.5°	51.5	45.8	40.0	31.5	28.5
90°	0.9	11.2	18.6	23.4	25.1
92.5°	23.4	19.6	22.3	24.2	25.1
95°	60.5	29.8	36.3	41.0	40.1
97.5°	109.0	32.6	47.5	50.4	51.2
100°	164.9	37.3	53.1	60.5	62.4
102.5°	226.4	224.7	55.0	65.2	68.0
105°	283.2	311.3	56.9	67.1	70.8
107.5°	349.5	372.7	58.8	69.0	72.7
110°	412.9	432.4	163.1	69.9	73.6



TEST NUMBER: P924467

CATALOG NUMBER: DFN2DIP-HX3F0-080D040US950-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	472.5	489.2	473.4	71.7	74.6
115°	535.8	551.6	575.0	143.5	76.5
117.5°	590.8	609.4	625.3	492.0	247.8
120°	652.3	666.3	683.1	694.3	568.5
122.5°	704.4	719.4	738.1	743.6	744.6
125°	757.6	769.8	787.4	794.0	796.8
127.5°	806.0	819.1	833.1	842.5	843.3
130°	851.7	866.7	876.8	887.1	886.3
132.5°	898.3	910.5	920.7	929.1	928.2
135°	937.5	952.5	960.8	970.1	968.3
137.5°	978.4	989.6	999.0	1008.3	1005.5
140°	1018.5	1026.0	1036.2	1044.6	1040.0
142.5°	1052.2	1058.7	1070.8	1078.1	1073.5
145°	1087.6	1086.6	1102.3	1108.9	1104.3
147.5°	1118.2	1115.4	1131.3	1135.9	1132.3
150°	1148.0	1141.6	1156.5	1162.1	1157.4
152.5°	1173.2	1165.8	1179.7	1185.3	1178.9
155°	1197.5	1189.2	1200.3	1205.9	1198.4
157.5°	1217.0	1209.6	1218.1	1224.6	1217.0
160°	1233.8	1228.2	1233.8	1239.3	1232.9
162.5°	1248.7	1243.2	1247.8	1254.3	1245.9
165°	1261.8	1256.2	1259.0	1265.5	1259.0
167.5°	1272.1	1266.3	1269.3	1275.8	1267.4
170°	1280.5	1274.8	1276.6	1283.2	1274.8
172.5°	1286.0	1280.5	1282.4	1288.9	1280.5
175°	1290.6	1284.1	1286.0	1292.5	1283.2
177.5°	1292.5	1286.0	1286.9	1293.5	1285.1
180°	1287.9	1287.9	1287.9	1287.9	1287.9

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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	12.93	13.97	13.73	14.79	15.80	12.50	13.54	13.30	14.36	15.37
	3H	14.60	15.53	15.41	16.36	17.40	14.13	15.06	14.94	15.89	16.93
	4H	15.19	16.07	16.02	16.91	17.96	14.72	15.60	15.55	16.44	17.49
	6H	15.59	16.40	16.43	17.25	18.31	15.12	15.93	15.96	16.78	17.84
	8H	15.70	16.47	16.55	17.34	18.40	15.23	16.00	16.08	16.87	17.93
	12H	15.75	16.48	16.61	17.34	18.44	15.27	16.01	16.13	16.87	17.96
4H	2H	13.41	14.29	14.25	15.13	16.18	13.07	13.95	13.90	14.79	15.84
	3H	15.29	16.02	16.13	16.89	17.96	14.90	15.63	15.74	16.50	17.57
	4H	16.00	16.67	16.86	17.54	18.63	15.60	16.27	16.46	17.14	18.23
	6H	16.52	17.10	17.39	17.99	19.09	16.11	16.69	16.99	17.59	18.68
	8H	16.67	17.21	17.55	18.10	19.21	16.26	16.80	17.14	17.69	18.80
	12H	16.75	17.23	17.64	18.14	19.26	16.33	16.82	17.23	17.72	18.84
8H	4H	16.21	16.75	17.09	17.64	18.75	15.85	16.39	16.73	17.28	18.39
	6H	16.84	17.28	17.74	18.21	19.32	16.48	16.93	17.38	17.86	18.97
	8H	17.05	17.45	17.97	18.37	19.50	16.69	17.09	17.61	18.01	19.14
	12H	17.19	17.54	18.11	18.45	19.63	16.81	17.16	17.73	18.07	19.25
12H	4H	16.20	16.69	17.10	17.60	18.71	15.85	16.34	16.75	17.25	18.36
	6H	16.87	17.26	17.78	18.19	19.31	16.52	16.92	17.43	17.84	18.97
	8H	17.11	17.46	18.03	18.38	19.56	16.76	17.11	17.68	18.02	19.20